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Mr. John Kieling, Manager
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Dear Mr. Kieling

Kirtland Air Force Base is pleased to submit the *Fiscal Year 2014 Long-Term Monitoring and Maintenance Activities Report for Solid Waste Management Unit (SWMU) 6-1, Landfill 1(LF-001); SWMU 6-2, Landfill 2(LF-002); and SWMU 6-4, Landfills 4, 5, and 6 (LF-008).*

Please contact Mr. Cole Crosgrove at (505) 853-3098 or at cole.crosgrove@kirtland.af.mil if you have any questions.

Sincerely

TOM D. MILLER, Colonel, USAF
Commander

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KIRTLAND AIR FORCE BASE
ALBUQUERQUE, NEW MEXICO

FISCAL YEAR 2014 LONG-TERM MONITORING AND MAINTENANCE ACTIVITIES REPORT FOR SOLID WASTE MANAGEMENT UNIT (SWMU) 6-1, LANDFILL 1 (LF-001); SWMU 6-2, LANDFILL 2 (LF-002); AND SWMU 6-4, LANDFILLS 4, 5, AND 6 (LF-008)

March 2015

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KIRTLAND AIR FORCE BASE
ALBUQUERQUE, NEW MEXICO

FISCAL YEAR 2014 LONG-TERM MONITORING AND MAINTENANCE ACTIVITIES REPORT FOR SOLID WASTE MANAGEMENT UNIT (SWMU) 6-1, LANDFILL 1 (LF-001); SWMU 6-2, LANDFILL 2 (LF-002); AND SWMU 6-4, LANDFILLS 4, 5, AND 6 (LF-008)

March 2015

Prepared for:

Air Force Civil Engineer Center
Department of the Air Force, 772nd ESS/PKB
3515 S. General McMullen Dr., Suite 155
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Contract FA8903-13-C-0008

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NOTICE

This Long-Term Monitoring Report for fiscal year 2014 groundwater sampling and analysis and maintenance activities conducted at solid waste management unit (SWMU) 6-1, Landfill 1 (LF-001); SWMU 6-2, Landfill 2 (LF-002); and SWMU 6-4, Landfills 4, 5, and 6 (LF-008), was prepared for the Air Force Civil Engineer Center by URS Group, Inc. in association with FPM Remediations, Inc. to aid in the implementation of a final remedial action plan under the Environmental Restoration Program. 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 Environmental Restoration Program, along with the evolving knowledge of site conditions and chemical effects on the environment and health, must be considered when evaluating this report, since subsequent facts may become known which may make this report premature or inaccurate.

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13. SUPPLEMENTARY NOTES

14. ABSTRACT
This Long-Term Monitoring Report for fiscal year 2014 documents the results for the sampling and analysis activities performed at Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001), SWMU 6-2, Landfill 2 (LF-002), and SWMU 6-4, Landfills 4, 5, and 6 (LF-008), Kirtland Air Force Base, New Mexico. Annual groundwater samples were collected from monitoring wells installed at Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001), SWMU 6-2, Landfill 2 (LF-002), and SWMU 6-4, Landfills 4, 5, and 6 (LF-008). The samples were submitted to an approved off-site laboratory for analysis.

15. SUBJECT TERMS
Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001), SWMU 6-2, Landfill 2 (LF-002), and SWMU 6-4, Landfills 4, 5, and 6 (LF-008), groundwater, long-term monitoring, landfill cover, inspection and maintenance

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MARCH 2015

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

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377th Air Base Wing Public Affairs

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NATURAL RESOURCE INJURY

The Natural Resource Injury program is a mechanism designed to restore natural resources injured by hazardous substance releases. The Natural Resource Injury program requires parties responsible for contamination and injuries to pay for losses. The Natural Resource Injury program measures natural resource injuries and determines liability. A Natural Resource Injury program demonstrates the nature of injury and any environmental pathways. It also measures the extent of injury and the necessary restoration measures and costs. In certain cases, restoration may include replacement or acquisition of equivalents for habitats; populations of wildlife; and human services, including hunting, fishing, and recreational activities.

The NRI program is carried out by various federal, state, and tribal trustees for fish, wildlife, other living resources, water, lands, and protected areas. Trusteeship is derived from treaties (federal and tribal), statutes (federal and state), and other regulations. Federal agencies responsible for land management include the U.S. National Park Service; U.S. Fish and Wildlife Service; U.S. Bureau of Land Management; U.S. Department of Agriculture, including the U.S. Forest Service; U.S. Department of Defense; and the U.S. Department of Energy.

The NRI Program has established a restoration fund to be used to restore resources lost or injured by the release of hazardous materials and oil spills. The Natural Resource Injury program has been traditionally associated with the Comprehensive Environmental Response, Compensation, and Liability Act which directed the Department of Interior to prepare rules for Natural Resource Injury at hazardous waste sites and for emergency incidents involving substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act.

The Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act provide tools to clean up contaminants from the environment. These cleanup programs focus on risks to human health and the environment but do not provide efforts for the restoration or compensation for natural resources. The programs are primarily carried out by the United States Environmental Protection Agency working with the states. These programs do not concentrate on restoring natural resources, although cleanup may prevent further injuries to natural resources. With regard to injuries to natural resources, the Comprehensive Environmental Response, Compensation, and Liability Act states the following: (1) responsible parties are liable for compensatory damages for injuries to natural resources owned, managed, or controlled by government agencies or Indian tribes; (2) government agencies and Indian tribes may assess and collect the damages, acting on behalf of the public as trustees for the injured natural resources; and (3) recovered damages must be used to restore, rehabilitate, replace, or acquire the equivalent of the injured natural resources. Therefore, the Natural Resource Injury program was established to ensure restoration and compensation where needed and appropriate.

Conclusions and Recommendations:

This Long-Term Monitoring Report documents sampling and analysis data that are of adequate quality to evaluate whether constituents exist in the groundwater that pose an unacceptable risk to human health or the environment. The vegetation and wildlife found near the site are widely dispersed over Kirtland Air Force Base, so there would be no impact to biodiversity. Restricted access protocols and limited planned development at Kirtland Air Force Base have been strategically designed to limit environmental impacts.

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ENVIRONMENTAL JUSTICE CONSIDERATION

Presidential Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 Federal Register 7629), 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 was considered. Demographic and economic census information presented in Environmental Justice Guidance under the National Environmental Policy Act was used as a primary reference (Council on Environmental Quality, 1997).

Minority populations living within a 50-mile radius of Kirtland Air Force Base, which exceed 21.6 percent (%) of the general population according to U.S. Census Bureau (USCB) block census data, were evaluated with regard to health and environmental effects from activities at Kirtland Air Force Base. Similarly, low-income block groups (clusters of blocks) that exceeded New Mexico's state poverty percentage (15.7 %) were analyzed for effects from the corrective measure activities at Kirtland Air Force Base (USCB, 2010a).

Minority populations are considered to be all people of color except white people who are not Hispanic. In 2010, 31.6 % of New Mexico's population was minority. Neighborhoods with a minority population exceeding 31.6 % were identified on a block-by-block basis, using block census data (USCB, 2010b).

The USCB 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 2010 census threshold for two adults and two children (family of four) was based on a household income of $22,113 (USCB, 2010c). In 2010, 25 % of New Mexico's population was listed in poverty or designated as having low income (USCB, 2010a). In this analysis, low income block groups were identified where the low-income population percentage in the block group exceeds the poverty percentage for the State of New Mexico.

According to 2010 census data, approximately 248,069 minority individuals from an approximate total population of 831,681 reside in the 50-mile radius of impact. This represents 30 % of the total radius of impact population (USCB, 2010d). Approximately 106,345 persons were identified as being low income or living in poverty, which represents approximately 12.7 % of the radius of impact population (USCB, 2010e).

Block group populations within the radius of impact that contained a poverty percentage that was less than the state poverty average of 15.7 % were not considered low income areas for this analysis. It was determined that these block groups did not contain a large number of low-income neighborhoods because the poverty percentage of these block groups was below the state poverty average of 15.7 % (USCB, 2010a).

The distribution of low-income population has strong correlation to minority populations of Blacks, Native Americans, and Hispanics. For example, portions of the Pueblo of Isleta, south of Kirtland Air Force Base, have high percentages of Native Americans who are low-income individuals. To the southeast of Kirtland Air Force Base, the rural area of Estancia is also low income and contains large Black and Native American populations. To the north of Kirtland Air Force Base, high concentrations of low-income populations are located in the Pueblos of San Felipe, Santo Domingo, and Jemez, as well as in the rural area of Cochiti. These rural areas to the north contain large Hispanic and Native American populations. The Laguna Pueblo, located to the west of Kirtland Air Force Base, has a large low-income Native American population. High concentrations of low-income Hispanic populations reside immediately west of Kirtland Air Force Base in the South Valley neighborhood of Albuquerque.

The environmental and human health effects considered for this investigation include potential impacts to both soil and groundwater from contamination, restricted access by Native Americans to traditional cultural sites, biological resources, air quality, and noise. Based on the findings of this report, there are no identified negative impacts from the area of concern 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 or low-income populations. Any impacts due to restrictions of access to cultural sites would be removed by coordination between Kirtland Air Force Base and the local tribes to develop processes to allow access during periods in which safety standards and practices would be maintained.

PREFACE

This Long-Term Monitoring Report documents the sampling, analysis, inspection and maintenance activities conducted in support of the fiscal year 2014 groundwater monitoring conducted at the solid waste management unit (SWMU) 6-1, Landfill 1 (LF-001); SWMU 6-2, Landfill 2 (LF-002); and SWMU 6-4, Landfills 4, 5, and 6 (LF-008), sites at Kirtland Air Force Base, Albuquerque, New Mexico. Activities to be conducted include groundwater monitoring to assess contaminant impacts on groundwater underlying the landfill sites, periodic inspection of the evapotranspiration covers, and repairs to the landfill covers to maintain their integrity.

This work is being performed under the authority of the Air Force Civil Engineer Center – Contract No. FA8903-13-C-0008. The work under this contract will be performed between 20 September 2013 and 20 September 2023. Brian Renaghan, Air Force Civil Engineer Center/Environmental Restoration Division, has been appointed as the Primary Contracting Officer's Representative for this contract. This program is conducted under the Kirtland Environmental Restoration Branch Chief, Ludie (Wayne) Bitner. Cole G. Crosgrove is the Kirtland Air Force Base Environmental Restoration Branch Project Manager. URS Group, Inc., as a subcontractor to FPM Remediations, Inc., has prepared this report as defined in the Performance Based Remediation Contract for Cannon, Holloman, and Kirtland Air Force Bases located in New Mexico, and Luke Air Force Base located in Arizona. Mr. Richard Wells is the URS Group, Inc. Installation Manager for the Environmental Restoration Project Sites at Kirtland Air Force Base.

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ACRONYMS AND ABBREVIATIONS

%	percent
µg/L	micrograms per liter
AFB	Air Force Base
amsl	above mean sea level
bgs	below ground surface
CFR	Code of Federal Regulations
CMI	Corrective Measures Implementation
DoD	U.S. Department of Defense
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
ET	Evapotranspiration
ft	feet
ft/day	feet per day
ft/ft	foot per foot
FPM	FPM Remediations, Inc.
FY	fiscal year
HWB	Hazardous Waste Bureau
lf	linear feet
LOD	limit of detection
LOQ	limit of quantitation
LTM	long-term monitoring
MAP	Management Action Plan
MCL	maximum contaminant level
mg/L	milligrams per liter
mR/yr	milli-Roentgen-equivalent-man per year
ND	non-detect
NE	none established
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NSDWR	National Secondary Drinking Water Regulation
O&M	Operations and Maintenance
pH	indicates the hydrogen ion concentration – acidity or basicity
pCi/L	picocurie per liter
QC	Quality Control
RPD	relative percent difference
RSL	Regional Screening Level
SM	standard method
SNL	Sandia National Laboratory
SOP	standard operating procedure
SWMU	Solid Waste Management Unit
TDS	total dissolved solids
URS	URS Group, Inc.
USAF	U.S. Air Force
USCB	U.S. Census Bureau
USF	Santa Fe Group
VOC	volatile organic compound
yd^3	cubic yards

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EXECUTIVE SUMMARY

This annual report summarizes the activities performed in support of long-term monitoring (LTM), inspection, and maintenance conducted at Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001), SWMU 6-2, Landfill 2 (LF-002), and SWMU 6-4, Landfills 4, 5, and 6 (LF-008) at the Kirtland Air Force Base, New Mexico. The objective of the LTM program is to monitor groundwater conditions at those sites that have potentially been impacted by past site activities. This report presents the results of the monitoring conducted by the transition contractor and URS Group during fiscal year 2014 at the landfill sites and provides conclusions and recommendations for future monitoring activities.

The Kirtland Air Force Base Long-Term Monitoring Program is conducted under the regulatory authority of the New Mexico Environment Department and the U.S. Environmental Protection Agency, Region 6. This report presents the voluntary LTM and maintenance activities that have been performed at the landfill sites during the reporting period.

The LTM activities conducted during fiscal year 2014 included the collection of quarterly groundwater level measurements at the landfill site monitoring wells and annual collection of groundwater samples from these wells where sufficient water was available to provide a viable, representative sample. Landfill cover inspections were performed monthly and after rainfall events. URS Group began performing landfill cover inspections in June of 2014 and performed well gauging at the landfill sites in July of 2014. Previous quarterly gauging activities and annual groundwater monitoring was performed by the transition contractor for the project. The groundwater samples were submitted to an approved off-site laboratory for analyses of required parameters. Inspections of the landfill covers occur monthly and maintenance needs are documented and addressed, as appropriate. A LTM Report for fiscal year 2014 summarizing the transition contractor's activities was prepared separately by the contractor.

Groundwater Well Gauging Activity

In accordance with the LTM plan, groundwater elevation measurements were collected by the other contractors in November 2013, March 2014, and June 2014. URS performed well gauging in July 2014 and will continue performing this monitoring on a quarterly basis. Results from groundwater elevation monitoring in fiscal year 2014 indicate a groundwater depth in the LF-001 monitoring wells ranging from 4,859.68 feet above mean sea level (amsl) to 4,862.78 feet amsl. Groundwater depths in the LF-002 monitoring wells were measured with a range of 4,860.56 to 4,923.03 feet amsl. The LF-008 monitoring wells were gauged at depths ranging from 4,929.48 to 5,071.92 feet amsl.

Groundwater flows in a northeasterly direction across LF-001 and across the perched aquifer at LF-008. The primary direction of groundwater flow near LF-002 is north with some seasonal variation to the northeast and northwest. The groundwater flow in the regional aquifer near LF-008 appears to flow toward the northwest.

Annual Groundwater Monitoring Results

LF-001

Groundwater samples were collected March 31, 2014 from monitoring wells KAFB-0118, KAFB-0119, KAFB-0120, and KAFB-0121 at LF-001. The samples underwent analyses for volatile organic compounds (VOCs), nitrate-nitrite as nitrogen, dissolved metals, anions, total dissolved solids, gross alpha and beta, and radium-226 and -228

Metal concentrations were detected above the laboratory limit of detection for arsenic and barium in each of the monitored wells and for selenium in one monitored well. Concentrations of these metals were all below the applicable New Mexico Water Quality Control Commission (NMWQCC) regulatory limits or the Safe Drinking Water Act Federal Maximum Contaminant Levels (MCLs). The anions on the constituent list, including fluoride, chloride, sulfate, and nitrate, along with total dissolved solids are below applicable concentrations of regulatory concern. Results for radionuclide concentrations were below applicable regulatory levels. Toluene is the only VOC detected in groundwater samples collected in 2014 from LF-001 monitoring wells. Toluene was detected in one sample at a concentration well below the applicable standard.

It is recommended that the four monitoring wells at LF-001 listed in Table 4-1 continue to be monitored for the analytes listed in Table 4-2 on an annual basis to provide additional data for trend analysis.

LF-002

Groundwater samples were collected between April 2 and April 7, 2014 from monitoring wells KAFB-0213, KAFB-0219, KAFB-0220, KAFB-0221, KAFB-0222, and KAFB-0223 at LF-002. The samples underwent analyses for VOCs, nitrate-nitrite as nitrogen, dissolved metals, anions, total dissolved solids, gross alpha and beta, and radium-226 and -228.

For the wells at LF-002, none of the monitored constituents appear to be adversely impacting the groundwater, nor are any trends apparent that indicate increasing concentrations that may impact the aquifer in the future.

Metal concentrations in some of the LF-002 samples were detected above the laboratory limit of detection for arsenic, barium, chromium, iron, and selenium. Concentrations of these metals were all below the applicable NMWQCC regulatory limits or the Safe Drinking Water Act Federal MCLs. The anions on the constituent list, including fluoride, chloride, sulfate, and nitrate, along with total dissolved solids are below applicable concentrations of regulatory concern in LF-002 samples. Results for radionuclide concentrations were below applicable regulatory levels. Toluene is the only VOC detected in groundwater samples collected in 2014 from LF-002 monitoring wells. Toluene was detected in two samples concentrations well below the applicable standard.

It is recommended that the six monitoring wells at LF-002 listed in Table 4-1 continue to be monitored for the analytes listed in Table 4-2 on an annual basis to provide additional data for trend analysis.

LF-008

Groundwater samples were collected between April 16 and April 28, 2014 from monitoring wells KAFB-0307, KAFB-00310, KAFB-0311, KAFB-0312, KAFB-0313, KAFB-0314, KAFB-315, and TJA-2 at LF-008. The samples underwent analyses for VOCs, nitrate-nitrite as nitrogen, total and dissolved metals, anions, total dissolved solids, gross alpha and beta, and radium-226 and -228. Due to a clerical error, the sample from TJA-2 was only analyzed for anions and total dissolved solids. Monitoring wells KAFB-0308 and KAFB-0309 were not sampled by the transition contractor in 2014 due to access issues.

For the wells at LF-008, four samples were reported at concentrations above the applicable NMWQCC regulatory limits or the Safe Drinking Water Act Federal MCLs. These exceedances included a total dissolved solids result for well KAFB-0314, nitrate results at KAFB-0312 and TJA-2, and a total chromium result at well KAFB-0310. The concentrations for total dissolved solids and total chromium from the fiscal year 2014 sampling event are inconsistent with sampling results from previous years. It is

probable that the elevated total dissolved solids concentration resulted from sediment collected in the sample. The total chromium result of 0.218 milligrams per liter (mg/L) in well KAFB-0310 may also be due to sediment entrained in the groundwater sample. This assertion is supported by the dissolved chromium concentration in the same sample of 0.00101 mg/L. The nitrate results at KAFB-0312 have consistently exceeded the maximum contaminant level of 10 mg/L since the groundwater monitoring program began at LF-008. Nitrate concentrations at other LF-008 monitoring wells, including TJA-2, have been reported as higher than the regulatory standard during several sampling events. The nitrate impacts are being investigated as part of a nitrate abatement program under Site ST-105, *Trichloroethene and Nitrate Contaminated Groundwater*, which addresses a larger on-going concern with nitrate impacts in groundwater associated with the Kirtland Air Force Base.

Concentrations of each of the metals included in the constituent list were all below the applicable NMWQCC regulatory limits or the Safe Drinking Water Act Federal MCLs, with the exception of the total chromium concentration in monitoring well KAFB-0310. The concentration of total chromium in this sample was reported as 0.218 mg/L which is higher than the applicable NMAC limit of 0.05 mg/L. The anions on the constituent list, including fluoride, chloride, sulfate, and nitrate, along with total dissolved solids are below applicable concentrations of regulatory concern in LF-002 samples. Results for radionuclide concentrations were below applicable regulatory levels. Toluene was reported in well KAFB-0307,cis-1,2-dichloroethene was detected in well KAFB-0210, tetrachloroethene was detected in well KAFB 0314, and trichloroethene was detected in wells KAFB-0310, KAFB-0313, KAFB-0314, and KAFB-0315. Each of these VOCs were reported at concentrations well below the applicable standard.

It is recommended that the ten monitoring wells at LF-008 listed in Table 4-1 continue to be monitored for the analytes listed in Table 4-2 on an annual basis to provide additional data for trend analysis.

Inspection and Maintenance Activities

An initial inspection and assessment of the evapotranspiration (ET) covers was conducted by URS personnel in July 2014. Inspectors concluded that the high variability of the materials underlying the landfills lend themselves to producing unpredictable subgrade conditions for the ET cover. These variations in subgrade conditions are eventually expressed at the surface in multiple ways. The two primary expressions observed during this inspection and recent inspections performed by other consultants include the formation of fissures and depressions. Both of these features significantly reduce the ability of the ET cover to isolate the landfill materials from the infiltration of precipitation. Fissures are linear features where the surface has separated, primarily caused by differential settlement or consolidation along a boundary. These features allow stormwater to accumulate within the aperture, and form a direct pathway to the interior of the landfill. A less-severe drainage condition develops when localized consolidation causes a depression to form, which in turn allows stormwater to pond on the top surface of the ET cover. Depressions are generally identified by the presence of areas with a high density of vegetation that is distinctly different from the surrounding vegetation and a cracked surface indicating that fine-grained clay/silt particles have deposited under a low-energy regime. Fissures may generally be addressed by placing fill soils along the visible extent of the fissure. Depressions of small size and watershed area may be addressed by excavating small channels to allow positive drainage. Based upon the July inspection and review of historical information, a *Draft Operations and Maintenance Work Plan* was prepared by URS in August of 2014. The plan proposes strategies to improve, replace, and repair stormwater controls to address the primary causes of recently observed erosion features, to reduce the rate of erosional progression, and provide a starting point for overall improvement to allow the ET cover to function as designed.

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1.0 INTRODUCTION

Under the Air Force Civil Engineer Center Contract No. FA8903-13-C-0008, URS Group, Inc. (URS), as a subcontractor to FPM Remediations, Inc. (FPM) has prepared this Long-Term Monitoring (LTM) Report in accordance with the Performance-Based Remediation Contract for Cannon, Holloman, and Kirtland Air Force Bases (AFBs) located in New Mexico, and Luke AFB located in Arizona. This report documents the groundwater sampling and analysis results and maintenance activities obtained in support of the fiscal year (FY) 2014 groundwater monitoring conducted at SWMU 6-1, Landfill 1 (LF-001); SWMU 6-2, Landfill 2 (LF-002); and SWMU 6-4, Landfills 4, 5, and 6 (LF-008) located at Kirtland AFB, Albuquerque, New Mexico as shown in Figure 1-1.

1.1 BACKGROUND

Three private airfields predate the Kirtland AFB, formerly named Albuquerque Army Air Base, with military operations becoming the primary focus in 1941. The base was renamed in 1942 honoring Col. Roy C. Kirtland, a pioneer in Army aviation. Flight crews were trained in the early 1940s at Kirtland's three schools—advanced flying, bombardier training, and multi-engine school. Later that decade, the focus of base operations shifted to developing aircraft modifications for weapons delivery, researching ballistic characteristics, and testing weapons. Manzano Base was named in 1952 and was located on the former Site Able, created under the Armed Forces Special Weapons Command. Sandia Base began operating as the Albuquerque Airport Training Station in 1942 and served historically as a nuclear weapons installation. In 1971, Kirtland, Manzano, and Sandia bases were merged and subsequently managed under one command.

1.1.1 Landfill (LF-001)

LF-001 is located in the northwestern area of Kirtland AFB, directly south of the main east-west runway for the base and Albuquerque International Airport (Figures 1-1 and 4-1). Southgate Avenue forms the northern and northwestern site boundaries, Ammo Road runs parallel to the eastern boundary, and an abandoned railroad grade forms the southern boundary. Kirtland AFB Production Well No. 2 (KAFB-2) is located approximately 150 feet (ft) northeast of the landfill. LF-001 is not located within the Tijeras Arroyo 100-year flood plain.

Although disposal activities date back to 1951, the site was operated primarily between 1960 and 1975 as a trench-and-fill landfill. The landfill contains an estimated 425,000 cubic yards (yd^3) of municipal waste and up to 175,000 yd^3 of construction and demolition debris. Field activities conducted at the site have included borehole installation and sampling, soil gas and geophysical surveys, excavation of test pits, geotechnical analyses, and soil and groundwater sampling and analysis. A detailed summary of the site's background and history, results of previous investigations, corrective measures, and current status is presented in the Environmental Restoration Program (ERP) Site-Specific Summaries (U.S. Air Force [USAF], 2005a), which were prepared as a supplement to the 2004 update of the Management Action Plan (MAP) (USAF, 2005b).

- The LTM Program was initiated at LF-001 in May 1996. As described in the LTM Plan (USAF, 1997), the program consisted of quarterly gauging of eight monitoring wells (KAFB-0107, -0110, -0111, -0112, -0113, -0114, -0115, and -0117) and semiannual sampling of four of these wells (KAFB-0113 located upgradient with KAFB-0111, -0114, and -0115 located downgradient). Declining water levels have led to the need for new wells as existing wells went dry. Wells KAFB-0118, KAFB-0119, KAFB-0120, and KAFB-0121 serve as the monitoring points for LF-001. Gauging has been performed on a quarterly basis with groundwater sampling being performed annually.

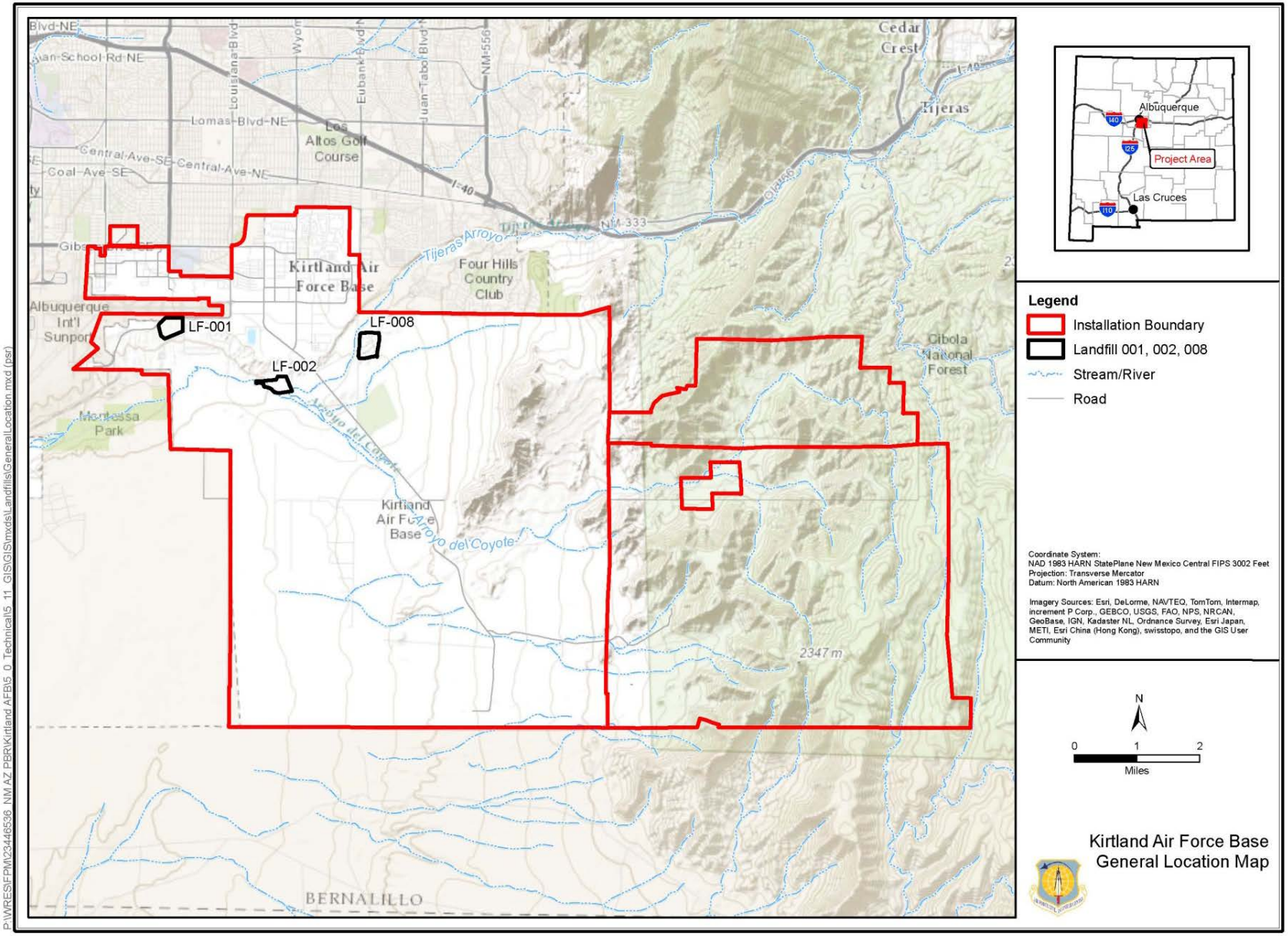

Figure 1-1. LF-001, LF-002, and LF-008 Project Locations

A Corrective Measures Implementation (CMI) work plan was submitted to the New Mexico Environmental Department (NMED) Hazardous Waste Bureau (HWB) in July 2004 to construct an Evapotranspiration (ET) cover system to minimize percolation through the landfill, leachate production, and potential impact to the groundwater (USAF, 2004a). The ET cover at LF-001 covers 49 acres and was completed in June 2006.

In October 2006 through April 2007, major erosion repair activities were conducted at LF-001 to repair damage to the ET cover system and reduce future impacts to the site by controlling run-on from offsite sources. Repairs and improvements were also made to existing erosion control features, and areas damaged as a result of the severe storm events that occurred at Kirtland AFB during June through August 2006 were regraded and reconditioned. The repair activities were documented in the *Completion Report for Erosion Repairs at Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001) and SWMU 6-4, Landfills 4, 5, and 6 (LF-008)* (USAF, 2007).

Damage to the ET cover system required major repair in September 2010 and August 2011. The project involved piping repairs across the site and installation of 2,160 linear feet (lf) of 12-inch Excelsior wood fiber rolls and 2,965 lf of 9-inch Excelsior wood to address observed extensive rilling.

1.1.2 Landfill 2 (LF-002)

SWMU 6-2, Landfill 2 (LF-002) is located between the Trestle Aircraft Testing Facility and Advanced Research Electromagnetic Simulator facilities to the north and the active channel of the Tijeras Arroyo to the south (Figures 1-1 and 4-2). Production Well KAFB-8 is located approximately 2,100 ft northeast of the landfill, and Production Well KAFB-4 is 2,400 ft to the north. Field activities have included borehole installation and sampling, soil gas and geophysical surveys, excavation of test pits, geotechnical analyses, and soil and groundwater sampling and analysis. A detailed summary of the site's background and history, results of previous investigations, corrective measures, and current status is presented in the ERP Site-Specific Summaries (USAF, 2005a), which was prepared as a supplement to the 2004 update of the MAP (USAF, 2005b). Based on the 100-year flood plain map provided in the *Integrated Natural Resources Management Plan for Kirtland Air Force Base (Final Year Revision-October 2012)* (USAF, 2012a), it appears that the southern toe of the landfill borders the 100-year flood plain and may potentially be impacted should a major flood affect the Tijeras Arroyo.

LF-002 operated between 1942 and 1965 as a trench-and-fill landfill. The current volume of waste is estimated to be 1,321,700 yd^3. Two buried pipelines cross LF-002. The 21-inch City of Albuquerque's Tijeras Interceptor sanitary sewer line runs east-west across the northern region of the landfill, approximately 400 ft south of well KAFB-0213. The second buried pipeline is the treated sewage effluent line (ST-051) that carried effluent from the Sewage Lagoons to the Golf Course Main Pond. ST-051 is currently used to pump nitrate-rich water from Production Well No. 7 (KAFB-7) to the Golf Course Main Pond for irrigation. This line was relocated outside of the landfill boundary during construction of the ET cover. An access road was constructed for the sanitary sewer.

The LTM Program was initiated at LF-002 in May 1996. As described in the LTM Plan (USAF, 1997), the program consisted of quarterly gauging of six groundwater monitoring wells (KAFB-0213, -0214, -0215, -0216, -0217, and -0218) and semiannual sampling of four of these wells (KAFB-0215 located upgradient with KAFB-0214, -0216, and -0218 located downgradient). Declining water levels have led to the abandonment of some wells and installation of replacement wells. Currently, quarterly well gauging is performed at wells KAFB-0213, KAFB-0219, KAFB-0220, KAFB-0221, KAFB-0222, and KAFB-0223 with groundwater sampling performed on an annual basis.

A CMI work plan was submitted to NMED HWB in May 2004 to construct an ET cover system to minimize percolation through the landfill, leachate production, and potential impact to the groundwater (USAF, 2004b). The ET cover at LF-002 covers 32 acres and was completed in September 2006. The draft CMI completion report was submitted to NMED in late 2006. The final CMI completion report for LF-002 (USAF, 2007b), detailing the installation of the ET cover, was submitted to NMED on February 28, 2007.

Damage to the ET cover system at LF-002 was addressed through erosion repair activities from September 2010 to August 2011. Extensive rilling repairs (concentrated on the south slope) were made and 3,044 lf of 9-inch Excelsior wood fiber rolls were installed.

1.1.3 Landfill 8 (LF-008)

SWMU 6-4, Landfills 4, 5, and 6 (LF-008) is located on the northwestern region of Kirtland AFB and is bounded by the Tijeras Arroyo to the north and the covered slope of the active construction and demolition debris landfill (LF-268) about 150 ft east of Power Line Road to the east (Figures 1-1 and 4-3). The site is made up of three former contiguous landfills (Landfills 4, 5, and 6). Based on flood plain maps, the site is not located within the 100-year flood plain. Field activities conducted at the site have included borehole installation and sampling, soil gas and geophysical surveys, excavation of test pits, geotechnical analyses, and soil and groundwater sampling and analysis. A detailed summary of site's background and history, results of previous investigations, corrective measures, and current status is presented in the ERP Site-Specific Summaries (USAF, 2005a), which was prepared as a supplement to the 2004 update of the MAP (USAF, 2005b).

The City of Albuquerque and Kirtland AFB jointly operated Landfill 4 from 1964 to 1969 as a general refuse landfill. Construction and demolition debris and trees were placed in the northeastern part of Landfill 4 and general refuse was placed in two natural arroyos in the western part of the site. The estimated volume of waste in Landfill 4 is about 600,000 yd^3 buried over an area of approximately 25 acres. Kirtland AFB operated Landfills 5 and 6, located north of Landfill 4, from mid-1960 through 1989. Construction and demolition debris was placed in Landfill 5 and other refuse was disposed in Landfill 6. The estimated volume of waste in Landfills 5 and 6 is about 1,746,000 yd^3 buried over an area of approximately 40 acres.

Monitoring at LF-008 has been conducted under two separate programs—the Groundwater Monitoring System Plan (USAF, 1995) and the LTM Program—to fulfill the requirements of the NMED Solid Waste Bureau for the active portion of the landfill (LF-268) and of the NMED HWB for the inactive portion (LF-008). Each of the programs included gauging and sampling of the 10 monitoring wells at the site, but the results were applied in different ways to determine whether a release from the landfill has occurred. Five wells are sampled to monitor the regional aquifer (KAFB-0307, -0308, -0309, and -0311, and upgradient well KAFB-0312), and five wells are sampled to monitor the perched aquifer (sidegradient well KAFB-0310, upgradient well TJA-2, and KAFB-0313, -0314, and -0315).

The *Annual Monitoring and Maintenance Activities Report, for Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001); SWMU 6-2, Landfill 2 (LF-002); and SWMU 6-4, Landfills 4, 5, and 6 (LF-008)* (USAF, 2012b) provides information pertaining to the most recent monitoring well installations.

An ET cover system was installed in June 2005 at LF-008 to minimize percolation through the landfill, leachate production, and potential impact to the groundwater (USAF, 2001) and covers an area of approximately 67 acres. The final CMI completion report (USAF, 2006) was submitted to NMED in January 2006 and approved on May 4, 2006.

In September 2006 through April 2007, major erosion repair activities were conducted at LF-008 to repair damage to the ET cover system and reduce future impacts to the site by controlling run-on from offsite sources. Repairs and improvements were also made to existing erosion control features, and areas damaged as a result of the severe storm events that occurred at Kirtland AFB during June through August 2006 were regraded and reconditioned. The repair activities were documented in the *Completion Report for Erosion Repairs at Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001) and SWMU 6-4, Landfills 4, 5, and 6 (LF-008)* (USAF, 2007). Temporary repairs were performed in September 2006, with permanent repairs and improvements occurring between October 2006 and April 2007. Erosion control channels were extended, run-on aprons were constructed, riprap structures were modified, reinforced, and revegetation of LF-008 was implemented.

Extensive erosion repair activities at LF-008 were again performed from April to July 2011 to address damage to the ET cover system and to restore storm water storage capacity. The project involved extensive rilling repairs (concentrated on the north and west slopes), piping repairs, installation of rock check dams in Channel 3, removal of accumulated sediment in channels and basins and installation of approximately 20,000 lf of 12-inch Excelsior wood fiber rolls.

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2.0 CONCEPTUAL SITE MODEL

Kirtland AFB occupies approximately 51,558 acres in southeastern Albuquerque, New Mexico, nestled between the Sandia and Manzano mountain ranges. The base is located in Bernalillo County, in central New Mexico, southeast of and adjacent to the Albuquerque International Sunport (Figure 1-1). Kirtland AFB employs more than 23,000 people, including more than 4,200 active duty, 1,000 National Guard, and 3,200 part-time reservists. Kirtland AFB is home to the Air Force Nuclear Weapons Center and its subordinate wings, the 498th Armament Systems Wing and the 377th Air Base Wing. It is also home to the Defense Threat Reduction Agency Albuquerque office, Air Force Safety Center, the Air Force Inspection Agency, the Air Force Operational Test and Evaluation Center, the 58th Special Operations Wing, Space Development and Test Wing, the New Mexico Air National Guard 150th Fighter Wing, the Directed Energy and Space Vehicle Directorates of the Air Force Research Laboratory, the Department of Energy Albuquerque Office, the National Nuclear Security Administration, and Sandia National Laboratories – New Mexico.

2.1 REGIONAL GEOLOGY

The geology of the Kirtland AFB area varies with the regional geology. The eastern portion of Kirtland AFB is mountainous, with elevations reaching 7,900 ft above mean sea level (amsl). These mountains are composed of Precambrian metamorphic and igneous (primarily granitic) and Paleozoic sedimentary rock (primarily marine carbonates). The western portion of the base lies within the Albuquerque Basin. Geologic features in this area of the basin include travertine and unconsolidated and semi-consolidated piedmont deposits, as well as eolian, lacustrine, and stream channel deposits.

In general, the near surface geology is characterized by recent deposits (i.e., mixtures of sandy silt and silty sand with minor amounts of clay and gravel); Ortiz gravel (i.e., alluvial piedmont sand and gravel deposits); and the Santa Fe Group (USF) (i.e., a mixture of sand, silt, clay, gravel, cobbles, and boulders). Generally, the northern and western portions of Kirtland AFB are dominated by unconsolidated geologic units; consolidated units predominate in the eastern half of the base.

Kirtland AFB lies within the eastern portion of the Albuquerque structural basin that contains the through-flowing Rio Grande. The basin is approximately 90 miles long and 30 miles wide. The deposits within the Albuquerque Basin consist of interbedded gravel, sand, silt, and clay. The thickness of basin-fill deposits within most of the basin exceeds 3,000 ft, though the thickness varies considerably because of the significant amount of faulting in the basin.

Geologic materials of primary importance within the basin are the USF and piedmont slope deposits. The USF consists of beds of unconsolidated to loosely consolidated sediments and interbedded volcanic rocks. The materials range from boulders to clay and from well sorted stream channel deposits to poorly sorted slope wash deposits. Coalescing alluvial fans of eroded materials from the surrounding mountains were deposited unconformably over the USF, extending westward from the base of the Sandia and Manzano mountains to the eastern edge of the Rio Grande floodplain. The fan sediments range from poorly sorted mud flow material to well sorted stream gravel. The beds consist of channel fill and interchannel deposits. The fan deposits range in thickness from 0 to 200 ft and thicken toward the mountains. The USF is further broken down into two depositional facies called the USF-1 and USF-2 (Hawley et al., 1995). USF-1 is present from ground surface to approximately 86 ft below ground surface (bgs), and then a transition occurs where USF-1 and USF-2 are interfingered to a depth of 144 ft bgs, underneath which USF-2 is present to a depth of greater than 500 ft bgs (CH2M Hill, 2008).

2.2 REGIONAL HYDROGEOLOGY

Kirtland AFB spans a segment of the eastern flank of the Albuquerque basin and the uplifted basin margins (Van Hart, 2003). The basin is a segment of the Rio Grande rift, a linear extensional feature extending from southern Colorado to Mexico and West Texas. On Kirtland AFB, the structural scenario is quite complex, but can be simplified as consisting of four tectonic provinces including the following:

- The eastern part of the Calabacillas sub-basin of the Albuquerque basin, where bedrock is deeply buried below late Tertiary, Sante Fe Group Alluvium.
- The uplifted basin margins, where bedrock generally outcrops and forms rugged topography (e.g., elevated blocks of Manzano Base and Manzanita Mountains).
- The Hubble bench, which occupies an intermediate structural position between the Albuquerque basin and the uplifts. Bedrock in this province is generally buried by less than 200 ft of alluvium.
- The Travertine basin, which developed within a zone of Tertiary, Laramide-age shear on the western rim of the Hubble bench.

The stratigraphic section preserved on Kirtland AFB varies with province and is controlled by the amount of uplift and the attendant depth of erosion (Van Hart, 2003). Geology beneath the study area generally includes a relatively thin layer of Younger Piedmont alluvium overlying Madera Formation limestone, overlying the Sandia Formation, which overlies Manzanita Granite (New Mexico Bureau of Geology and Mineral Resources, 2002). The Younger Piedmont alluvium primarily consists of unconsolidated gravel and sand. The Madera Formation primarily consists of fossiliferous limestone. The Sandia Formation is comprised of shales and siltstones grading down into basal quartz pebble conglomerates and up into thin bedded limestones. The Manzanita Granite primarily consists of a homogeneous quartz monzonite (granite).

In general, on the eastern side of Kirtland AFB, near the mountain fronts, groundwater occurs in fractured bedrock aquifers. These aquifers may be water table aquifers, semi-confined, or fully confined. In some cases, shallow water table aquifers may exist in surficial alluvium or decomposed bedrock while deeper aquifer zones are present in more competent fractured bedrock. Local and regional faulting along the mountain fronts is known to have the potential to impede groundwater flow across the fault zones, in some cases resulting in dramatically differing depths to groundwater from one side of the inferred fault to the other.

2.3 PERCHED AQUIFER HYDROGEOLOGY

Several minor perched water-bearing zones are present in the vadose zone above the regional water table. The shallow groundwater system is defined as a zone of saturation above the regional aquifer and separated from the regional aquifer by an unsaturated interval. Correlation of lithologic information obtained from boreholes drilled during monitoring well installation at SNL and Kirtland AFB and water chemistry data indicate that the shallow system consists of multiple zones of discontinuous saturation up to 125 ft thick that dip to the southeast. The depth to perched groundwater ranges from 200 to 415 ft bgs. Some of these water-bearing zones below 400 ft bgs are likely remnants of the regional aquifer left behind as the water table has dropped. The direction of groundwater flow in the main perched zone appears to be to the east-southeast with a hydraulic gradient of between 0.01 and 0.02 ft/ft.

2.4 SITE-SPECIFIC HYDROGEOLOGY

Groundwater at the site is present within the overburden and incompetent, weathered granite and is presumably controlled by either flow through the permeable, unconsolidated weathered granite or perhaps by flow through fractures that provide secondary permeability within more competent granite. The interconnectedness of granite fractures is unknown and the degree to which fractures may be infilled due to weathering is unknown. Water levels have been generally declining over time, dropping by approximately 10 ft from 2001 to 2005, while increasing by approximately 1 ft from 2005 to 2009, and decreasing again by approximately 1 ft from 2009 to 2011. Water levels during the 2012 monitoring period decreased from 2011 levels by approximately 1 ft. Groundwater elevations in the perched aquifer near LF-008 in July 2012 ranged from 5,024.66 ft amsl in downgradient well KAFB-0315 to 5,073.65 ft amsl in upgradient well TJA-2. Depth to water in the perched aquifer during this same time period ranged from 276.16 to 438.78 ft below the top of the well casing as measured in wells TJA-2, KAFB-0310, -0313, -0314, and -0315.

2.5 FATE AND TRANSPORT AND POTENTIAL RECEPTORS

No active remediation is taking place at these sites, only monitoring activities. The current exposure pathways at the landfills may include direct exposure (dermal contact, ingestion of soil, inhalation of soil particles, and/or inhalation of soil vapor, should an individual inadvertently come into contact with contaminated soil underlying the ET cover) and indirect exposure (ingestion of groundwater). Potential exposure pathways include potential volatilization of volatile organic compounds (VOCs) and methane from soil to indoor and outdoor air, resulting in a complete exposure pathway via inhalation. An exposure pathway could also be created by windblown transport of contaminants as soil particles to receptors via particulate inhalation. Dermal contact with soil and inadvertent ingestion of the soil through site maintenance activities constitute potentially complete exposure pathways for soil. Exposure from intrusive activities associated with the landfill could potentially provide exposure to volatile constituents in subsurface soil. In the future scenario, a complete exposure pathway could potentially occur from direct contact with soil, inadvertent ingestion of soil, and volatilization from soil to indoor or outdoor air.

The regional water table occurs at an approximate depth of 400 ft. Because the regional aquifer is used as a source of drinking water, indirect exposure through ingestion of groundwater is possible. Drinking water at Kirtland AFB is supplied by wells such as groundwater production wells KAFB-15 and KAFB-16. Both of these production wells are located nearest to LF-001, but are greater than one mile from the site. Vertical migration of contaminants has been minimized by construction of the ET caps over each of the landfills. Volatilization of chemicals from groundwater to indoor or outdoor air is not considered a likely exposure pathway as the water table is so deep. Groundwater beneath the landfills does not discharge to any surface water features at Kirtland AFB or downgradient of the site outside of Base property, so this is an incomplete exposure scenario.

The apparent groundwater flow direction in the regional aquifer is generally westward, toward the Rio Grande. Groundwater flow direction beneath Kirtland AFB is toward the northwest and north due to drawdown created by water supply wells currently operated by Kirtland AFB and off-base wells operated by the City of Albuquerque (SNL, 2010). The regional aquifer hydraulic gradient near the Sandia fault system ranges from 0.003 to 0.2 ft/ft to the west. The best-documented perched zone is located in the north-central portion of Kirtland AFB, lying approximately 100 ft above the regional aquifer. Groundwater flow in the perched aquifer is toward the southeast with a hydraulic gradient ranging between 0.004 and 0.07 ft/ft.

To date, there has not been an effort made to evaluate any significant trends in groundwater constituent concentrations from which an evaluation can be made as to whether the landfill caps have had an impact on potential migration of contaminants from the waste contained in the landfills to the underlying groundwater. Such trend analyses and data evaluation will be a key attribute of the on-going monitoring efforts.

3.0 LANDFILL INSPECTION AND MAINTENANCE

Site inspections are performed to observe the condition of the reclaimed surface of the landfills, monitor the progression of undesirable conditions, and document areas that are being successfully maintained. The current inspection schedule for the landfill sites includes both monthly inspections and inspections after each precipitation event of 0.5 inch or greater. Inspections following rain events may substitute for the monthly inspection assuming subsequent rain events do not occur in the same month. Details of each inspection include identification of the feature, location, current and previous status information, notes/description, a rating of slight, moderate or high, and recommended/initiated corrective action. Each inspection report provides completed inspection forms, inspection photographs, and site maps, if appropriate. During inspections performed in July, August, and September of 2014,URS personnel documented areas of the reclaimed surface that were damaged or poorly performing and initiated appropriate corrective actions. Inspectors reviewed the perimeter of the landfill to document the condition of the fence and other access controls. Inspections findings are summarized in the sections below. Copies of the field inspection reports, including photographs taken, are included in Appendix D of this report.

A Draft Operations and Maintenance (O&M) Work Plan was prepared by URS in August of 2014 (USAF, 2014). The plan proposes strategies to improve, replace, and repair stormwater controls to address the primary causes of recently observed erosion features, to reduce the rate of erosional progression, and provide a starting point for overall improvement to allow the ET cover to function as designed. Mitigation measures and maintenance activities implemented are intended to address the observed conditions which diminish the performance of the ET cover including erosion rilling/gullies, surface depressions, fissures, and piping. Application of these mitigation measures will improve the function of the ET cover and may help to reduce the inspection frequency as conditions improve.

NMED's review of the O&M Work Plan is anticipated to occur during 2015. In the interim period, the transition contractor and URS personnel will perform standard maintenance activities to protect the ET cover systems. Activities performed by the transition contractor will be reported as agreed upon in their contract with the USAF.

A summary of URS' inspection findings for each landfill site is provided in the following section.

3.1 LANDFILL INSPECTIONS

URS personnel conducted inspections on June 6, 2014, July 25, 2014, August 26-28, 2014, and September 23, 2014. Each inspection report notes weather conditions that may have impacted the landfill sites, including the approximate amount of rainfall that occurred. No significant storms or rainfall events were noted in the June report. The July, August, and September reports indicated 2.28 inches, 1.46 inches, 0.82 inch of rainfall in Albuquerque, in the respective months. The August and September reports stated that recent seasonal rains increased erosional features along landfill slopes and increased sedimentation and vegetation growth in channels and catch basins.

3.1.1 LF-001 Inspection Findings

The following issues were observed during inspections conducted by URS between June and September of 2014:

- The footer for Gate 2 appeared to be broken, with a chain and lock securing the gate.
- Minor rilling on the western and southern slopes of the cap
- Channels and catch basins have varying degrees of vegetative growth and sedimentation
- Moderate piping (6 to 12 inches deep) near channel 3
- Riprap blowout on a corrugated metal pipe culvert.

3.1.2 LF-002 Inspection Findings

The following issues were observed during inspections conducted by URS between June and September of 2014:

- Fiber roll displacement and sediment overbanking fiber rolls near channel 2
- Major rilling (>12 inches deep) on southeastern slope

3.1.3 LF-008 Inspection Findings

The following issues were observed during inspections conducted by URS between June and September of 2014:

- Minor piping (<6 inches deep) near instrumentation station on landfill cap
- Moderate to major rilling (>12 inches deep) on northern and western slopes
- Major rilling and fiber roll displacement in catch basin 4
- Large open bare spot is present where construction is taking place
- Low spot in cap (potential ponding area) near the North Central area of the Cap
- Sediment covering trap Intake #1
- Minor fissures (<6 inches deep) near instrumentation station on landfill cap. Many fissures have been in filled by sediments as a result of seasonal rain events
- Significant erosion along headwall of Catch basin #4.

The September inspection report indicated that construction and repair of upgrades to Channel 3 were observed to have been completed by the transition contractor.

4.0 SCOPE OF WORK

Groundwater samples are scheduled to be collected annually from twenty groundwater monitoring wells installed in the vicinity of LF-001, LF-002, and LF-008 in April from 2014 through 2017. The wells are also gauged on a quarterly basis. A list of wells and related construction details is provided in Table 4-1. Samples were collected on April 2-4, 2014 and analyzed for the list of analytes in Table 4-2. In addition, measurement of field parameters were made during sampling including dissolved oxygen, pH, specific conductance, temperature, and turbidity. The most recent water level measurements were obtained in July 2014. The locations of the monitoring wells are shown in Figures 4-1, 4-2, and 4-3.

Groundwater samples were collected in accordance with the requirements delineated in the *Quality Assurance Project Plan for Long-Term Groundwater Monitoring at Multiple Sites: Solid Waste Management Unit (SWMU) 6-1, Landfill 1; SWMU 6-2, Landfill 2; SWMU 6-4, Landfills 4, 5, and 6; ST-105 (CG-C564); UST-58 (PL567); WP026; and ST070* (USAF, 2013). Sampling was performed by the transition contractor, CB&I, in April 2014. Samples were collected using Bennett bladder pumps with new tubing for each well. The organic and inorganic analyses were performed by Empirical Laboratories, LLC located in Nashville, Tennessee with the radionuclide analyses performed by ALS Environmental located in Fort Collins, Colorado.

Table 4-1. LF-001, LF-002, and LF-008 Groundwater Monitoring Wells

Well	Diameter (inches)	Total Depth (feet)	Top of Screen (feet)	Bottom of Screen (feet)	Screen Slot Size (inches)	Measuring Point Elevation (feet)
LF-001						
KAFB-0118	5	499.6	458.77	488.77	0.01	5,318.02
KAFB-0119	4	498	452.27	482.27	0.01	5,313.09
KAFB-0120	4	461.5	429	459	0.01	5,286.89
KAFB-0121	4	480.75	445.75	475.75	0.01	5,304.93
LF-002						
KAFB-0213	4	451.88	379.88	429.88	0.02	5,279.33
KAFB-0219	4	428	396	426	0.01	5,261.02
KAFB-0220	4	456	424	454	0.01	5,262.43
KAFB-0221	4	442.5	410.5	440.5	0.01	5,271.69
KAFB-0222	4	401	366	396	0.01	5,244.98
KAFB-0223	4	411	376	406	0.01	5,251.82
LF-008						
KAFB-0310	4	456.64	401.64	446.64	0.01	5,413.81
KAFB-0313	5	375.25	350.25	370.25	0.01	5,416.31
KAFB-0314	5	455.17	430.17	450.17	0.01	5,453.08
KAFB-0315	5	479	449	474	0.01	5,463.44
TJA-2	4	305	275	295	0.02	5,349.81
KAFB-0307	4	461.33	406.33	451.33	0.01	5,361.86
KAFB-0308	4	498.96	463.96	488.96	0.01	5,378.98
KAFB-0309	4	536.63	501.63	526.63	0.01	5,409.13
KAFB-0311	4	469.54	434.54	459.6	0.01	5,350.62
KAFB-0312	5	538.6	504.6	529.6	0.01	5,429.50

[a] Measuring point elevation is taken at the top of casing.
MPE – Measuring Point Elevation

Annual groundwater monitoring samples were collected from all wells associated with LF-001 and LF-002. Because of access issues at LF-008 wells KAFB-0308 and 0309, samples were not collected by the transition contractor at these two wells. In addition, the sample collected from well TJA-2 was analyzed for anions and total dissolved solids (TDS) only due to a clerical error. These issues will be corrected during the FY 2015 monitoring event.

Table 4-2. Groundwater Sample Analyses and Methods

ANALYTES	METHODS
Volatile organic compounds	EPA-846 Method 8260B, EPA 624
Alkalinity (LF-008 only)	EPA SM 2320B
Dissolved and total metals [1] Mercury (cold vapor with prep)	EPA 6010B/7000S EPA SW 7470
Radium-226/radium-228	EPA 903.1/904.0
Nitrate/nitrite and nitrogen	EPA 300.0
Chloride, fluoride (no distillation), sulfates	EPA 375.3
Total dissolved solids	EPA 160.1
Gross alpha (picocuries/liter)/gross beta (milligrams/year)	EPA 900.0m or SOP
Field parameters: pH, dissolved oxygen, oxidation reduction potential, specific conductance, turbidity, and temperature	Field measurements using portable meters

[1] Total and dissolved aluminum, arsenic, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, tin, uranium, vanadium, and zinc
EPA – U.S. Environmental Protection Agency
SM – standard method
SOP – standard operating procedure

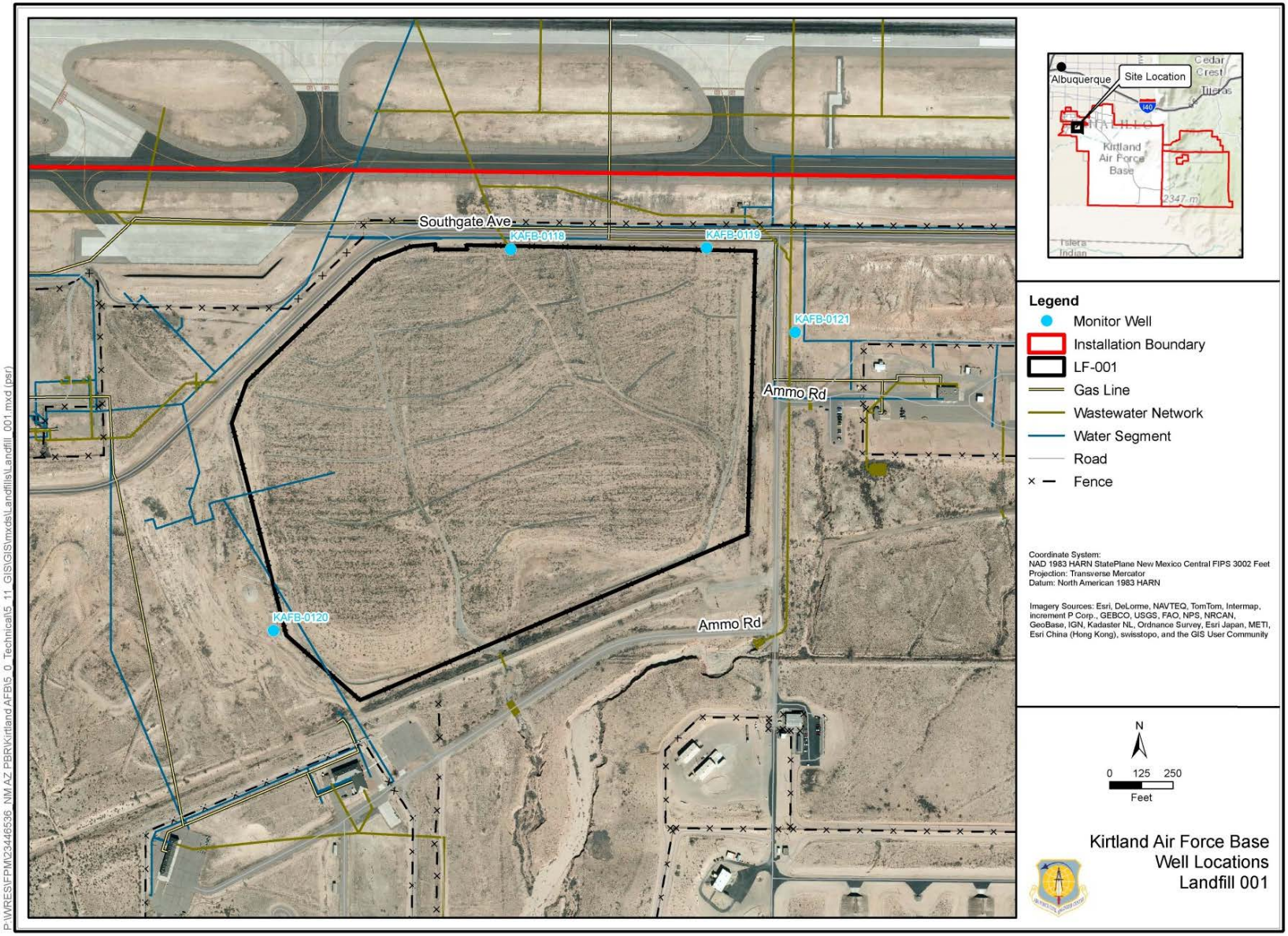

Figure 4-1. LF-001 Monitoring Well Locations

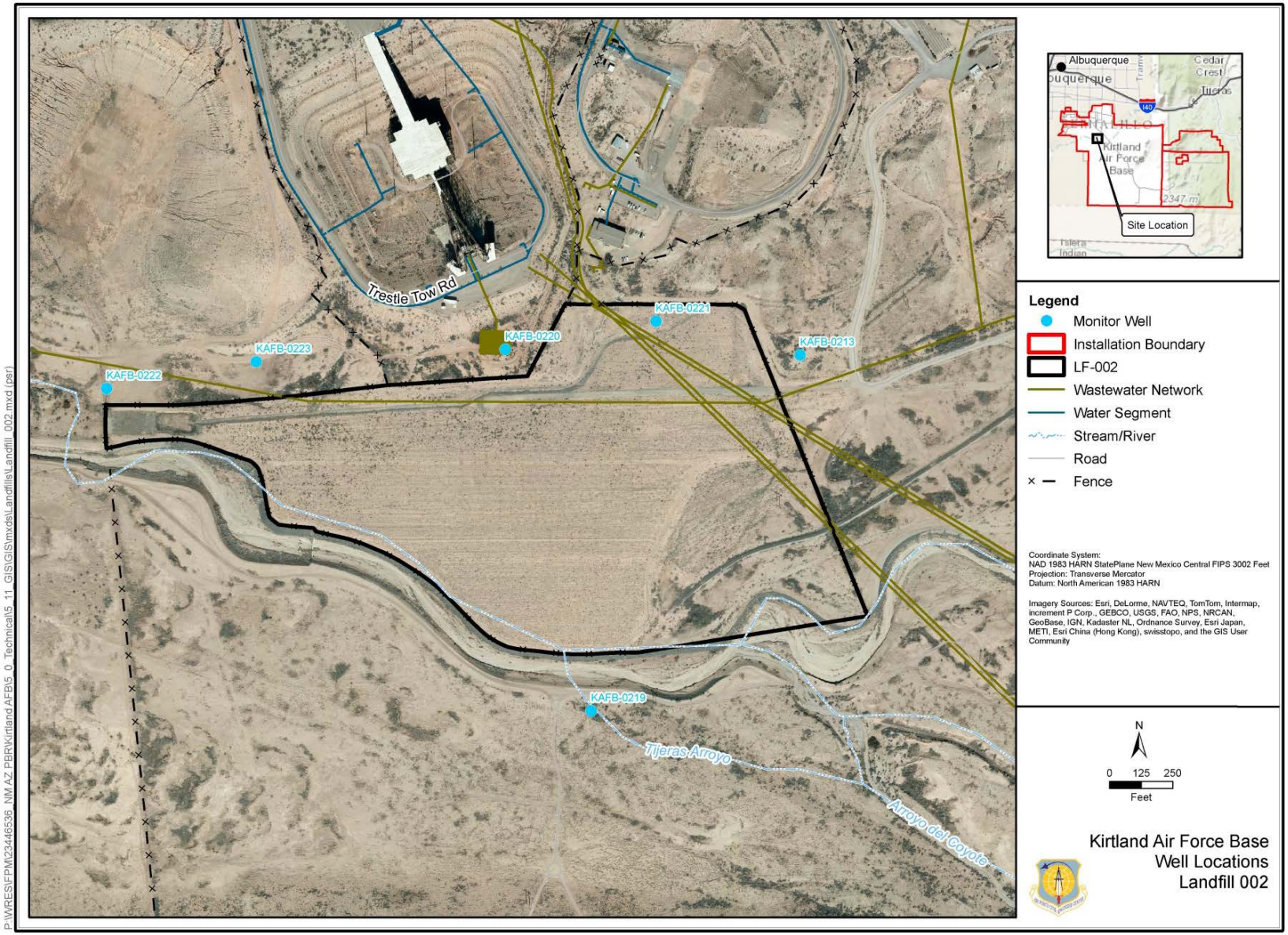

Figure 4-2. LF-002 Monitoring Well Locations

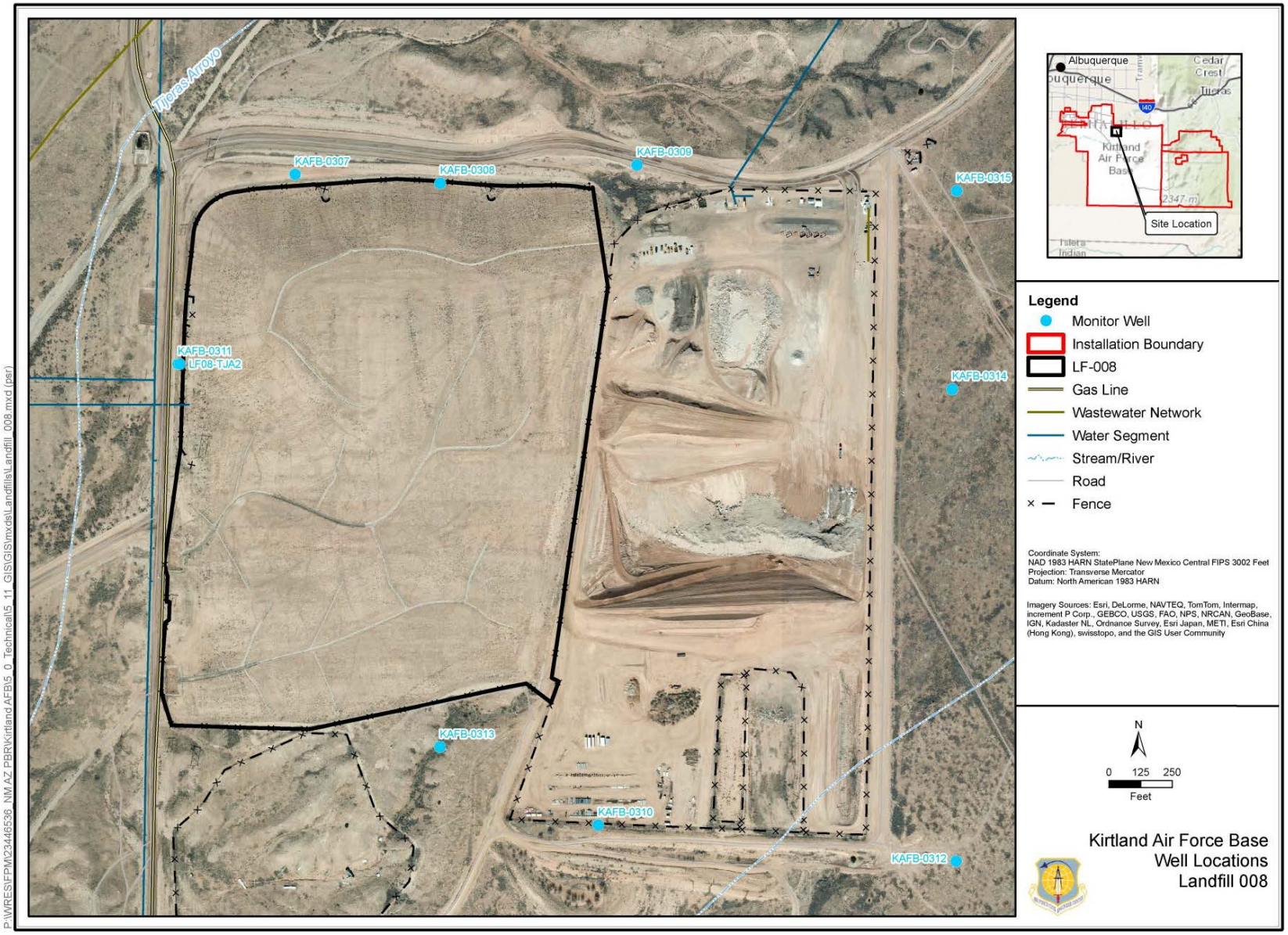

Figure 4-3. LF-008 Monitoring Well Locations

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5.0 LANDFILL 1

As discussed in Section 4.0, groundwater samples were collected March 31, 2014 from wells KAFB-0118, KAFB-0119, KAFB-0120, and KAFB-0121 at LF-001. The samples underwent analyses for VOCs, nitrate-nitrite as nitrogen, total and dissolved metals, anions, TDS, gross alpha and beta, and radium-226 and -228. Analytical results are compared to the lowest applicable screening level as obtained from the following sources:

- New Mexico Water Quality Commission Regulations (New Mexico Administrative Code [NMAC] 20.6.2)
- Applicable federal standards include U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs) as found in 40 Code of Federal Regulations (CFR) 141 and 40 CFR 142

5.1 GROUNDWATER SAMPLING RESULTS

The groundwater analytical results for the samples collected from monitoring wells near LF-001 are summarized in Table 5-1 along with the applicable groundwater screening level. Table A-1 in Appendix A tabulates results for all analytes. The laboratory analytical reports are available in Appendix B.

Table 5-1. LF-001 Groundwater Analytical Results

Analyte	Unit	KAFB-0118	KAFB-0119	KAFB-0120	KAFB-0121	Screening Level	Screening Level Source
Chloride	mg/L	7.79	7.28	7.88	10.8	250	NMAC
Fluoride	mg/L	0.517	0.573	0.425	0.501	1.6	NMAC
Nitrate/Nitrite as Nitrogen	mg/L	ND	ND	0.67	0.382	10	NMAC/MCL
Sulfate	mg/L	31	31.3	28	35.9	600	NMAC
TDS	mg/L	166	162	162	176	1000	NMAC
Arsenic	mg/L	0.00133	0.000997	0.00132	0.00119	0.010	MCL
Barium	mg/L	0.0861	0.101	0.102	0.107	1	NMAC
Cadmium	mg/L	ND	ND	ND	ND	0.005	MCL
Chromium	mg/L	ND	ND	ND	ND	0.05	NMAC
Iron	mg/L	ND	ND	ND	ND	1	NMAC
Lead	mg/L	ND	ND	ND	ND	0.015	MCL
Manganese	mg/L	ND	ND	ND	ND	0.2	NMAC
Mercury (Total)	mg/L	ND	ND	ND	ND	0.002	NMAC/MCL
Selenium	mg/L	ND	ND	ND	0.000956	0.05	NMAC/MCL
Silver	mg/L	ND	ND	ND	ND	0.05	NMAC
Gross Alpha	pCi/L	ND	ND	ND	ND	15	MCL
Gross Beta	pCi/L	ND	ND	ND	ND	4 mR/yr [a]	MCL
Radium-228	pCi/L	ND	ND	ND	ND	5 [b]	MCL
Radium-226	pCi/L	ND	ND	ND	ND	5 [b]	MCL
1,1-Dichloroethane	µg/L	ND	ND	ND	ND	25	NMAC

Analyte	Unit	KAFB-0118	KAFB-0119	KAFB-0120	KAFB-0121	Screening Level	Screening Level Source
1,1-Dichloroethene	µg/L	ND	ND	ND	ND	5	NMAC
1,2,4-Trimethylbenzene	µg/L	ND	ND	ND	ND	1.5	RSL
1,2-Dichlorobenzene	µg/L	ND	ND	ND	ND	30	RSL
1,3-Dichlorobenzene	µg/L	ND	ND	ND	ND	18.3	GWQB
1,4-Dichlorobenzene	µg/L	ND	ND	ND	ND	4.95	GWQB
Benzene	µg/L	ND	ND	ND	ND	5	MCL
Chloromethane	µg/L	ND	ND	ND	ND	14.9	GWQB
cis-1,2-Dichloroethene	µg/L	ND	ND	ND	ND	70	MCL
Naphthalene	µg/L	ND	ND	ND	ND	6.2	GWQB
Tetrachloroethene	µg/L	ND	ND	ND	ND	5	MCL
Toluene	µg/L	ND	ND	ND	0.317	750	NMAC
Trichloroethene	µg/L	ND	ND	ND	ND	5	MCL
Xylenes	µg/L	ND	ND	ND	ND	620	NMAC

[a] As per *Inventory of Radiological Methodologies for Sites Contaminated with Radioactive Materials* (EPA, 2006), as a general rule, 15 pCi/L should not be exceeded to ensure that the 4 mR/yr requirement is achieved.
[b] The 5 pCi/L limit is for radium-226 and radium-228, combined.
EPA – U.S. Environmental Protection Agency
MCL – Maximum Contaminant Level
NMAC – New Mexico Administrative Code
NSDWR – National Secondary Drinking Water Regulation
GWQB – Ground Water Quality Bureau
RSL – Regional Screening Level
ND – non-detect above the laboratory Limit of Detection
pCi/L – picocurie per liter
mg/L – milligrams per liter
mR/yr – milli-Roentgen-equivalent-man per year
µg/L – microgram per liter

As can been seen from examination of the data, constituent concentrations are below the applicable regulatory levels. Anion concentrations, including chloride, fluoride, sulfate, and TDS were detected in samples collected from all four wells at LF-001. Nitrate was detected samples collected from two of the four wells. Dissolved arsenic and barium concentrations were reported in samples collected from all four wells, with selenium detected in only well KAFB-0121. All VOCs were non-detect with the exception of toluene in KAFB-0121 which was measured at a concentration of 0.317 micrograms per liter (µg/L), well below the MCL for toluene of 5 µg/L.

5.2 FIELD MEASUREMENT PARAMETERS

Specific conductance, dissolved oxygen, oxidation-reduction potential, pH, and turbidity were measured in the field at the time of sampling. The final measurements for these parameters are summarized in in the transition contractor's report and include the purge volume removed from the well and the pre-purge depth to groundwater. The specific conductivity is reflective of the total dissolved solids in the groundwater.

5.3 KEY CONSTITUENT TRENDS

Results from the 2014 annual sampling event are consistent with previous sampling events. Samples from groundwater monitoring wells at LF-001 analyzed for key constituents have been detected at concentrations below their respective groundwater standards or have not been detected (Figure 5-1).

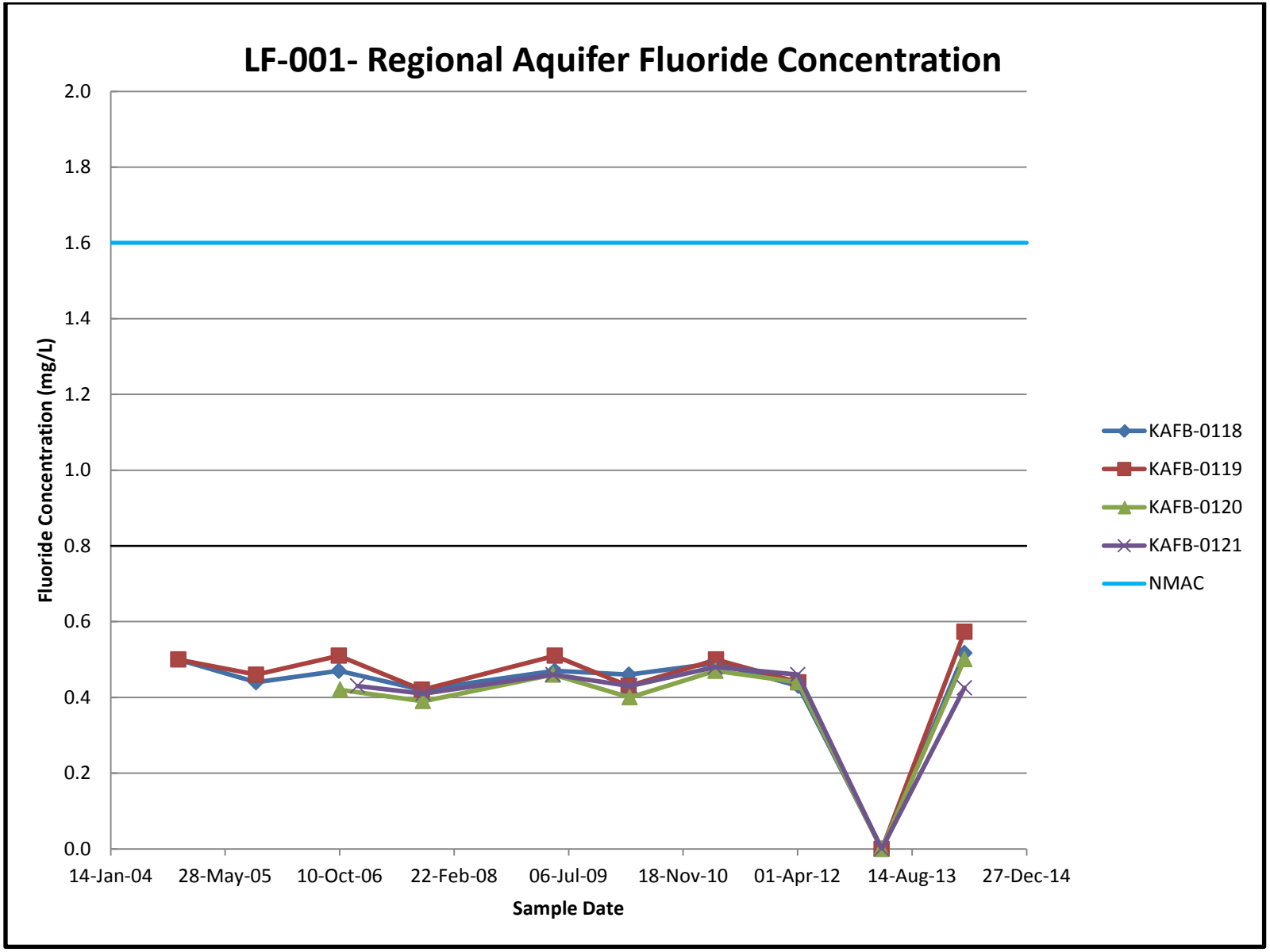

Figure 5-1. LF-001 Regional Aquifer Fluoride Concentration

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5.4 GROUNDWATER ELEVATIONS

Groundwater elevations were measured in November 2013, March 2014, June 2014, and July 2014. Table 5-2 summarizes the results from the field measurements. Groundwater contour maps have been prepared for each set of quarterly groundwater measurements from monitoring wells at LF-001 (see Figures 5-2 through 5-5.

Table 5-2. LF-001 Groundwater Well Elevations

Well	Measuring Point Elevation (ft amsl)	Date	Depth to Water (ft)	Groundwater Elevation (ft amsl)
KAFB-0118	5,318.02	November 2013	458.15	4,859.87
		March 2014	457.39	4,860.63
		June 2014	456.85	4,861.17
		July 2014	456.23	4,861.79
KAFB-0119	5,313.09	November 2013	453.77	4,859.32
		March 2014	452.87	4,860.22
		June 2014	452.29	4,860.80
		July 2014	451.70	4,861.39
KAFB-0120	5,286.89	November 2013	425.93	4,860.96
		March 2014	425.41	4,861.48
		June 2014	424.98	4,861.91
		July 2014	424.11	4,862.78
KAFB-0121	5,304.93	November 2013	445.25	4,859.68
		March 2014	444.34	4,860.22
		June 2014	443.85	4,861.08
		July 2014	443.34	4,861.59

amsl – above mean sea level
ft – feet

The groundwater-elevation contour maps prepared from data in Table 5-2 above indicate a northeasterly regional groundwater direction. Groundwater elevations in the regional aquifer during FY 2014 ranged from 4,859.32 ft amsl in downgradient well KAFB-0119 to 4,861.91 ft amsl in upgradient well KAFB-0120. Depth to the water table below the landfill decreased throughout the year and was shallowest, 424.11 ft below the top of the well casing, in well KAFB-0120, and deepest, 456.23 ft below the top of the well casing, at well KAFB-0118.

5.5 DISCUSSION OF RESULTS

Constituent concentrations in the perched groundwater LF-001 continue to remain well below regulatory levels. The graph of historical and current fluoride results indicates there are no discernible trends that would indicate that regulatory levels may be exceeded in the future. The highest concentration for the 2014 sampling event, 0.573 milligrams per liter (mg/L), was reported for well KAFB-0119. The historical fluoride concentrations (see Figure 4-1) have remained below the NMAC standard of 1.6 mg/L as well as the Regional Screening Level (RSL) of 0.8 mg/L.

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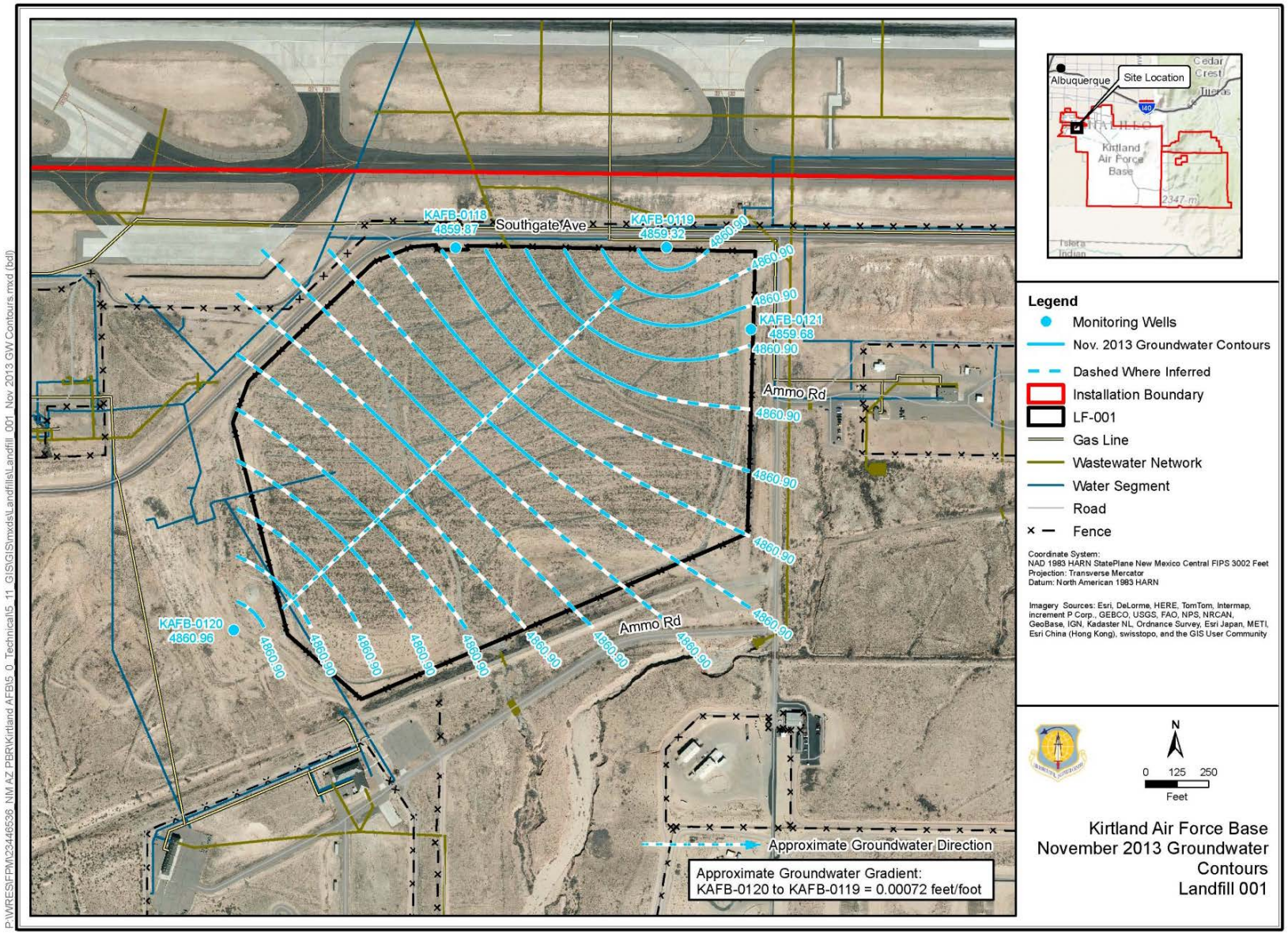

Figure 5-2. LF-001 Regional Aquifer Groundwater Contour Map November 2013

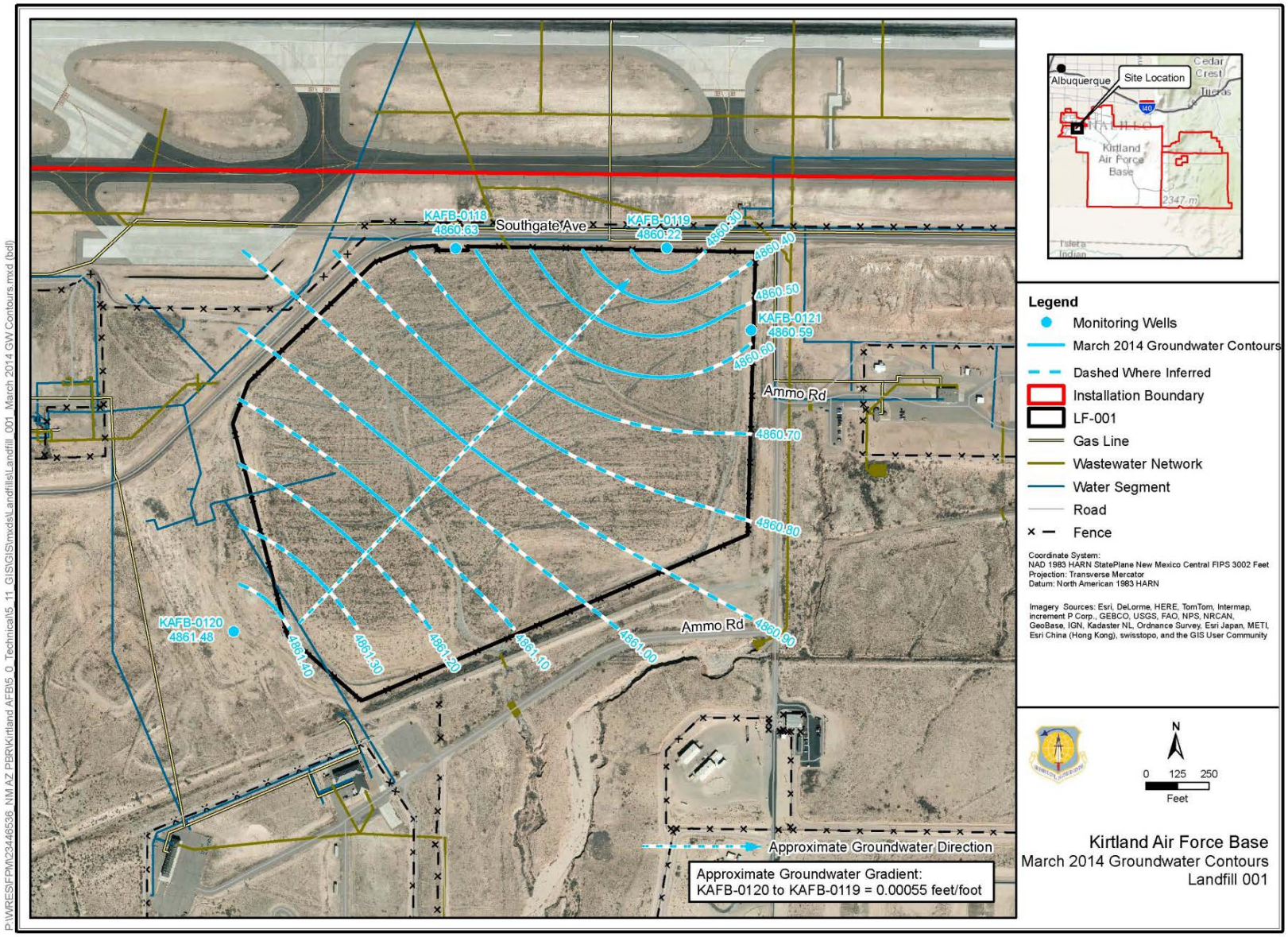

Figure 5-3. LF-001 Regional Aquifer Groundwater Contour Map March 2014

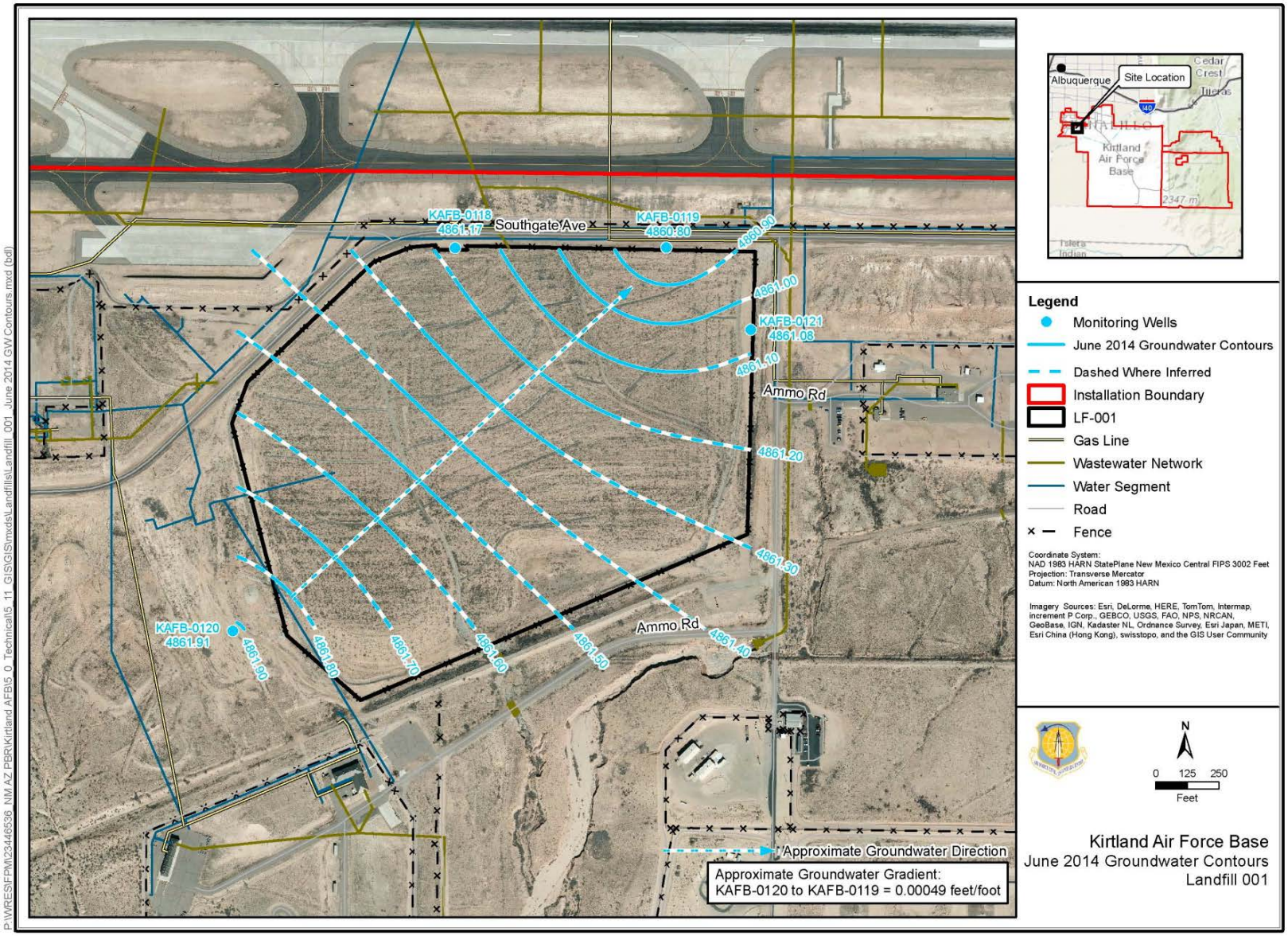

Figure 5-4. LF-001 Regional Aquifer Groundwater Contour Map June 2014

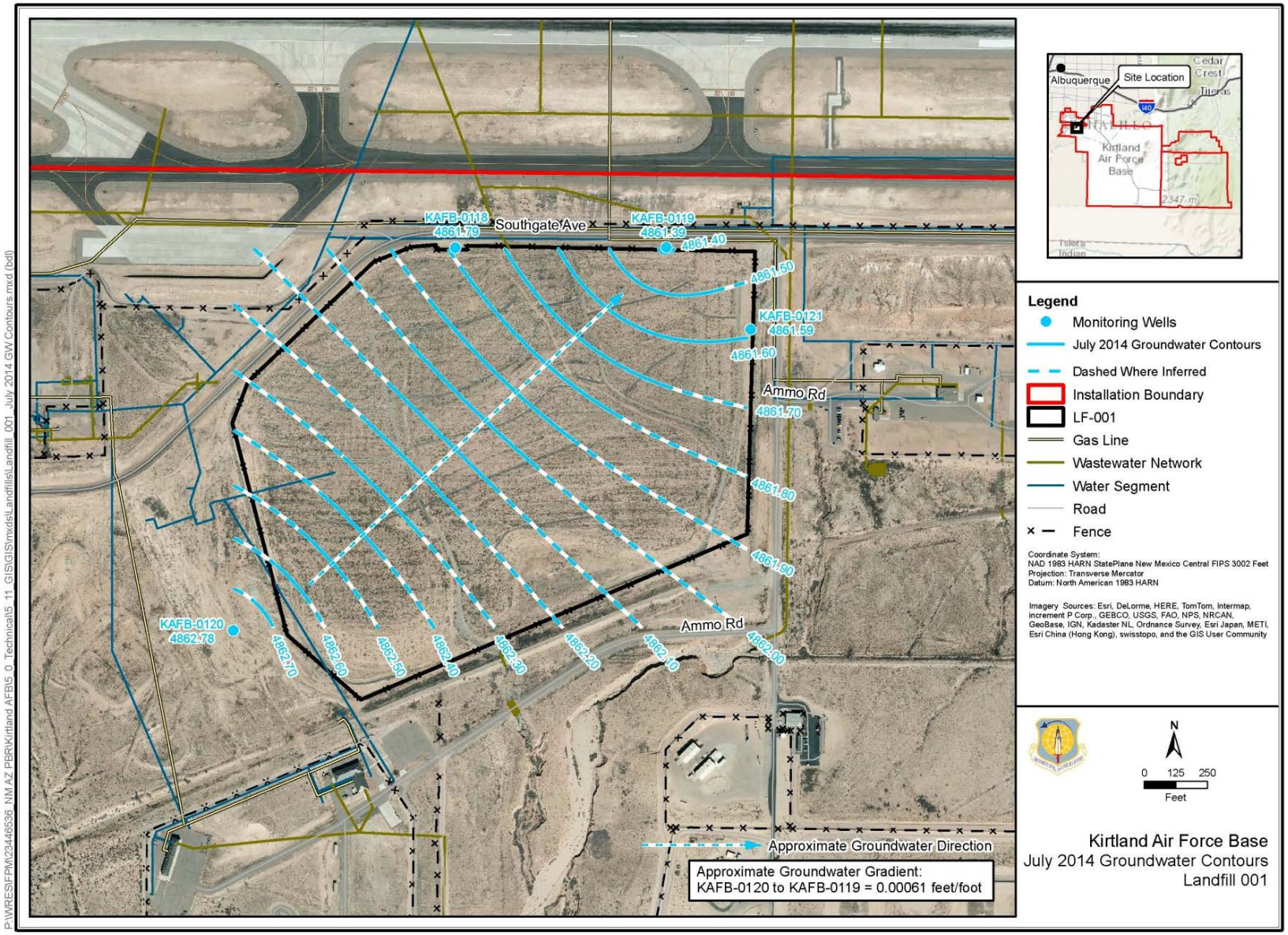

Figure 5-5. LF-001 Regional Aquifer Groundwater Contour Map July 2014

6.0 LANDFILL 2

As discussed in Section 4.0, groundwater samples were collected April 2-4, 2014 from wells KAFB-0213, KAFB-0219, KAFB-0220, KAFB-0221, KAFB-0222, and KAFB-0223 at LF-001. The samples underwent analyses for VOCs, nitrate-nitrite as nitrogen, total and dissolved metals, anions, TDS, gross alpha and beta, and radium-226 and -228. Analytical results are compared to the lowest applicable screening level as obtained from the following sources:

- New Mexico Water Quality Commission Regulations (NMAC 20.6.2)
- Applicable federal standards include EPA MCLs as found in 40 CFR 141 and 40 CFR 142

6.1 GROUNDWATER SAMPLING RESULTS

The groundwater analytical results for the samples collected from monitoring wells near LF-002 are summarized in Table 6-1 along with the applicable groundwater screening level. Table A-2 in Appendix A tabulates results for all analytes. The laboratory analytical reports are available in Appendix B.

As can been seen from examination of the data in Table 6-1, all monitored constituent concentrations are below the applicable regulatory levels or screening levels. For anions, detectable concentrations of chloride, fluoride, nitrate, sulfate, and total dissolved solids were reported in all six wells. Detectable quantities of dissolved metals including barium, chromium, and selenium were reported in samples collected from all six wells. Gross alpha and gross beta particle radioactivity was detected in samples collected from all six wells and radium-226 was detected in samples collected from three wells. For VOCs, toluene was detected in samples collected from two of six wells at LF 002.

6.2 FIELD MEASUREMENT PARAMETERS

Specific conductance, dissolved oxygen, oxidation-reduction potential, pH, and turbidity were measured in the field at the time of sampling. The final measurements for these parameters are summarized in in the transition contractor's report and include the purge volume removed from the well and the pre-purge depth to groundwater. The specific conductivity is reflective of the total dissolved solids in the groundwater.

6.3 KEY CONSTITUENT TRENDS

Trends charts representing the fluoride and nitrate concentrations were prepared based on historical data available in the Environmental Resources Program Information Management System and current monitoring data obtained during the FY 2014 sampling event. These two constituents were selected as monitored concentrations were nearer to the respective applicable regulatory standards. The historical fluoride concentrations (see Figure 6-1) have remained below the NMAC standard of 1.6 mg/L as well as the RSL of 0.8 mg/L. The nitrate concentrations (see Figure 6-2) are below the MCL and NMAC standard of 10 mg/L. Neither contaminant demonstrates any discernible trend that would indicate that regulatory concentrations would be exceeded at some point in the future.

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Table 6-1. LF-002 Analytical Results

Analyte	Unit	KAFB-0213	KAFB-0219	KAFB-0220	KAFB-0221	KAFB-0222	KAFB-0223	Screening Level	Screening Level Source
Chloride	mg/L	16	16.1	16.4	15.7	16.4	16.6	250	NMAC
Fluoride	mg/L	0.324	0.307	0.298	0.287	0.401	0.356	1.6	NMAC
Nitrate/Nitrite as Nitrogen	mg/L	4.27	5.68	4.39	3.86	3.27	4.09	10	NMAC/MCL
Sulfate	mg/L	71.4	66.8	77.1	72.1	78.5	74.2	600	NMAC
TDS	mg/L	333	325	313	328	316	317	1,000	NMAC
Arsenic	mg/L	ND	ND	ND	ND	ND	ND	0.010	MCL
Barium	mg/L	0.0562	0.0488	0.0456	0.0415	0.0562	0.05	1	NMAC
Cadmium	mg/L	ND	ND	ND	ND	ND	ND	0.005	MCL
Chromium	mg/L	0.000732	0.000949	0.000818	0.00065	0.00125	0.000888	0.05	NMAC
Iron	mg/L	ND	ND	ND	ND	0.0113	ND	1	NMAC
Lead	mg/L	ND	ND	ND	ND	ND	ND	0.015	MCL
Manganese	mg/L	ND	0.00147	ND	ND	0.00272	0.000931	0.2	NMAC
Mercury (Total)	mg/L	ND	ND	ND	ND	ND	ND	0.002	NMAC/MCL
Selenium	mg/L	0.00176	0.00214	0.0017	0.00195	0.00204	0.00189	0.05	NMAC/MCL
Silver	mg/L	ND	ND	ND	ND	ND	ND	0.05	NMAC
Gross Alpha	pCi/L	4.3	3.3	2.59	3.4	2.6	3.3	15	MCL
Gross Beta	pCi/L	ND	3	3.1	ND	3.7	3.3	4 mR/yr [a]	MCL
Radium-228	pCi/L	ND	ND	ND	ND	ND	ND	5 [b]	MCL
Radium-226	pCi/L	ND	ND	ND	0.22	0.25	0.26	5 [b]	MCL
1,1-Dichloroethane	µg/L	ND	ND	ND	ND	ND	ND	25	NMAC
1,1-Dichloroethene	µg/L	ND	ND	ND	ND	ND	ND	5	NMAC
1,2,4-Trimethylbenzene	µg/L	ND	ND	ND	ND	ND	ND	1.5	RSL
1,2-Dichlorobenzene	µg/L	ND	ND	ND	ND	ND	ND	30	RSL
1,3-Dichlorobenzene	µg/L	ND	ND	ND	ND	ND	ND	18.3	GWQB
1,4-Dichlorobenzene	µg/L	ND	ND	ND	ND	ND	ND	4.95	GWQB
Benzene	µg/L	ND	ND	ND	ND	ND	ND	5	MCL
Chloromethane	µg/L	ND	ND	ND	ND	ND	ND	14.9	GWQB

Analyte	Unit	KAFB-0213	KAFB-0219	KAFB-0220	KAFB-0221	KAFB-0222	KAFB-0223	Screening Level	Screening Level Source
cis-1,2-Dichloroethene	µg/L	ND	ND	ND	ND	ND	ND	70	MCL
Naphthalene	µg/L	ND	ND	ND	ND	ND	ND	6.2	GWQB
Tetrachloroethene	µg/L	ND	ND	ND	ND	ND	ND	5	MCL
Toluene	µg/L	ND	0.27	ND	ND	0.324	ND	750	NMAC
Trichloroethene	µg/L	ND	ND	ND	ND	ND	ND	5	MCL
Xylenes	µg/L	ND	ND	ND	ND	ND	ND	620	NMAC

[a] As per *Inventory of Radiological Methodologies for Sites Contaminated with Radioactive Materials* (EPA, 2006), as a general rule, 15 pCi/L should not be exceeded to ensure that the 4 mR/yr requirement is achieved.
[b] The 5 pCi/L limit is for radium-226 and radium-228, combined.
EPA – U.S. Environmental Protection Agency
MCL – Maximum Contaminant Level
NMAC – New Mexico Administrative Code
GWQB – Ground Water Quality Bureau
RSL – Regional Screening Level
ND – non-detect above the laboratory Limit of Detection
mg/L – milligrams per liter
mR/yr – milli-Roentgen-equivalent-man per year
pCi/L – picocurie per liter
µg/L – microgram per liter

6.3.1 Fluoride

Fluoride concentrations are consistently below the RSL standard of 0.8 mg/L and the NMAC standard of 1.6 mg/L, and no wells appear to have an increasing trend indicating that the standard may be exceeded in the future (see Figure 6-1). The highest concentration of fluoride, 0.401 mg/L, was detected at well KAFB-0222.

6.3.2 Nitrate

Nitrate/nitrite as nitrogen concentrations in samples collected from monitoring wells at LF-002 have been consistently below the nitrate MCL of 10 mg/L (see Figure 6-2). The highest concentration of 5.68 mg/L was detected in a sample collected from well KAFB-0219 in the 2014 sampling event.

6.3.3 Gross Alpha, Gross Beta, Radium-228, and Radium-226

Concentrations of radioactive constituents in samples collected from the LF-002 monitoring wells have consistently been below the MCL of 15 picocurie per liter (pCi/L). Low concentrations were detected in the samples collected in April of 2014. These results are likely attributable to the natural occurrence of alpha emitting radionuclides in soil resulting from the geogenic presence of isotopic uranium and isotopic thorium radionuclides. No discernible trends were apparent in the analytical data.

6.4 GROUNDWATER LEVELS

Groundwater elevations were measured in November 2013, March 2014, June 2014, and July 2014. Table 6-2 summarizes the results from the field measurements. Figures 6-3 through 6-6 present the groundwater contour maps developed from this data.

Table 6-2. LF-002 Groundwater Well Elevations

Well	Measuring Point Elevation (ft amsl)	Date	Depth to Water (ft)	Groundwater Elevation (ft amsl)
KAFB-0213	5,279.33	November 2013	418.77	4,860.56
		March 2014	418.35	4,860.98
		June 2014	418.05	4,861.28
		July 2014	416.92	4,862.41
KAFB-0219	5,261.02	November 2013	399.32	4,860.56
		March 2014	399.19	4,861.83
		June 2014	398.83	4,862.19
		July 2014	397.99	4,923.03
KAFB-0220	5,262.43	November 2013	401.64	4,860.79
		March 2014	401.28	4,861.15
		June 2014	400.95	4,861.48
		July 2014	399.98	4,862.45
KAFB-0221	5,271.69	November 2013	410.79	4,860.90
		March 2014	410.34	4,861.35
		June 2014	410.08	4,861.61
		July 2014	409.26	4,862.43

KAFB-0222	5,242.29	November 2013	381.20	4,861.09
		March 2014	379.87	4,862.42
		June 2014	380.22	4,862.07
		July 2014	379.56	4,863.34
KAFB-0223	5,249.13	November 2013	387.87	4,861.26
		March 2014	387.45	4,861.68
		June 2014	387.1	4,862.03
		July 2014	386.56	4,862.57
amsl – above mean sea level ft – feet				

The groundwater-elevation contour maps prepared from data included in Table 6-2 above indicate a northeasterly regional groundwater direction. Groundwater elevations in the regional aquifer during FY 2014 ranged from 4,860.56 ft amsl in downgradient wells KAFB-0213 and KAFB-0219 to 4,863.34 ft amsl in upgradient well KAFB-0222. Depth to the water table below the landfill decreased throughout the year and was shallowest, 379.56 ft below the top of the well casing, in well KAFB-0222, and deepest, 418.77 ft below the top of the well casing, at well KAFB-0213.

6.5 DISCUSSION OF RESULTS

For the LF-002 regional aquifer, none of the constituents appear to be adversely impacting the groundwater, nor are any trends apparent that indicate increasing concentrations that may impact the regional aquifer in the future.

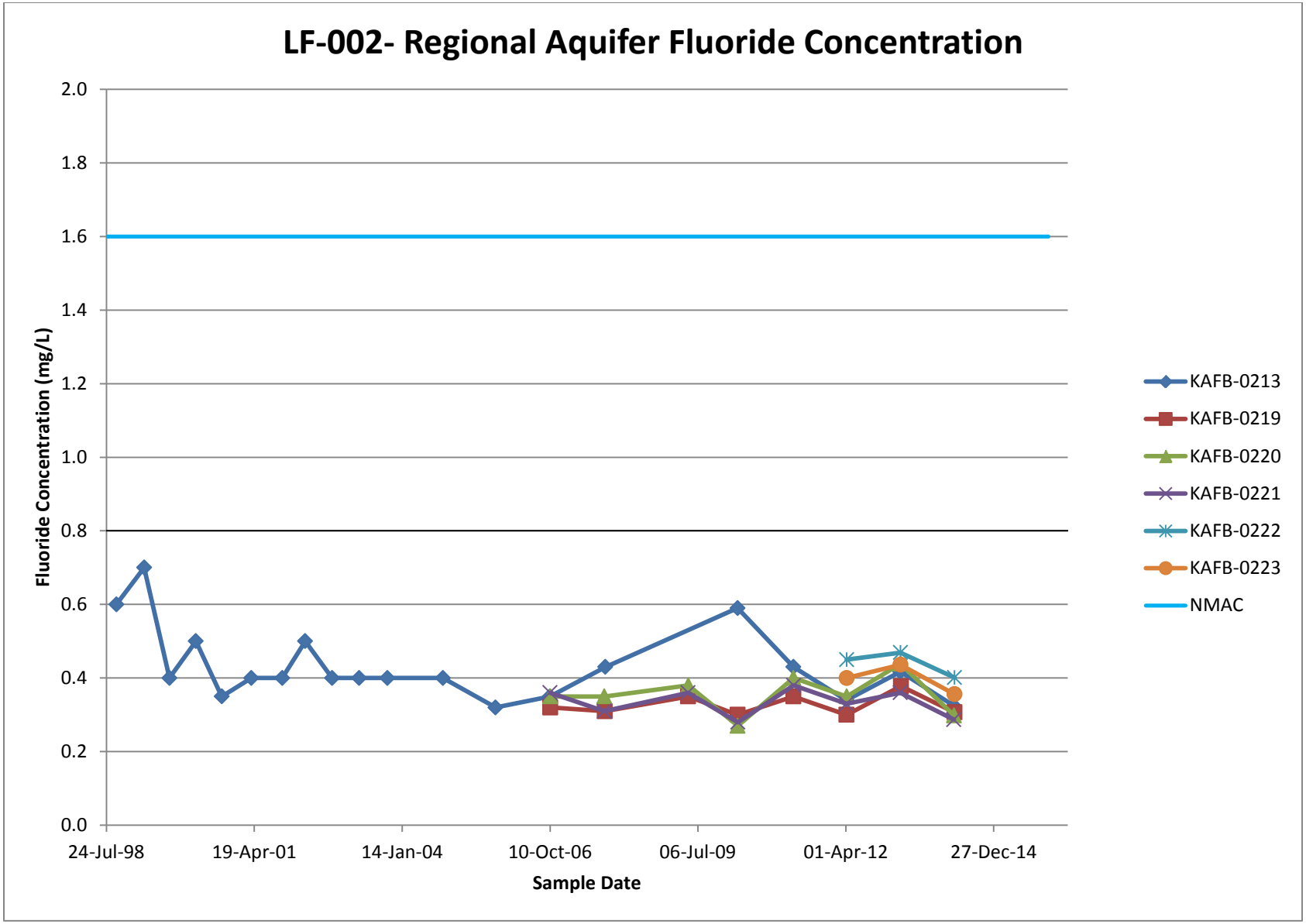

Figure 6-1. LF-002 Regional Aquifer Fluoride Concentration

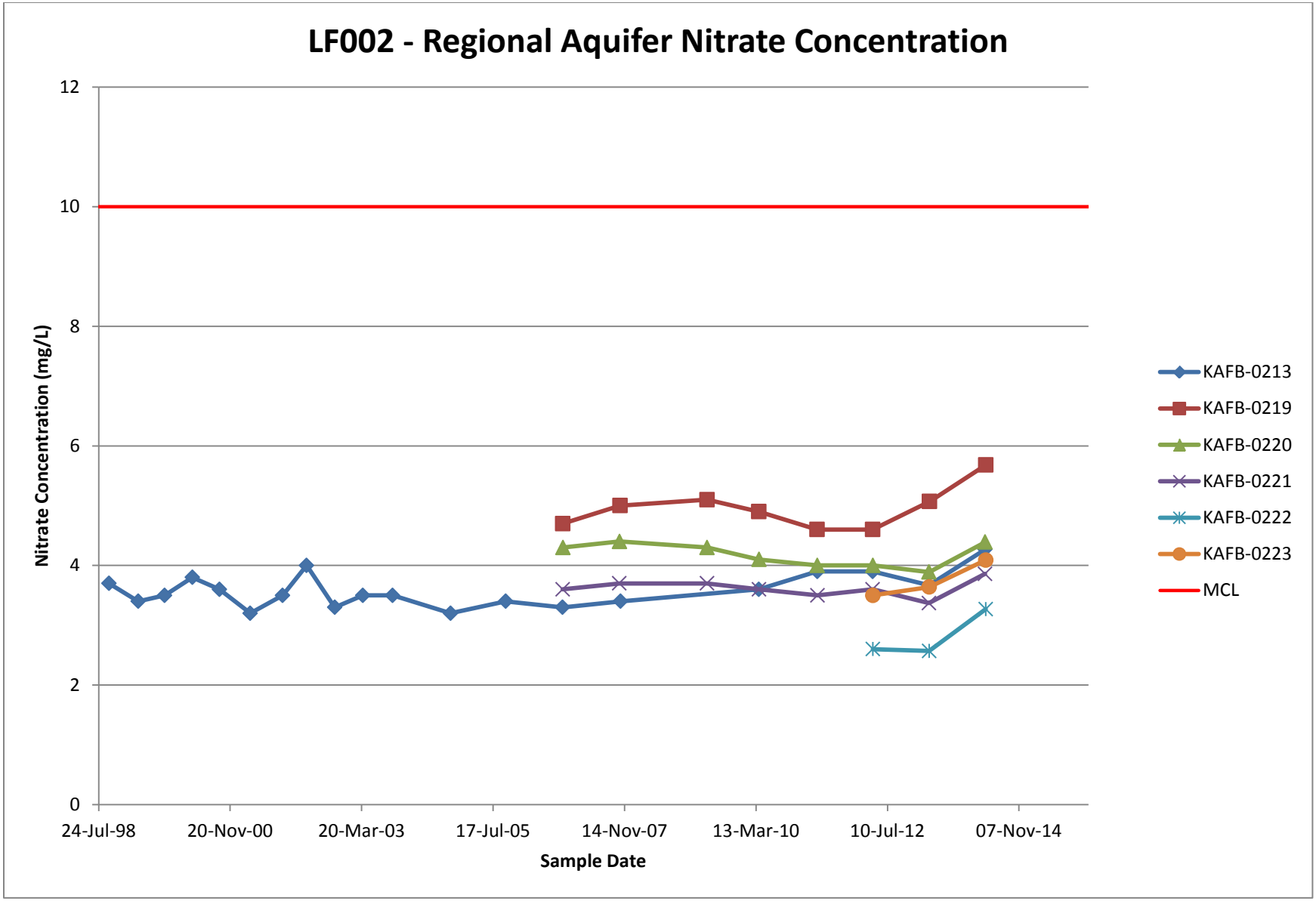

Figure 6-2. LF-002 Regional Aquifer Nitrate Concentration

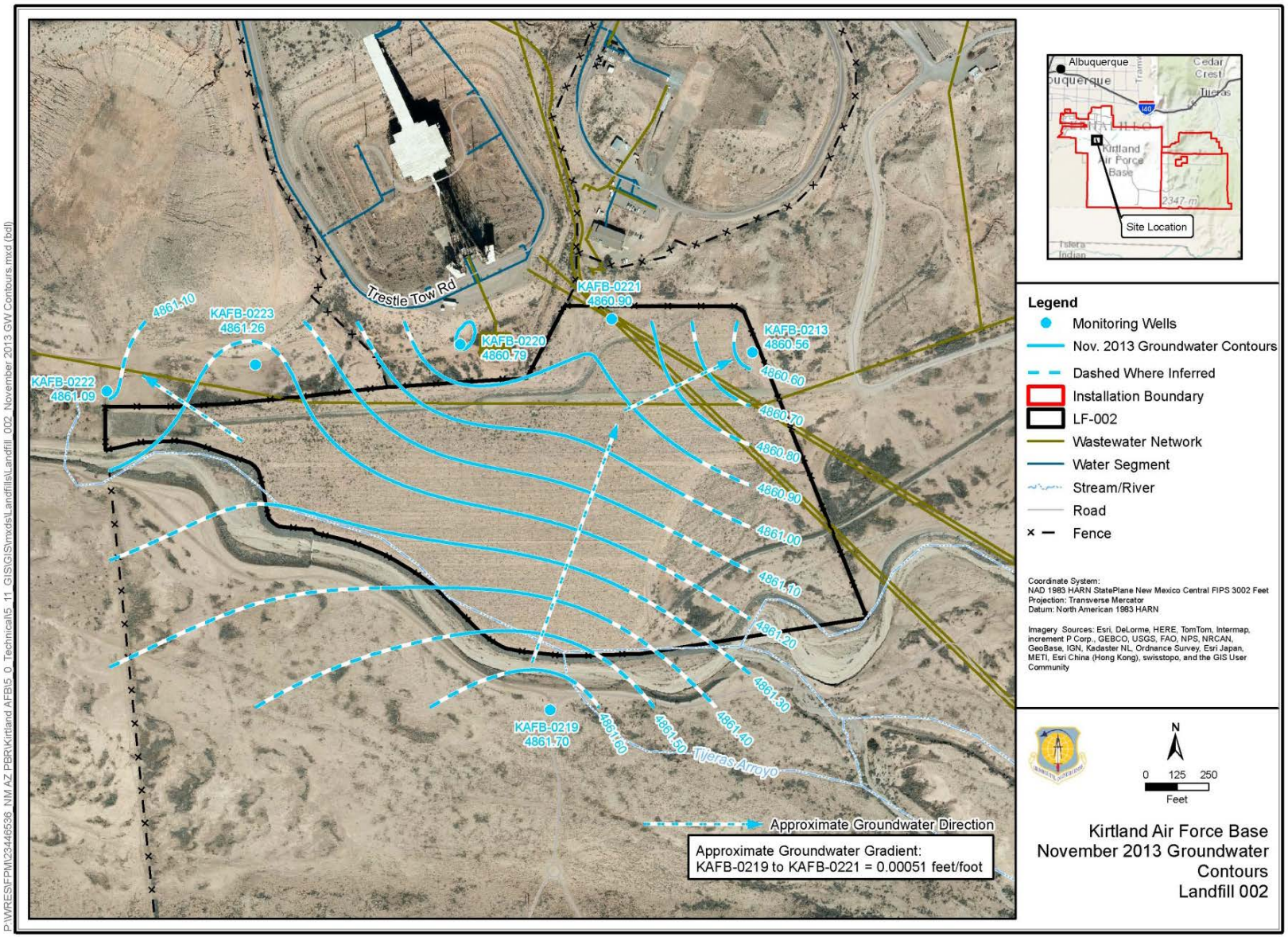

Figure 6-3. LF-002 Regional Aquifer Groundwater Contour Map November 2013

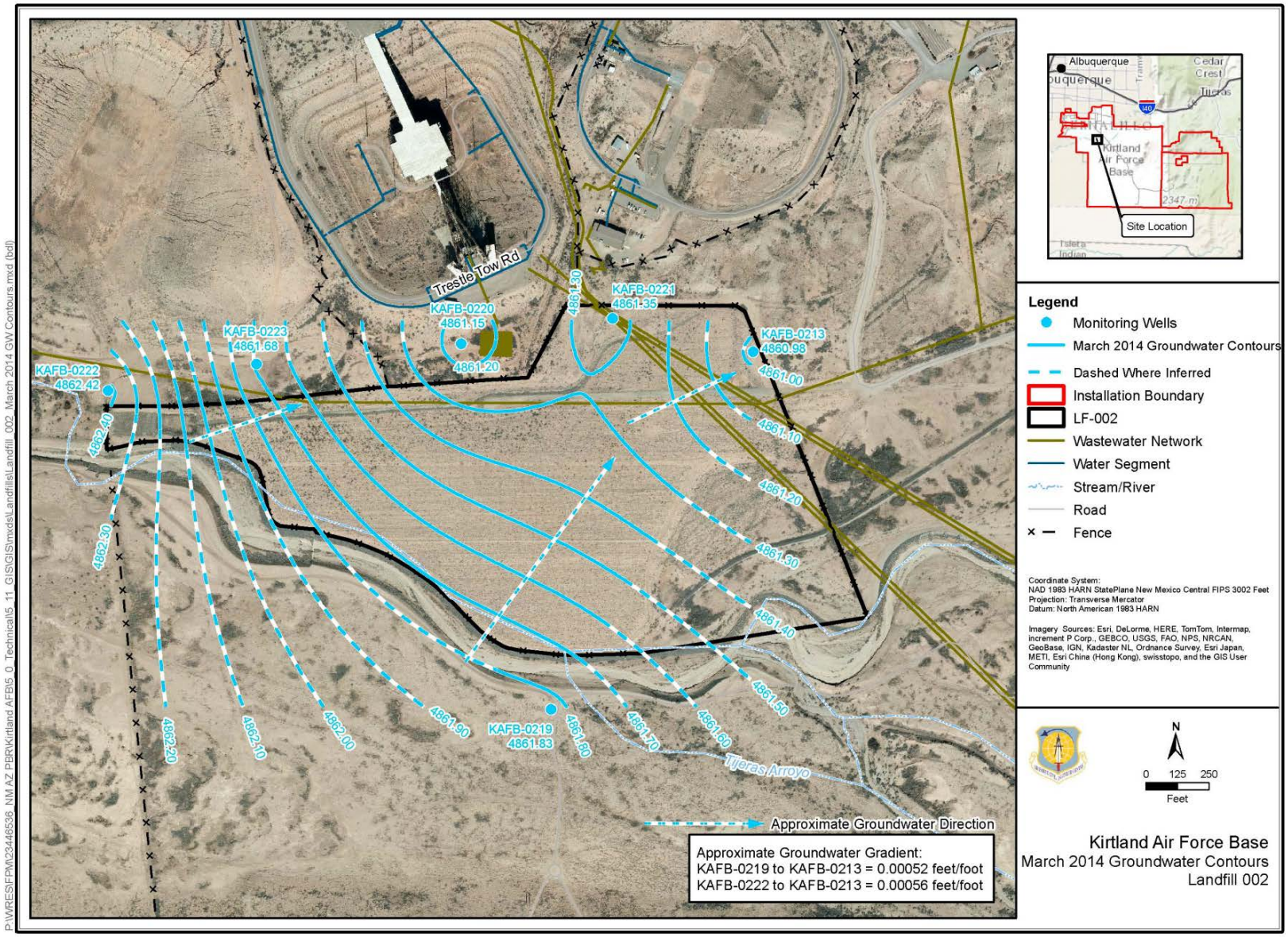

Figure 6-4. LF-002 Regional Aquifer Groundwater Contour Map March 2014

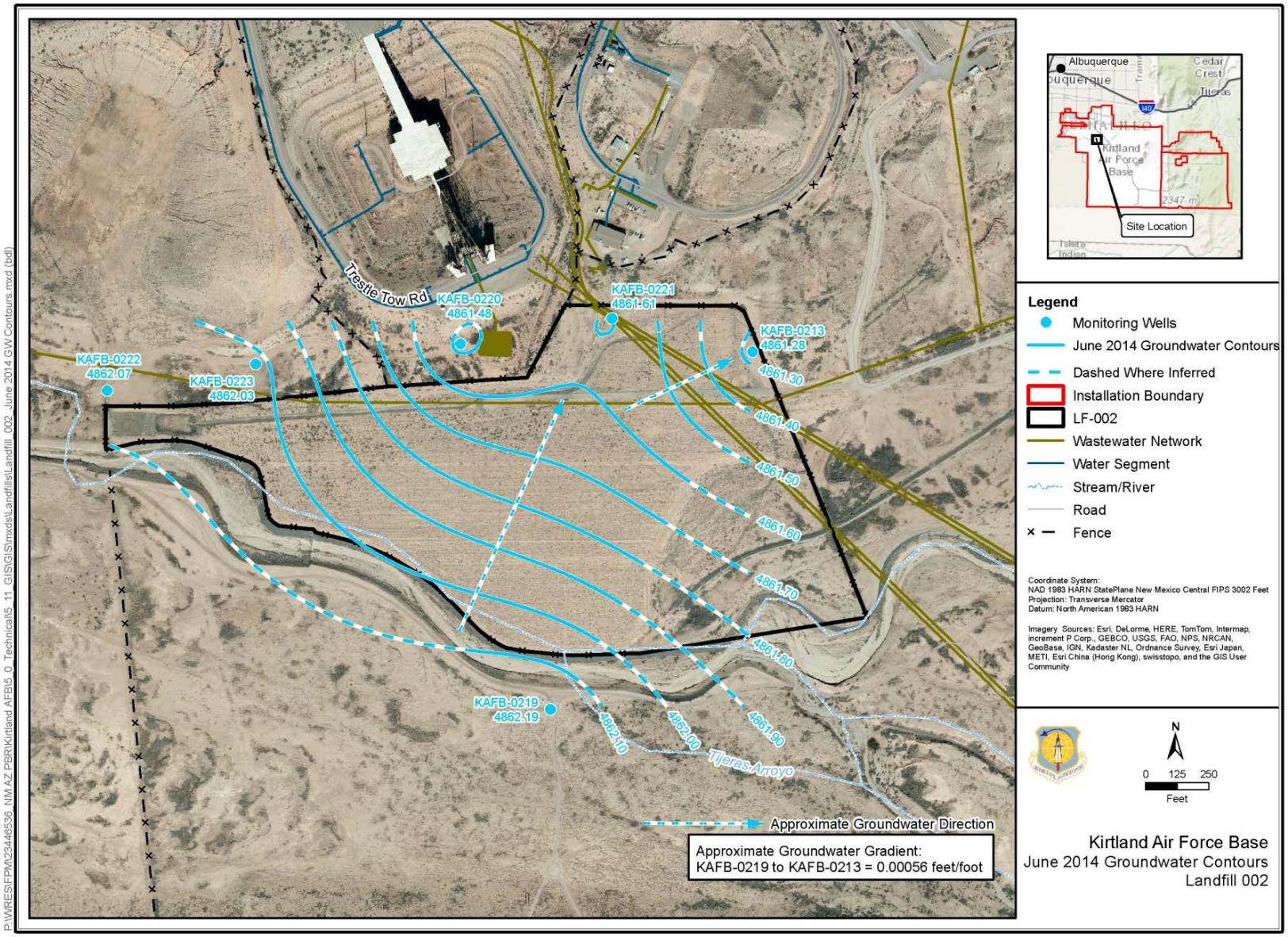

Figure 6-5. LF-002 Regional Aquifer Groundwater Contour Map June 2014

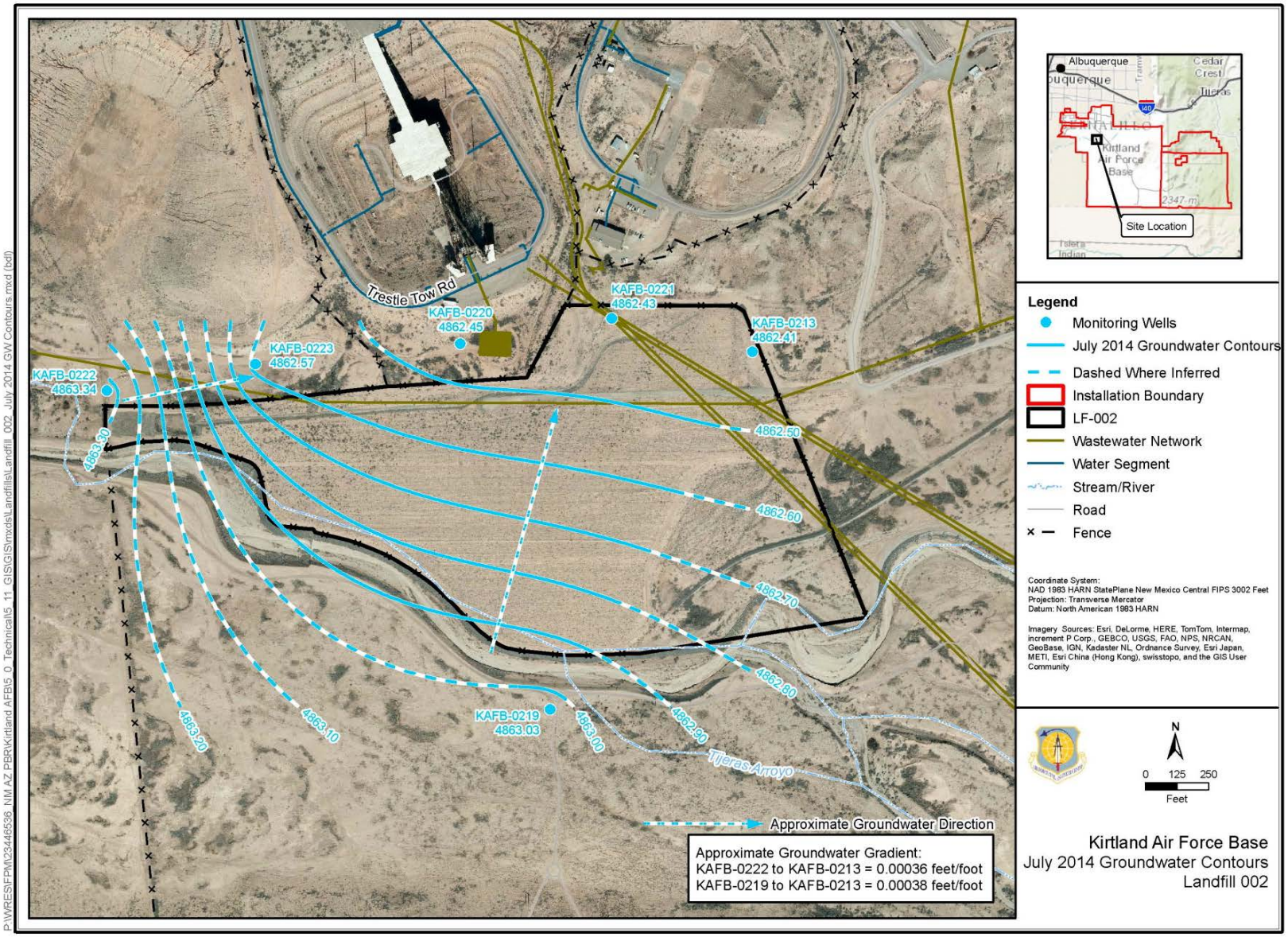

Figure 6-6. LF-002 Regional Aquifer Groundwater Contour Map July 2014

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7.0 LANDFILL 8

As discussed in Section 4.0, groundwater samples were collected April 2-4, 2014 from wells KAFB-0307, KAFB-0310, KAFB-0311, KAFB-0312, KAFB-0313, KAFB-0314, and KAFB-0315 at LF-008. The samples collected were analyzed for VOCs, nitrate-nitrite as nitrogen, total and dissolved metals, anions, TDS, gross alpha and beta, and radium-226 and -228. Samples from well TJA-2 were collected on April 28, 2014 and were analyzed for anions only due to a clerical error. Wells KAFB-0308 and KAFB-0309 were not sampled due to access issues. Analytical results are compared to the lowest applicable screening level as obtained from the following sources:

- New Mexico Water Quality Commission Regulations (NMAC 20.6.2)
- Applicable federal standards include EPA MCLs as found in 40 CFR 141 and 40 CFR 142

7.1 GROUNDWATER SAMPLING RESULTS

The groundwater analytical results for the samples collected from monitoring wells near LF-008 are summarized in Table 7-1 along with the applicable groundwater screening levels. Table A-3 in Appendix A tabulates results for all analytes. The laboratory analytical reports are available in Appendix B.

In the regional aquifer, a concentration of 18.4 mg/L of nitrate as nitrogen was reported in the sample collected from well KAFB-0312. This exceeds the MCL of 10 mg/L. The sample collected from well KAFB-0307 yielded the only detection of toluene, a concentration of 1.08 µg/L. This concentration does not exceed the NMAC standard for toluene of 750 µg/L.

In the perched aquifer, concentrations of total iron and cis-1,2-dichloroethene were detected in the sample collected from well KAFB-0310. The reported concentrations for these constituents were 0.897 mg/L and 0.266 µg/L, respectively. The total iron concentration is lower than the NMAC groundwater standard of 0.1 mg/L and the cis-1,2-dichloroethene concentration is lower than the MCL of 70 µg/L. The 2014 nitrate result for monitoring well TJA-2 was 11.4 mg/L, exceeding the MCL of 10 mg/L.

Concentrations of sulfate, TDS, and tetrachloroethene were detected in the sample collected from well KAFB 0314. Only the reported TDS concentration of 10,600 mg/L exceeded the NMAC groundwater standard of 1,000 mg/L. The reported sulfate concentration of 183 mg/L is below the NMAC standard of 600 mg/L. The reported concentration of tetrachloroethene of 0.658 µg/L is below the applicable MCL of 5 µg/L.

Concentrations of trichloroethene were reported in the samples collected from KAFB-0310, KAFB-0313, KAFB-0314 and KAFB-0315 ranging from 0.267 ug/L to 1.1 ug/L. These concentrations are all less than the MCL for trichloroethene of 5 µg/L.

Concentrations of trichloroethene were reported in KAFB-0310, KAFB-0313, KAFB-0314 and KAFB-0315. The results were all reported at concentrations lower than the MCL for trichloroethene of 5 µg/L.

Results above the LOD were reported for several of the metals (both in total and dissolved forms) included in the analyte list. Gross alpha was detected above the LOD in six of the seven samples analyzed and gross beta and Radium-226 were detected above the LOD in two of the seven samples analyzed. The results for each of these constituents were below the applicable screening levels.

As can been seen from examination of the data in Table 7-1, constituent concentrations are below the applicable regulatory levels or screening levels, except for the nitrate concentration in the sample collected from KAFB-0312 and the TDS concentration in the sample collected from KAFB-0314.

7.2 FIELD MEASUREMENT PARAMETERS

Specific conductance, dissolved oxygen, oxidation-reduction potential, pH, and turbidity were measured in the field at the time of sampling. The final measurements for these parameters are summarized in in the transition contractor's report and include the purge volume removed from the well and the pre-purge depth to groundwater. The specific conductivity is reflective of the total dissolved solids in the groundwater.

7.3 KEY CONSTITUENT TRENDS

Trends charts representing the key constituents for both the regional aquifer monitoring wells and the perched aquifer monitoring wells at LF-008 were prepared based on historical data available in the Environmental Resources Program Information Management System and current monitoring data obtained during the FY 2014 sampling event.

7.3.1 Nitrate as Nitrogen

In both the regional and perched aquifers at LF-008, nitrate concentrations were evaluated for each of the sampled monitoring wells. The 2014 annual sampling event resulted in a nitrate concentration of 18.4 mg/L in the sample collected from well KAFB-0312. The historical nitrate concentrations (see Figure 7-1) have been higher than the EPA MCL of 10 mg/L. The 2014 nitrate result for the sample collected from well TJA-2 was 11.4 mg/L. Nitrate concentrations in samples collected from well TJA-2 have also exceeded the nitrate standard in multiple sampling years. Results for nitrate concentration in samples collected from KAFB-0307 show an increasing trend while nitrate concentrations in samples collected from KAFB-0313 have been decreasing over recent sampling years. The nitrate impacted groundwater is being investigated under the Stage 2 Nitrate Abatement Plan associated with site ST-105.

7.3.2 Total Dissolved Solids

For wells in the perched aquifer at LF-008, the TDS concentrations were evaluated for samples collected from well KAFB-0314 (see Figure 7-2). The April 2014 result of 10,600 mg/L appears to result from an error in sample collection, as results from historical sampling events indicate levels of TDS below the applicable standard. Concentrations at the other seven wells sampled were well below the NMAC groundwater standard of 1,000 mg/L as well.

7.3.3 Iron

Total iron concentrations reported for samples collected from LF-008 monitoring wells were below the NMAC standard of 1 mg/L. The highest concentration,0.897 mg/L, was found in the sample from well KAFB-0310 (see Figure 7-4). Dissolved iron concentrations for each of samples collected from the LF-008 monitoring wells were reported as non-detect or lower than the laboratory LOD. The iron present in the groundwater sample is likely to have originated from the TDS in the sample which was reported at 469 mg/L. No discernible trends are apparent in the LF-008 iron data.

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Table 7-1. LF-008 Analytical Results

Analyte	Unit	KAFB-0310	KAFB-0313	KAFB-0314	KAFB-0315	TJA-2	KAFB-0307	KAFB-0308	KAFB-0309	KAFB-0311	KAFB-0312	Screening Level	Screening Level Source
Chloride	mg/L	92.3	30.9	124	63.5	65.6	58.1	NS	NS	18.5	20	250	NMAC
Fluoride	mg/L	0.293	0.385	0.285	0.32	0.298	0.357	NS	NS	0.376	0.349	1.6	NMAC
Nitrate/Nitrite as Nitrogen	mg/L	6.96	9.46	5.38	6.74	**11.4**	7.94	NS	NS	8.8	**18.4**	10	NMAC/MCL
Sulfate	mg/L	95.8	95.2	183	83.7	53.1	39.2	NS	NS	35.3	41	600	NMAC
TDS	mg/L	469	361	**10,600**	396	368	398	NS	NS	332	339	1000	NMAC
Aluminum (total)	mg/L	0.0246	0.0614	ND	0.0328	NS	0.0405	NS	NS	ND	0.0417	5	NMAC
Arsenic (total)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.010	MCL
Barium (total)	mg/L	0.0667	0.0437	0.039	0.0743	NS	0.162	NS	NS	0.143	0.168	1	NMAC
Beryllium (total)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.004	MCL
Boron (total)	mg/L	0.0241	0.0248	0.0252	0.0237	NS	0.0409	NS	NS	0.0384	0.0444	0.75	NMAC
Cadmium (total)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.005	MCL
Chromium (total)	mg/L	**0.218**	0.00542	0.0146	0.000884	NS	0.0106	NS	NS	0.00229	0.00105	0.05	NMAC
Cobalt (total)	mg/L	0.00316	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.05	NMAC
Copper (total)	mg/L	0.0166	0.00198	ND	ND	NS	0.00501	NS	NS	ND	ND	1	NMAC
Iron (total)	mg/L	0.897[1]	0.117	0.0641	0.0164	NS	0.0527	NS	NS	ND	0.0195	1	NMAC
Lead (total)	mg/L	0.000663	0.000701	0.000407	ND	NS	ND	NS	NS	0.000994	0.000832	0.015	MCL
Manganese (total)	mg/L	0.0192	0.00582	0.0018	0.000997	NS	0.000928	NS	NS	ND	0.00136	0.2	NMAC
Mercury (total)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.002	NMAC/MCL
Molybdenum (total)	mg/L	0.00287	0.00176	0.00142	0.00138	NS	0.00182	NS	NS	0.00202	0.00198	1	NMAC
Nickel (total)	mg/L	0.00533	0.00163	ND	ND	NS	0.00227	NS	NS	ND	ND	0.2	NMAC
Selenium (total)	mg/L	0.00823	0.00464	0.0123	0.00702	NS	0.00496	NS	NS	0.00282	0.0044	0.05	NMAC/MCL
Silver (total)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.05	NMAC
Thallium (total)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.002	MCL
Tin (total)	mg/L	0.00556	ND	ND	ND	NS	ND	NS	NS	ND	ND	1.2	RSL
Uranium (total)	mg/L	0.0023	0.0026	0.0019	0.0023	NS	0.0024	NS	NS	0.0021	0.0025	0.03	NMAC/MCL
Vanadium (total)	mg/L	0.0733	0.00538	0.00419	0.00389	NS	0.00485	NS	NS	0.0045	0.00462	0.0365	GWQB
Zinc (total)	mg/L	0.017	0.00346	0.0017	ND	NS	0.00508	NS	NS	0.0114	ND	10	NMAC
Aluminum (dissolved)	mg/L	0.025	0.0307	0.0464	0.0194	NS	0.0304	NS	NS	ND	0.0324	0.2	NSDWR
Arsenic (dissolved)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.010	MCL
Barium (dissolved)	mg/L	0.065	0.0435	0.0407	0.0774	NS	0.16	NS	NS	ND	0.166	1	NMAC
Beryllium (dissolved)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.004	MCL
Boron (dissolved)	mg/L	0.0244	0.0252	0.0255	0.025	NS	0.0413	NS	NS	ND	0.0428	0.4	RSL
Cadmium (dissolved)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.005	MCL
Chromium (dissolved)	mg/L	0.00101	0.00139	0.00152	0.000797	NS	0.00111	NS	NS	ND	0.000974	0.05	NMAC
Cobalt (dissolved)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.05	NMAC
Copper (dissolved)	mg/L	0.0105	ND	ND	ND	NS	0.00415	NS	NS	ND	ND	1	NMAC
Iron (dissolved)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	1	NMAC
Lead (dissolved)	mg/L	0.000767	0.000581	0.000825	ND	NS	0.000589	NS	NS	ND	0.000702	0.015	MCL
Manganese (dissolved)	mg/L	0.000176	ND	ND	ND	NS	ND	NS	NS	ND	0.000781	0.2	NMAC
Mercury (dissolved)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.002	NMAC/MCL

Analyte	Unit	KAFB-0310	KAFB-0313	KAFB-0314	KAFB-0315	TJA-2	KAFB-0307	KAFB-0308	KAFB-0309	KAFB-0311	KAFB-0312	Screening Level	Screening Level Source
Molybdenum (dissolved)	mg/L	0.00156	0.00182	0.00134	0.00147	NS	0.00171	NS	NS	ND	0.00181	1	NMAC
Nickel (dissolved)	mg/L	0.000799	ND	ND	ND	NS	0.00172	NS	NS	ND	ND	0.2	NMAC
Selenium (dissolved)	mg/L	0.00837	0.00437	0.0129	0.00738	NS	0.00517	NS	NS	ND	0.00388	0.05	NMAC/MCL
Silver (dissolved)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.05	NMAC
Thallium (dissolved_	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.002	MCL
Tin (dissolved)	mg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	1.2	RSL
Uranium (dissolved)	mg/L	0.0024	0.0028	0.0022	0.0019	NS	0.0022	NS	NS	ND	0.0024	0.03	NMAC/MCL
Vanadium (dissolved)	mg/L	0.00456	0.00487	0.00408	0.00415	NS	0.00463	NS	NS	ND	0.00435	0.0365	GWQB
Zinc (dissolved)	mg/L	0.017	0.00156	ND	ND	NS	0.00453	NS	NS	ND	ND	10	NMAC
Gross Alpha	pCi/L	ND	3.6	3	3.2	NS	2.15	NS	NS	2.71	3.9	15	MCL
Gross Beta	pCi/L	ND	ND	ND	ND	NS	2.9	NS	NS	3.01	ND	4 mR/yr [a]	MCL
Radium-228	pCi/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	5 [b]	MCL
Radium-226	pCi/L	ND	0.57	0.71	ND	NS	ND	NS	NS	ND	ND	5 [b]	MCL
1,1,1,2-Tetrachloroethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.57	RSL
1,1,1-Trichloroethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	60	NMAC
1,1,2,2-Tetrachloroethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	10	NMAC
1,1,2-Trichloroethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	10	NMAC
1,1-Dichloroethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	25	NMAC
1,1-Dichloroethene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	5	NMAC
1,1-Dichloropropene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	NE	--
1,2,3-Trichlorobenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.7	RSL
1,2,3-Trichloropropane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.00075	RSL
1,2,4-Trichlorobenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	1.1	RSL
1,2,4-Trimethylbenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	1.5	RSL
1,2-Dibromo-3-chloropropane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.00033	RSL
1,2-Dibromoethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.0075	RSL
1,2-Dichlorobenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	30	RSL
1,2-Dichloroethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.17	RSL
1,2-Dichloropropane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.44	RSL
1,3,5-Trimethylbenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	12	RSL
1,3-Dichlorobenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	18.3	GWQB
1,3-Dichloropropane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	37	RSL
1,3-Dichloropropene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.47	RSL
1,4-Dichlorobenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.48	RSL
2,2-Dichloropropane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	NE	--
2-Butanone	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	560	RSL
2-Chlorotoluene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	24	RSL
2-Hexanone	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	3.8	RSL
4-Chlorotoluene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	25	RSL
4-Methyl-2-pentanone	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	120	RSL
Acetone	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	1400	RSL
Benzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	5	MCL

Analyte	Unit	KAFB-0310	KAFB-0313	KAFB-0314	KAFB-0315	TJA-2	KAFB-0307	KAFB-0308	KAFB-0309	KAFB-0311	KAFB-0312	Screening Level	Screening Level Source
Bromobenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	6.2	RSL
Bromochloromethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	8.3	RSL
Bromodichloromethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.13	RSL
Bromoform	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	9.2	RSL
Bromomethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.75	RSL
Carbon disulfide	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	81	RSL
Carbon tetrachloride	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.45	RSL
Chlorobenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	7.8	RSL
Chloroethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	38.1	GWQB
Chloroform	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.22	RSL
Chloromethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	14.9	GWQB
cis-1,2-Dichloroethene	µg/L	0.266	ND	ND	ND	NS	ND	NS	NS	ND	ND	70	MCL
cis-1,3-Dichloropropene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	NE	--
DCE12TOT	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	NE	--
Dibromochloromethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.17	RSL
Dibromomethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.8	RSL
Dichlorodifluoromethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	20	RSL
Ethylbenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	1.5	RSL
Hexachlorobutadiene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.30	RSL
Isopropylbenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	45	RSL
m,p-Xylenes	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	19	RSL
Methyl tert butyl ether	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	14	RSL
Methylene chloride	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	5	NMAC
Naphthalene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.17	RSL
N-Butylbenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	100	RSL
N-Propylbenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	66	RSL
o-Xylene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	19	RSL
p-Isopropyltoluene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	NE	--
sec-Butylbenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	200	RSL
Styrene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	120	RSL
tert-Butylbenzene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	69	RSL
Tetrachloroethene	µg/L	ND	ND	0.658	ND	NS	ND	NS	NS	ND	ND	5	MCL
Toluene	µg/L	ND	ND	ND	ND	NS	1.08	NS	NS	ND	ND	750	NMAC
trans-1,2-Dichloroethene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	100	MCL
trans-1,2,Dichloropropene	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	NE	--
Trichloroethene	µg/L	1.1	0.536	0.549	0.267	NS	ND	NS	NS	ND	ND	5	MCL
Trichlorofluoromethane	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	110	RSL
Vinyl chloride	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	0.019	RSL
Xylenes	µg/L	ND	ND	ND	ND	NS	ND	NS	NS	ND	ND	620	NMAC

Analyte	Unit	KAFB-0310	KAFB-0313	KAFB-0314	KAFB-0315	TJA-2	KAFB-0307	KAFB-0308	KAFB-0309	KAFB-0311	KAFB-0312	Screening Level	Screening Level Source

[a] As per *Inventory of Radiological Methodologies for Sites Contaminated with Radioactive Materials* (EPA, 2006), as a general rule, 15 pCi/L should not be exceeded to ensure that the 4 mR/yr requirement is achieved.
[b]The 5 pCi/L limit is for radium-226 and radium-228, combined.
Bold – Concentration exceeds screening level
EPA – U.S. Environmental Protection Agency
MCL – Maximum Contaminant Level
NMAC – New Mexico Administrative Code
NSDWR – National Secondary Drinking Water Regulation
GWQB – Ground Water Quality Bureau
RSL – Regional Screening Level
ND – non-detect above the laboratory Limit of Detection
NE – none established
NS – not sampled in 2014 by the transition contractor
mg/L – milligrams per liter
mR/yr – milli-Roentgen-equivalent-man per year
pCi/L – picocurie per liter
µg/L – microgram per liter

[1] – Sample results for KAFB-0310 for iron exceeded the laboratory's quality control criteria and have therefore been identified as either an outlier or inaccurate result

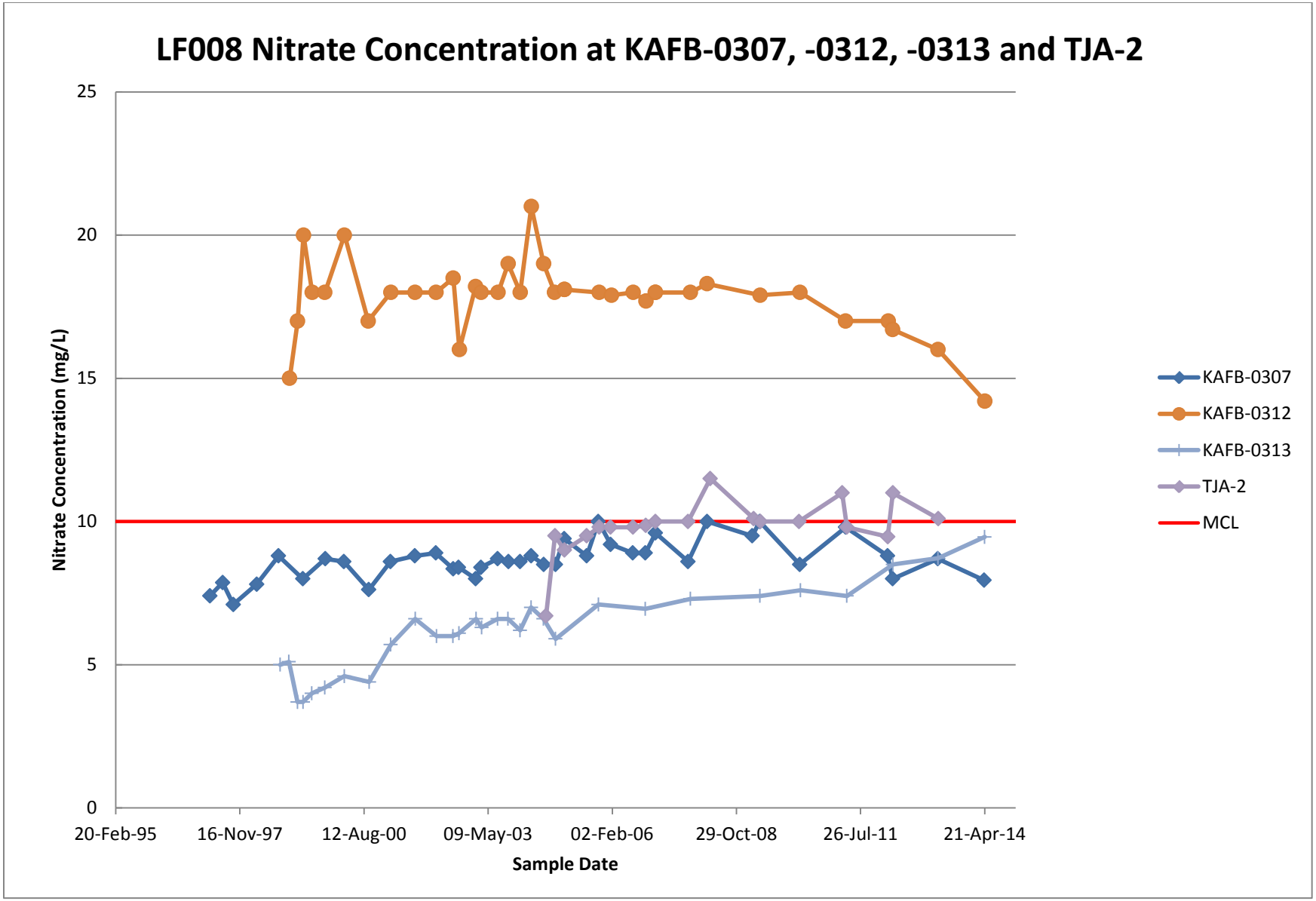

Figure 7-1. LF-008 Nitrate Concentrations at KAFB-0307, -0312, -0313 and TJA-2

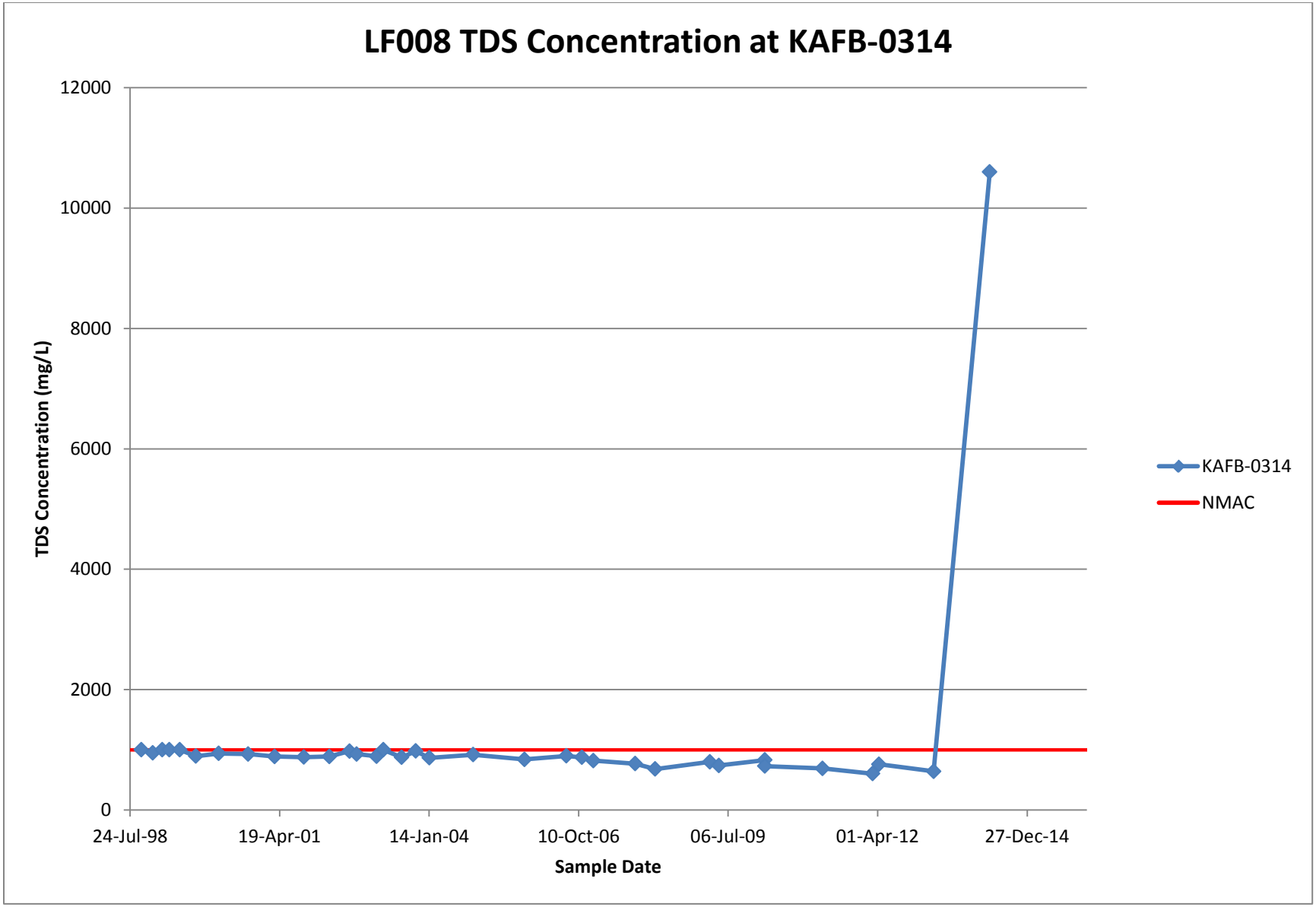

Figure 7-2. LF-008 TDS Concentrations at KAFB-0314

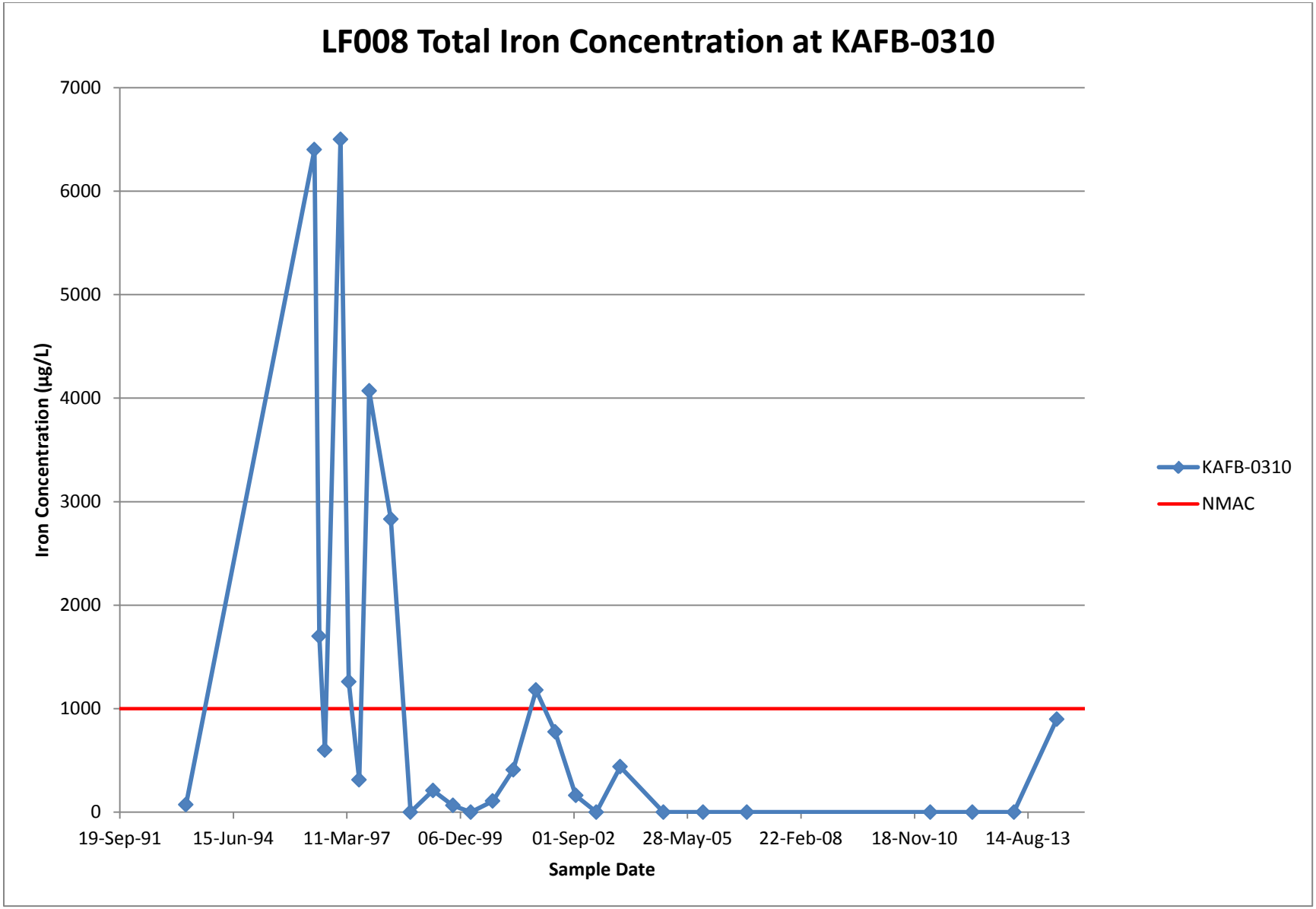

Figure 7-3. LF-008 Total Iron Concentration at KAFB-0310

7.4 GROUNDWATER LEVELS

Groundwater elevations were measured in November 2013, March 2014, June 2014, and July 2014. Table 7-2 summarizes the results from the field measurements. Figures 7-5 through 7-8 present the groundwater contour maps developed from this data.

Table 7-2. LF-008 Groundwater Elevations

Well	Measuring Point Elevation (ft amsl)	Date	Depth to Water (ft)	Groundwater Elevation (ft amsl)
Perched Aquifer Wells				
KAFB-0310	5,413.81	November 2013	353.04	5,060.77
		March 2014	353.24	5,060.57
		June 2014	353.12	5,060.69
		July 2014	352.24	5,061.57
KAFB-0313	5,416.31	November 2013	349.90	5,066.41
		March 2014	350.01	5,066.30
		June 2014	350.12	5,066.19
		July 2014	349.73	5,066.58
KAFB-0314	5,453.08	November 2013	416.00	5,037.08
		March 2014	416.23	5,036.85
		June 2014	416.40	5,036.68
		July 2014	415.80	5,037.28
KAFB-0315	5,463.44	November 2013	438.69	5,024.75
		March 2014	438.78	5,024.66
		June 2014	438.72	5,024.72
		July 2014	436.12	5,027.32
TJA-2	5,349.81	November 2013	278.32	5,071.49
		March 2014	277.89	5,071.92
		June 2014	278.11	5,071.70
		July 2014	--[1]	--[1]
Regional Aquifer Wells				
KAFB-0307	5,361.86	November 2013	430.20	4,931.86
		March 2014	430.06	4,931.80
		June 2014	429.89	4,931.97
		July 2014	428.14	4,933.72
KAFB-0308	5,378.98	November 2013	447.28	4,931.70
		March 2014	447.27	4,931.71
		June 2014	447.31	4,931.67
		July 2014	446.68	4,932.30
KAFB-0309	5,409.13	November 2013	479.62	4,929.51
		March 2014	479.58	4,929.55
		June 2014	479.65	4,929.48
		July 2014	478.60	4,930.53
KAFB-0311	5,350.62	November 2013	420.68	4,929.94
		March 2014	420.72	4,929.90
		June 2014	420.72	4,929.90
		July 2014	420.76	4,929.86

Well	Measuring Point Elevation (ft amsl)	Date	Depth to Water (ft)	Groundwater Elevation (ft amsl)
KAFB-0312	5,429.50	November 2013	418.34	5,011.16
		March 2014	418.38	5,011.12
		June 2014	418.28	5,011.22
		July 2014	417.54	5,011.96

amsl – above mean sea level
ft – feet

[1] Well gauging was not performed at TJA-2 in July 2014 because field personnel did not have the proper key.

Groundwater elevations in the perched aquifer during FY 2014 ranged from 5,024.66 ft amsl in downgradient well KAFB-0315 to 5,071.92 ft amsl in upgradient well TJA-2. Depth to the water table below the landfill generally decreased throughout the year and was shallowest, 277.89 ft below the top of the well casing, in well TJA-2, and deepest, 438.78 ft below the top of the well casing, at well KAFB-0315. Depths remained consistent in monitoring well TJA-2.

Groundwater elevations in the regional aquifer during FY 2014 ranged from 4,929.48 ft amsl in downgradient well KAFB-0309 to 5,011.96 ft above msl in upgradient well KAFB-0312. Depth to the water table below the landfill decreased throughout the year and was shallowest, 418.28 ft below the top of the well casing, in well KAFB-0312, and deepest, 479.65 ft below the top of the well casing, at well KAFB-0309. Depths remained consistent in monitoring well KAFB-0311.

7.5 DISCUSSION OF RESULTS

For the LF-008 aquifers, nitrates appear to be impacting the groundwater. For the perched aquifer plume, nitrate concentrations in the central to northeastern portion of the plume demonstrate an increasing trend. Well TJA-2, associated with LF-008 on the northwestern edge of the landfill, is located on the northeastern edge of the perched aquifer nitrate plume. The nitrate concentrations for samples collected from this well have demonstrated a slight, but notable increasing trend wherein the concentrations were initially below the regulatory level of 10 mg/L, but began to exceed this level in early 2008. The nitrate concentration appears to have stabilized averaging approximately 11 mg/L, but warrants continued monitoring. The groundwater elevation has shown a decreasing trend which may correlate to the increasing nitrate concentration.

Historical results for other monitored constituents do not indicate increasing concentrations that are likely to impact the regional aquifer in the future.

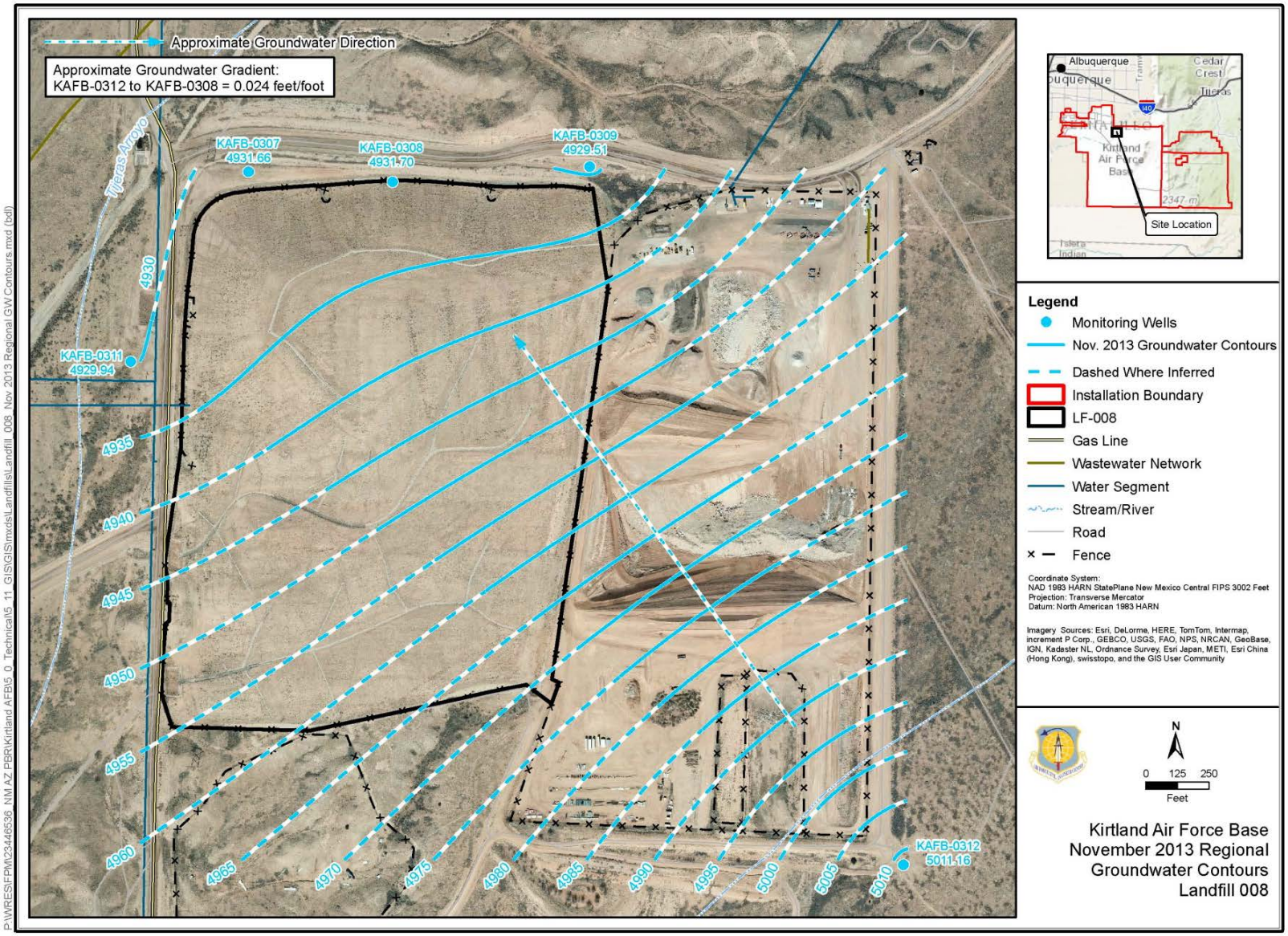

Figure 7-4. LF-008 Regional Aquifer Groundwater Contour Map November 2013

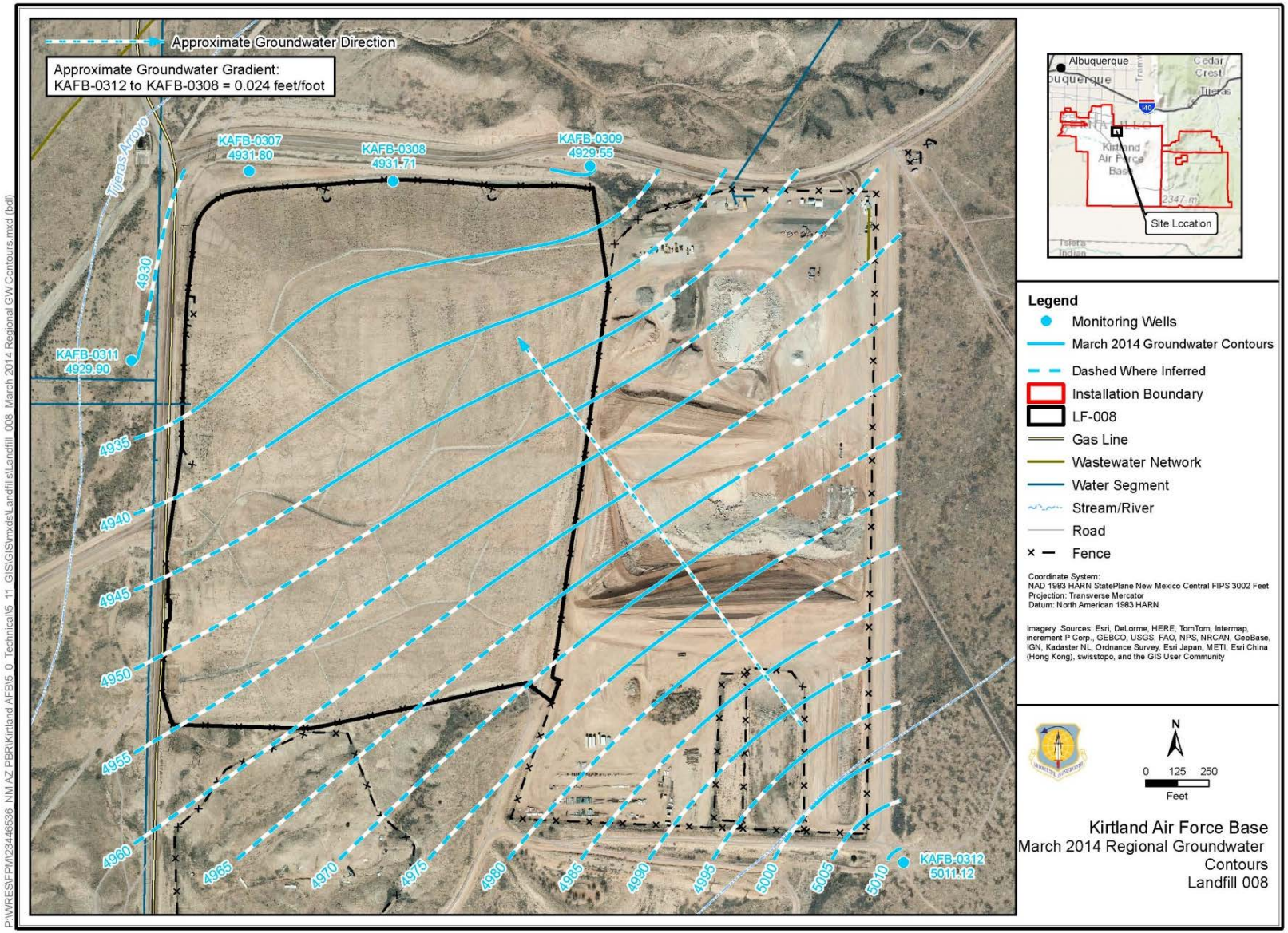

Figure 7-5. LF-008 Regional Aquifer Groundwater Contour Map March 2014

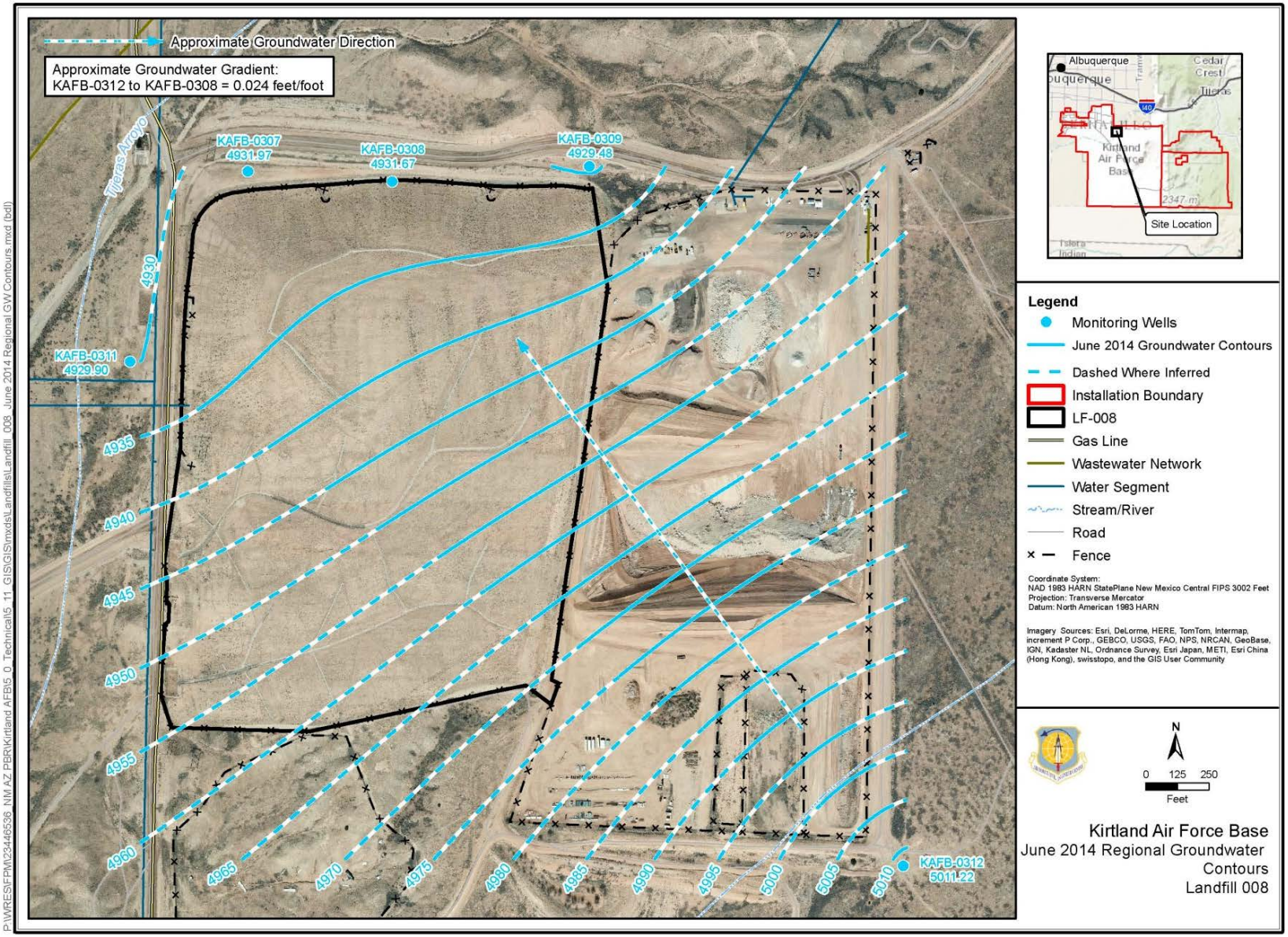

Figure 7-6. LF-008 Regional Aquifer Groundwater Contour Map June 2014

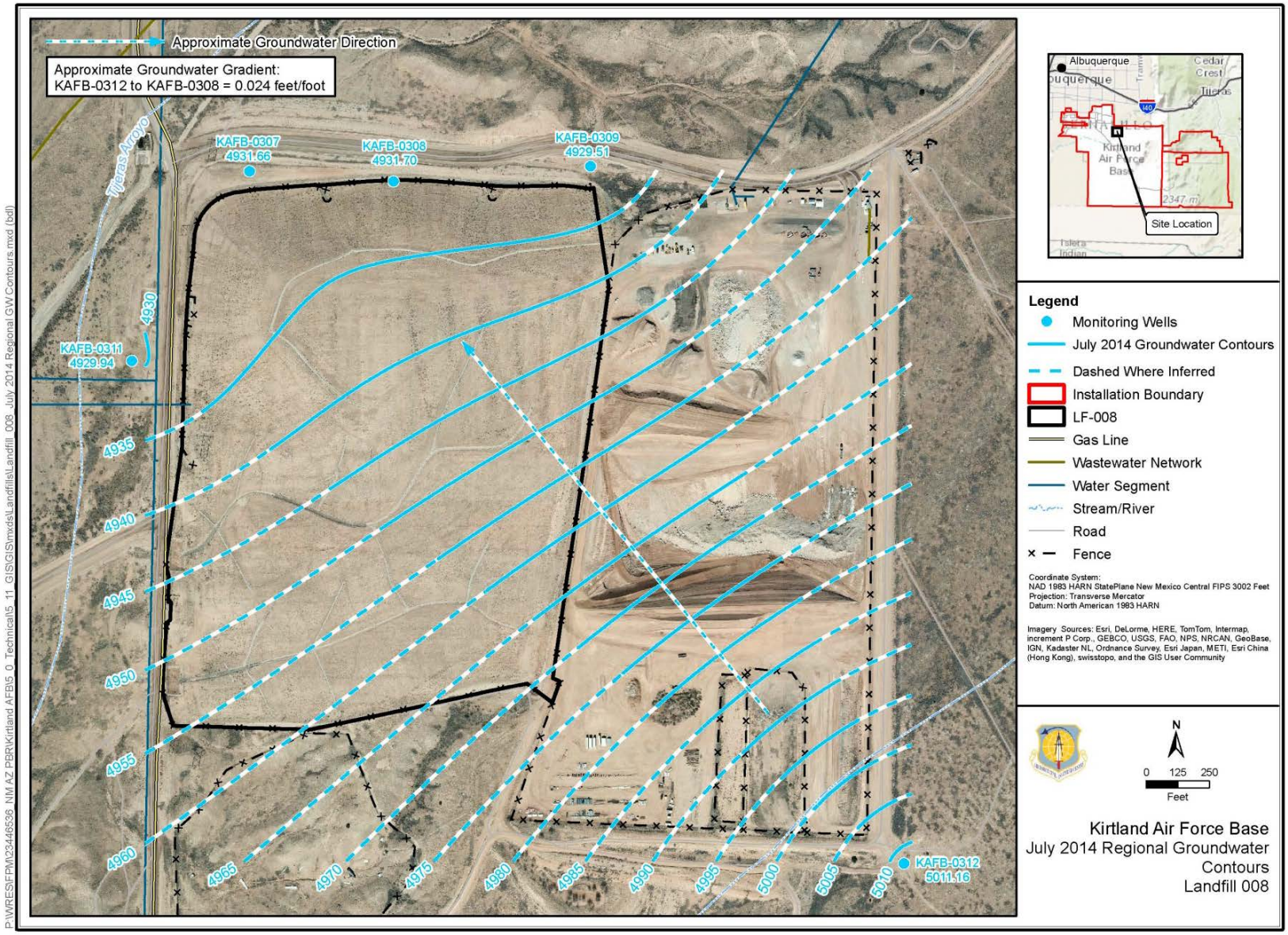

Figure 7-7. LF-008 Regional Aquifer Groundwater Contour Map July 2014

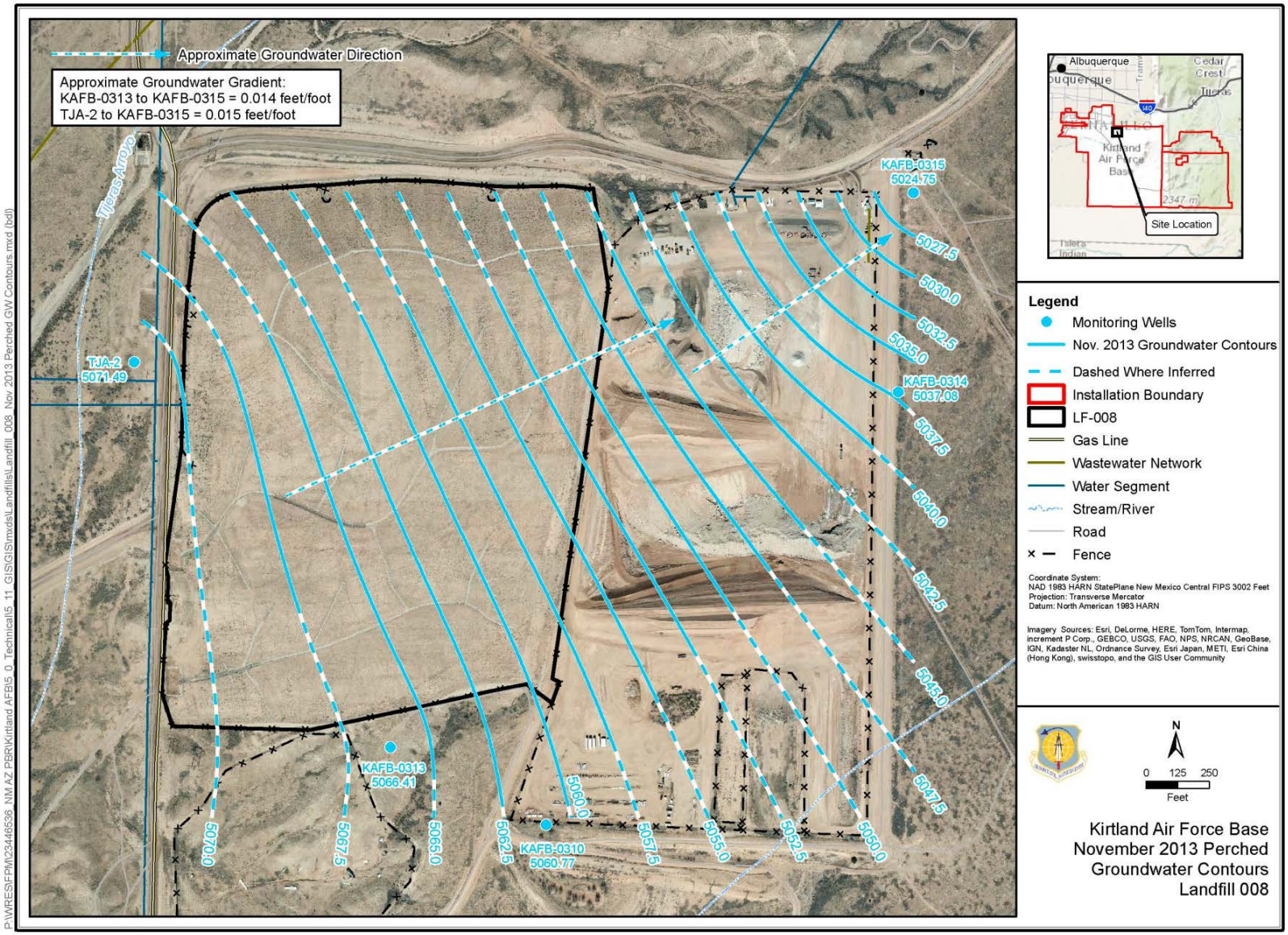

Figure 7-8. LF-008 Perched Aquifer Groundwater Contour Map November 2013

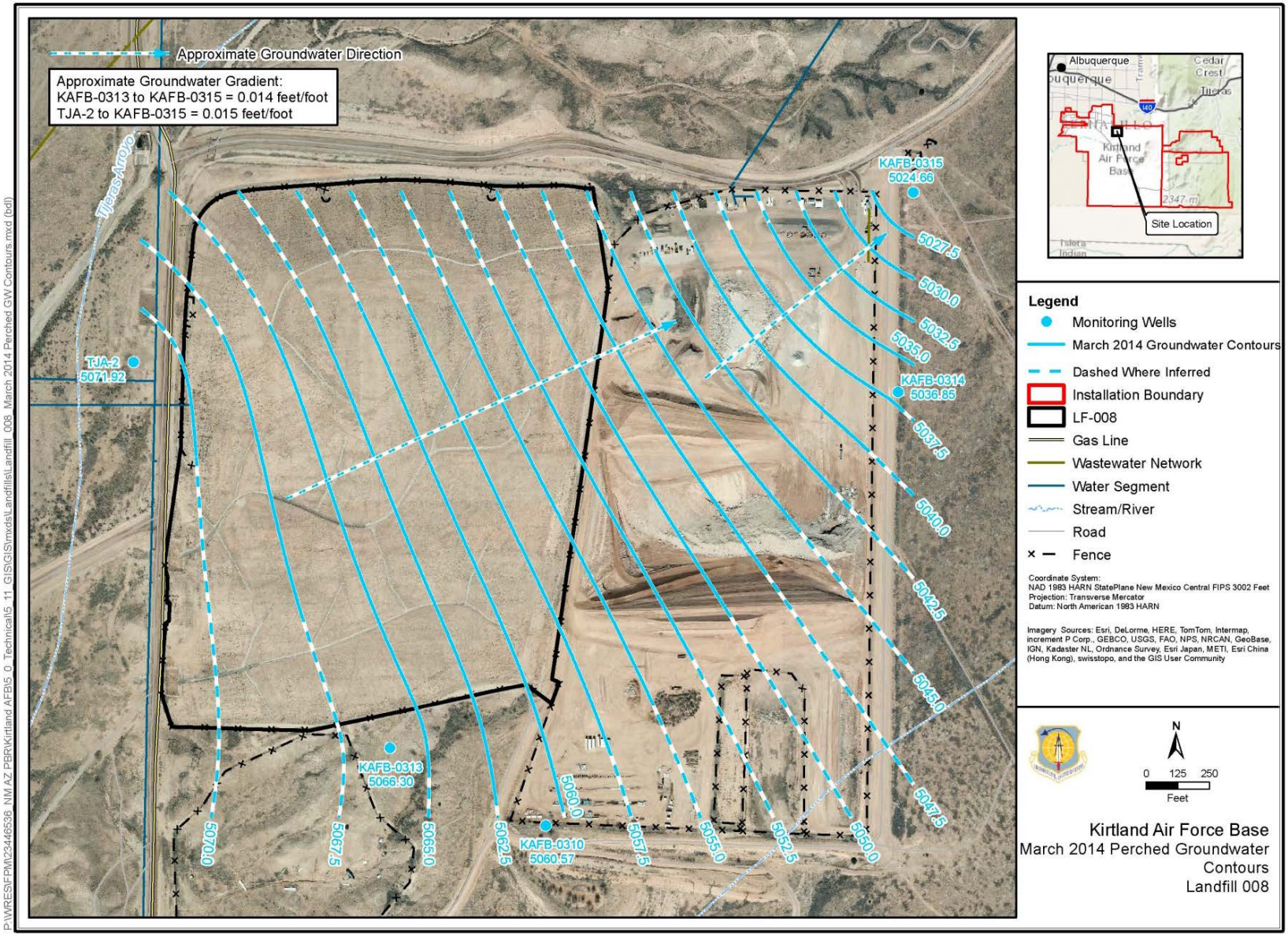

Figure 7-9. LF-008 Perched Aquifer Groundwater Contour Map March 2014

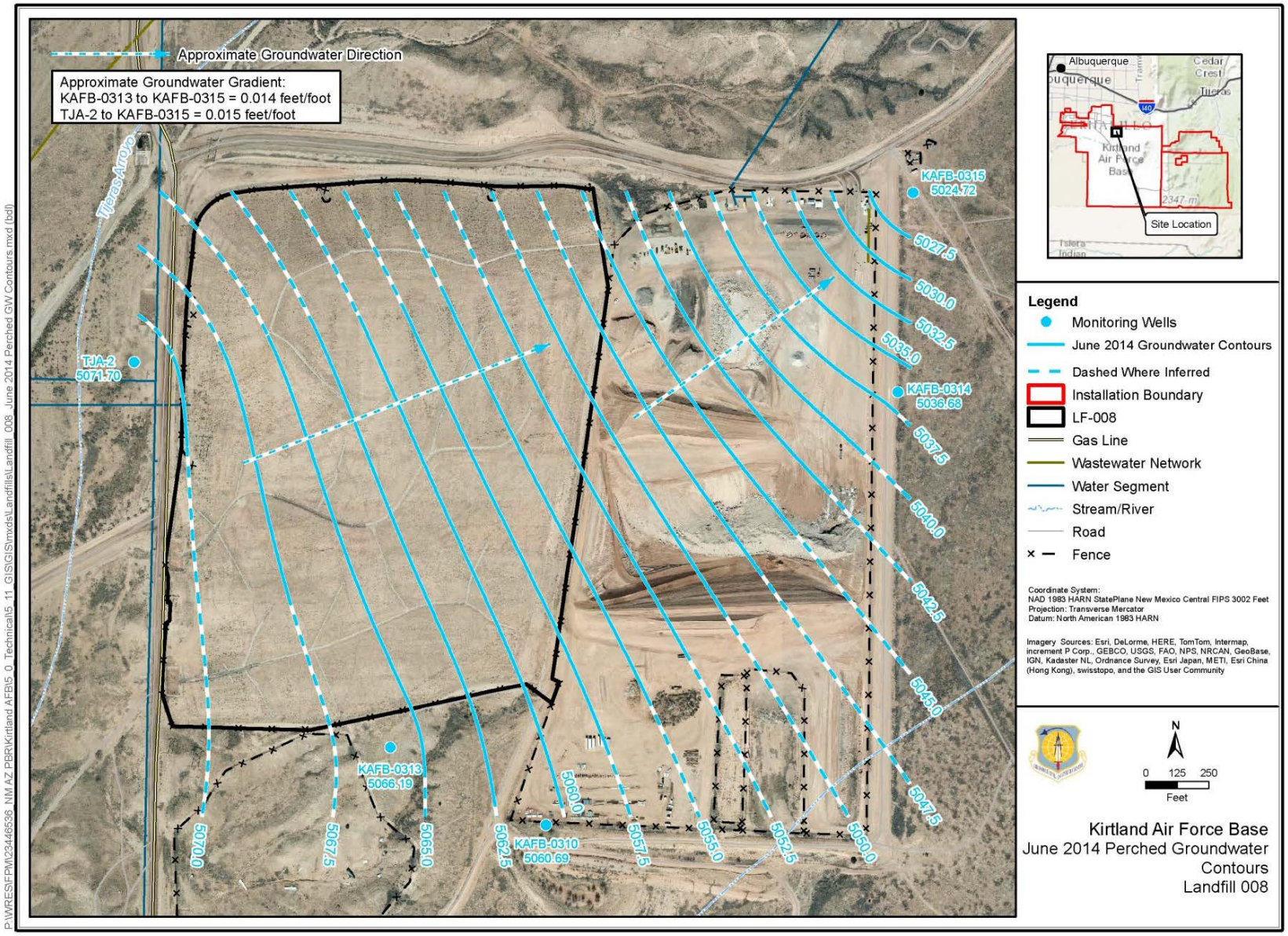

Figure 7-10. LF-008 Perched Aquifer Groundwater Contour Map June 2014

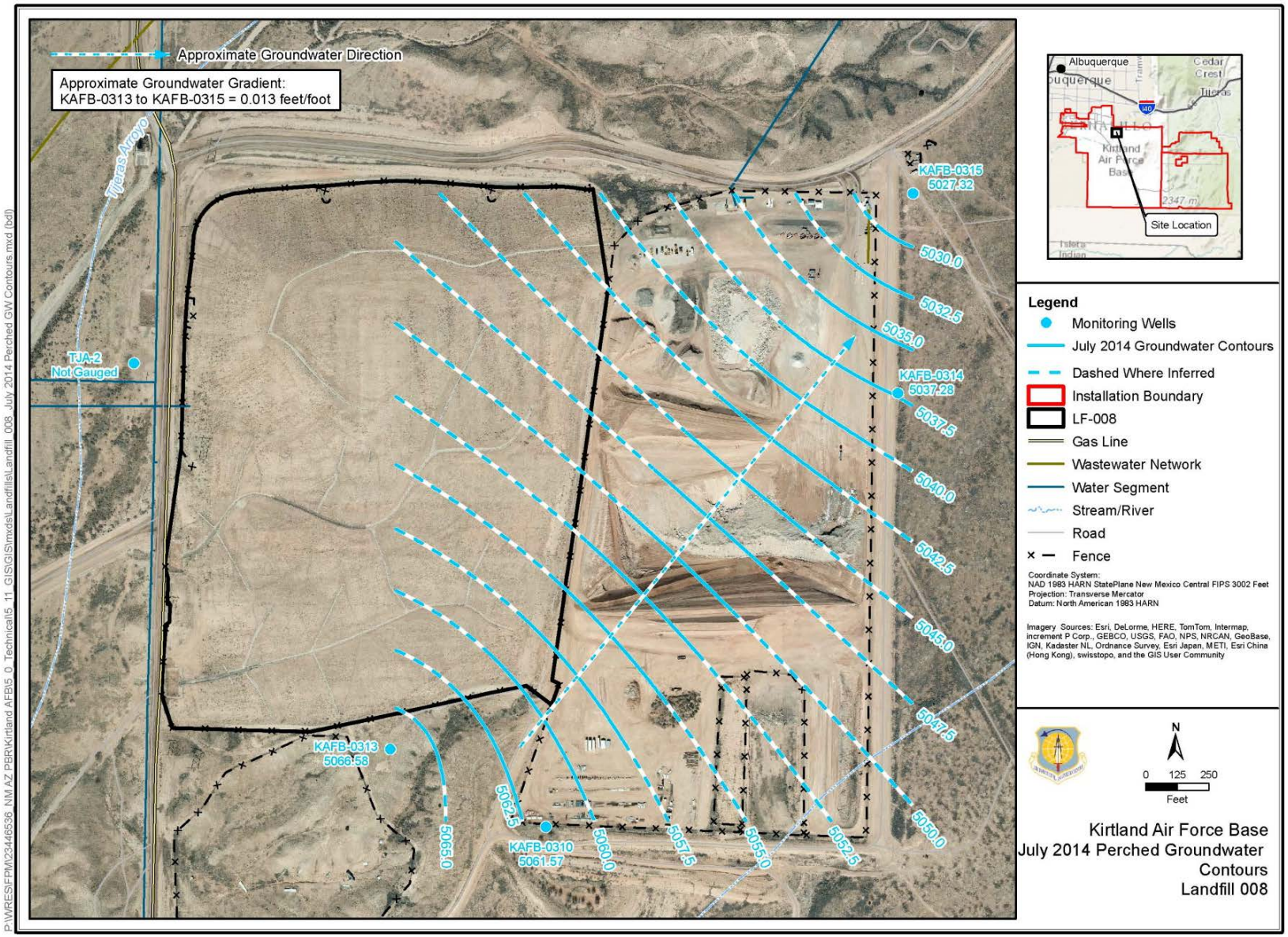

Figure 7-11. LF-008 Perched Aquifer Groundwater Contour Map July 2014

8.0 FIELD QUALITY CONTROL SAMPLE SUMMARY

This section summarizes the field quality control (QC) samples collected from the site. Field QC samples included field duplicates and trip blanks. Because dedicated sampling equipment was used, equipment blank rinsate samples were not required.

8.1 FIELD DUPLICATE

Precision was evaluated by measuring the agreement among individual measurements of the same property under similar conditions. Field precision is measured through the collection and analysis of field duplicate samples. A field duplicate is an additional sample collected at the same time from the same location as the normal sample. The field duplicate is intended to represent the same population and is taken through all of the steps of the analytical process in an identical manner to the normal sample. It is used to assess precision of the entire data collection activity, including sampling, analysis, and site heterogeneity.

Duplicate samples were collected simultaneously with or in immediate succession to the normal sample, using identical sampling techniques, and were treated in an identical manner during storage, transportation, and analysis. Duplicate samples were collected from the LF-002 regional aquifer well KAFB-0213 and the LF-008 perched aquifer well KAFB-0313.

Typically, one of four common calculations will be used to assess various measurements for precision. The relative percent difference (RPD) or relative standard deviation is calculated for every contaminant for which field or laboratory duplicates exist. The precision of the absolute range can be used when the absolute variation between two measurements is more appropriate. The mean difference is a standard statistical method of assessing the difference between two radioactivity measurements and determining the significance of that difference.

For this sampling event, the RPD is used for two observed values (e.g., field collocated duplicates, laboratory duplicates, and laboratory matrix spike or matrix spike duplicates). The RPD for duplicate samples is calculated as shown in Equation 1.

$$\mathrm{RPD} = \frac{|C_1 - C_2|}{(C_1 + C_2)\mathrm{x}\left(\frac{1}{2}\right)}\mathrm{x}(100\%) \qquad (1)$$

Where:

RPD	=	relative percent difference
C_1	=	larger of the two observed values
C_2	=	smaller of the two observed values

Precision of radionuclide measurements is determined using the mean difference calculation shown in Equation 2. At the 95 percent (%) confidence level, a mean difference result less than 1.96 indicates acceptable precision.

$$\mathrm{MD} = \frac{|S - D|}{\sqrt{(\sigma_S^2 + \sigma_D^2)}} \qquad (2)$$

Where:

MD	=	statistical difference of the duplicate results
S	=	sample result (as pCi/g or pCi/L)
D	=	duplicate result (as pCi/L)
σ_S	=	associated total propagated one-sigma uncertainty of the sample result
σ_D	=	associated total propagated one-sigma uncertainty of the duplicate result

For KAFB-0213, Table 8-1 summarizes the analytes for which detectable concentrations were obtained and the associated calculated statistical result comparing the two concentrations. The comparison of detectable chemical concentrations was performed by calculating the RPD in accordance with Equation 1. For groundwater samples, a resulting RPD difference of 30% or lower indicates acceptable field precision. Based on this criterion, the analytical results for KAFB-0213 demonstrate acceptable precision.

For KAFB-0313, Table 8-2 summarizes the analytes which had detectable concentrations. For the gross alpha activity, a mean difference was calculated in accordance with Equation 2. The RPD was calculated for the chemical constituents as prescribed by Equation 1. As for KAFB-0213, acceptable field precision is noted by a RPD being less than 30% or a mean difference result being less than 1.96. The analytical results for KAFB-0313 demonstrate acceptable precision based upon the RPD with the following exceptions: total aluminum, total chromium, total iron, total lead, total manganese, and dissolved zinc. The Quality Assurance Project Plan for the landfill sites includes the following field duplicate measurement performance criterion: If one or both results are ≤ 5 times the reporting limit, then the absolute difference between the results should agree within ± 2 times the reporting limit for water samples. The results for total aluminum, total chromium, total lead, total manganese and dissolved zinc meet this performance criterion. The absolute difference for the two total iron samples is not within 2 times the reporting limit. This supports the possibility that sediment may have been entrained in the initial groundwater sample, resulting in a total iron concentration higher than anticipated for this well. The reported concentration in the duplicate sample was more similar to results from sampling events conducted in previous years.

Table 8-1. KAFB-0213 Precision Evaluation

Analyte	Unit	Initial	Duplicate	Statistical Result
Chloride	mg/L	16	16.1	0.62%
Fluoride	mg/L	0.324	0.325	0.31%
Nitrate/Nitrite as Nitrogen	mg/L	4.27	4.31	0.93%
Sulfate	mg/L	71.4	71.9	0.70%
Total Dissolved Solids	mg/L	333	299	10.76%
Barium	mg/L	0.0562	0.0564	0.36%
Chromium	mg/L	0.000732	0.000716	2.21%
Selenium	mg/L	0.00176	0.00183	3.90%
Gross Alpha	pCi/L	4.3	3.4	23.38%

mg/L – milligrams per liter
pCi/L – picocuries per liter
% – percent

Table 8-2. KAFB-0313 Precision Evaluation

Analyte	Unit	Initial	Duplicate	Statistical Result
Chloride	mg/L	30.9	31	0.32%
Fluoride	mg/L	0.385	0.382	0.78%
Nitrate/Nitrite as Nitrogen	mg/L	9.46	9.52	0.63%
Sulfate	mg/L	95.2	95.6	0.42%
Total Dissolved Solids	mg/L	361	367	1.65%
Aluminum (total)	mg/L	0.0614	0.0302	68.12%
Barium (total)	mg/L	0.0437	0.0418	4.44%
Cadmium (total)	mg/L	0.0248	0.0248	0.0%
Chromium (total)	mg/L	0.00542	0.00259	70.66%
Iron (total)	mg/L	0.117	0.0398	98.47%
Lead (total)	mg/L	0.000701	0.00043	47.92%
Manganese (total)	mg/L	0.00582	0.00274	71.96%
Molybdenum (total)	mg/L	0.00176	0.00173	1.72%
Selenium (total)	mg/L	0.00464	0.00432	0.069%
Uranium-238 (total)	mg/L	0.0026	0.0024	7.14%
Vanadium (total)	mg/L	0.00538	0.00493	8.0%
Zinc (total)	mg/L	0.00346	0.00194	8.73%
Aluminum (dissolved)	mg/L	0.0307	0.0272	12.09%
Barium (dissolved)	mg/L	0.0435	0.0439	0.92%
Boron (dissolved)	mg/L	0.0252	0.0243	3.64%
Chromium (dissolved)	mg/L	0.00139	0.00155	10.88%
Lead (dissolved)	mg/L	0.000581	0.000566	2.62%
Molybdenum (dissolved)	mg/L	0.00182	0.00177	2.79%
Selenium (dissolved)	mg/L	0.00437	0.00462	5.56%
Uranium (dissolved)	mg/L	0.0028	0.0023	19.61%
Vanadium (dissolved)	mg/L	0.00487	0.00473	2.92%
Zinc (dissolved)	mg/L	0.00156	0.00361	79.30%
Gross Alpha	pCi/L	3.6	4.2	15.38%
Radium-226	pCi/L	0.57	0.68	17.60%
Trichloroethene	µg/L	0.536	0.599	11.10%

mg/L – milligrams per liter
pCi/L – picocurie per liter
µg/L – micrograms per liter
% – percent

8.2 TRIP BLANKS

A trip blank is a clean sample of a matrix that is taken from the laboratory to the sampling site and transported back to the laboratory without having been exposed to sampling procedures. Typically, a trip blank is required only if samples are being collected for VOC analyses. It is used to assess contamination introduced during shipping and field handling procedures. The sample container is assigned a unique sample identification number. For the three landfill sites, 2014 groundwater sampling effort, six trip

blanks were included in the sample shipments and analyzed for VOCs. Table 8-3 summarizes the detected analyte concentrations for the trip blanks.

Table 8-3. Trip Blank Evaluation

Trip Blank ID	Analyte	Concentration	Unit
LF-001-80003	Acetone	3.86	µg/L
LF-002-80003	Acetone	4.26	µg/L
LF-002-80004	None	--	--
LF-008-80003	None	--	--
LF-008-80005	chloromethane	1.91	µg/L
	Methylene chloride	2.58	µg/L
LF-008-80008	None	--	--
µg/L – microgram per liter			

Acetone was detected in two of the six trip blanks at concentrations of 3.86 µg/L and 4.26 µg/L. Chloromethane and methylene chloride were detected in one of the six trip blanks at 1.91 µg/L and 2.58 µg/L, respectively. These constituent were not detected in any of the field samples; therefore, there was no impact to the analytical results.

8.3 REPRESENTATIVENESS

Representativeness is a qualitative term that refers to the degree in which data accurately and precisely depicts the characteristics of a population, whether referring to the distribution of a contaminant within a sample, a sample within a matrix, or the distribution of a contaminant at a site. Representativeness is determined by employing an appropriate sampling design with consideration of elements such as sampling locations, sample collection methods, and temporal influences. Representativeness was ensured through the use of standard field sampling and analytical procedures.

8.4 COMPARABILITY

Comparability is a qualitative indicator of the confidence with which one data set can be compared to another data set. The objective for this program is to produce data with the greatest possible degree of comparability. The number of matrices that are sampled and the range of field conditions encountered are considered in determining comparability. Comparability was achieved by using standard methods for sampling and analysis, reporting data in standard units, normalizing results to standard conditions, and using standard and comprehensive reporting formats. Complete field documentation was accomplished using standardized data collection forms which support the assessment of comparability. Historical comparability of this data set was achieved through consistent use of sampling and analytical methods and standardized documentation procedures based on review of the field logbooks and analytical laboratory reports.

8.5 COMPLETENESS

Completeness is a measure of the amount of valid data obtained compared with the amount that was expected to be obtained under correct, normal conditions. It is calculated for the aggregation of data for each analyte measured for any particular sampling event or other defined set of samples as set out in the specific project quality objectives. Valid data are data which are usable in the context of the project goals. Completeness is calculated and reported for each method, matrix, and analyte combination. The number of valid results divided by the number of possible individual analyte results, expressed as a percentage,

determines the completeness of the data set. For completeness requirements, valid results are all results not rejected during the validation process. Completeness should not be determined only on the basis of laboratory data qualifiers. The goal for completeness is 95% for aqueous samples. Completeness is calculated as shown in Equation 9.

$$\%C = \frac{S_a}{S_t} \text{ x } (100\%) \qquad (9)$$

Where:

%C	=	percent completeness
S_a	=	number of samples for which acceptable data are generated
S_t	=	total number of samples planned for a particular sampling event

As noted in Section 4.0, samples were not collected from regional wells KAFB-0308 or KAFB-0309 at the LF-008 because of access issues. Due to a clerical error, the sample collected from well TJA-2 was analyzed for cations and anions only. For the groundwater monitoring wells sampled during this monitoring event, 100% completeness was achieved.

8.6 SENSITIVITY

Sensitivity is the ability of an analytical method or instrument to discriminate between measurement responses representing different concentrations. This capability is established during the planning phase to meet project-specific objectives. It is important to be able to detect the target analytes at the levels of interest. Sensitivity requirements include the establishment of various limits such as calibration requirements, instrument LODs, and instrument limits of quantitation (LOQs). The project quality assurance/quality control on method requirements was established to be compliant with *U.S. Department of Defense Quality Systems Manual for Environmental Laboratories*, Version 4.2 (U.S. Department of Defense[DoD], 2010) as outlined in the *Quality Assurance Project Plan for Long-Term Groundwater Monitoring at Multiple Sites: Solid Waste Management Unit (SWMU) 6-1, Landfill 1; SWMU 6-2, Landfill 2; SWMU 6-4, Landfills 4, 5, and 6; ST-105 (CG-C564); UST-58 (PL567); WP026; and ST070* (USAF, 2013). Project-specific LODs and LOQs were based on project-specific action level objectives. To note, matrix effects and laboratory limitations may have the potential to raise LOQs from the LOQ goals in the project quality assurance project plan. An evaluation of the LOQs has been performed and any potential implications have been assessed for the sampling event. As shown in the data summary tables provided in Appendix A, the LODs and LOQs were adequate to assess whether any constituents exceeded the applicable regulatory levels.

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9.0 DATA VALIDATION PROCEDURES

The objective of data validation is to assess the performance associated with the analysis in order to determine the quality of the data. This was accomplished by evaluating whether the collected data comply with the pre-defined project requirements (including method, procedural, and contractual requirements) and by comparing the collected data with criteria established based on the project data quality objectives. All types of data, including screening data and definitive data, are relevant to the usability assessment. The following requirements (Table 9-1) are applicable to definitive data only obtained from laboratory analyses of the field samples.

Table 9-1. Data Validation Summary

Matrix	Analytical Group	Validation Procedures	Data Validator
Groundwater	VOCs Dissolved Metals Total Metals Anions Nitrate Total Dissolved Solids Gross Alpha/Beta Radium-226 Radium-228	• Department of Defense Quality Systems Manual Version 4.2 (DoD, 2010) • EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (EPA, 2010) • EPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (EPA, 2008)	Project Chemist, Quality Assurance Manager
DoD – U.S. Department of Defense EPA – U.S. Environmental Protection Agency VOCs – volatile organic compounds			

All laboratory analytical data underwent Stage 2A Verification and Validation Checks as defined in the *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA, 2009). Stage 2A expands beyond the basic data verification requirements to address the verification and validation checks for the compliance of sample-related QC, including method blanks, surrogate recoveries, deuterated monitoring compound recoveries, laboratory control sample recoveries, duplicate analyses, matrix spike and matrix spike duplicate recoveries, serial dilutions, post-digestion spikes, and standard reference material traceability. In addition, sample holding times are evaluated and the frequency of QC samples is checked for appropriateness.

The following data qualifiers will be applied during data validation. Potential impacts on project-specific data quality objectives are discussed in the data validation report.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a “tentative identification.”

NJ The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual LOQ necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified.

The MS/MSD percent recoveries for iron analysis of the sample collected from well KAFB-0310 exceeded the analytical data validation criteria. The iron data should be considered questionable and used with caution.

Data validation reports are included in Appendix C of this report.

10.0 CONCLUSIONS AND RECOMMENDATIONS

The following sections provide the conclusions and recommendations for groundwater monitoring at three Kirtland AFB landfills, LF-001, LF-002, and LF-008.

10.1 LANDFILL 1 – LF-001

Based on the current and historic groundwater results for the four wells associated with the LF-001, it is recommended that one more year of monitoring of these four wells be performed. Provided that results continue to demonstrate that there are no monitored constituents present at concentrations exceeding the applicable regulatory screening levels or standards, the groundwater monitoring frequency should be reassessed.

URS recommends continuing monthly inspections of the LF-001 ET cover, along with inspections following rain events, in FY2015 and FY2016. This will provide an opportunity to monitor improvements to the cover's function and integrity after actions recommended in the Operation and Maintenance Work Plan (USAF, 2014) are approved and implemented.

10.2 LANDFILL 2 – LF-002

After reviewing the current and historic groundwater results for the six wells associated with the LF-002, it is recommended that one more year of monitoring of these six wells be performed. Provided that results continue to demonstrate that there are no monitored constituents present at concentrations exceeding the applicable regulatory screening levels or standards, the groundwater monitoring frequency should be reassessed.

URS recommends continuing monthly inspections of the LF-002 ET cover, along with inspections following rain events, in FY2015 and FY2016. This will provide an opportunity to monitor improvements to the cover's function and integrity after actions recommended in the Operation and Maintenance Work Plan (USAF, 2014) are approved and implemented.

10.3 LANDFILL 8 – LF-008

The current and historic groundwater results for the ten monitoring wells in the area of LF-008, five in the regional aquifer and five in the perched aquifer, indicate that nitrate concentrations should continue to be monitored annually. Nitrate concentrations in well KAFB-0312 have consistently exceeded the 10 mg/L MCL. Nitrate concentrations in well KAFB-0313 appear to be trending higher over the past four years. Samples collected from monitoring wells KAFB-0307 and TJA-2 have been reported to exceed the nitrate MCL periodically. The elevated TDS results in 2014 for well KAFB-0314 and the elevated total chromium and total iron results in well KAFB-0310 do not follow historical trends for these constituents. Conclusions pertaining to these data will not be drawn until the results for samples collected in FY2015 are reviewed. Sample collection in FY2015 will be performed as directed in the standard operating procedure, implementing pre-sampling purge practices and with an appropriate turbidity range (less than 10 nephelometric turbidity units).

The remaining constituents included in the groundwater monitoring program, if detected above laboratory detection limit, have consistently been reported below the applicable regulatory screening levels. It is probable that the FY 2015 Long-Term Monitoring Report will include recommendations to decrease monitoring frequency for certain of these constituents. Results for VOCs, for example, indicate that these compounds are not present in the groundwater at the Kirtland landfill sites.

URS recommends continuing monthly inspections of the LF-008 ET cover, along with inspections following rain events, in FY2015 and FY2016. This will provide an opportunity to monitor improvements to the cover's function and integrity after actions recommended in the Operation and Maintenance Work Plan (USAF, 2014) are approved and implemented.

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APPENDIX A

Analytical Data Summary

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LOCATION_CODE		KAFB0118						KAFB0119						KAFB0120						KAFB0121					
SAMPLE_NO		LF001-30001						LF001-30002						LF001-30003						LF001-30004					
SAMPLE_DATE		31-Mar-14						31-Mar-14						31-Mar-14						31-Mar-14					
SAMPLE_PURPOSE		REG						REG						REG						REG					
SAMPLE_DEPTH		458.77-488.77 FT						452-482 FT						429-459 FT						445.75-475.75 FT					
Parameter	Units	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD
CHLORIDE	mg/L	7.79			0.5	0.17	0.33	7.28			0.5	0.17	0.33	7.88			0.5	0.17	0.33	10.8			0.5	0.17	0.33
FLUORIDE	mg/L	0.517			0.25	0.033	0.1	0.573			0.25	0.033	0.1	0.425			0.25	0.033	0.1	0.501			0.25	0.033	0.1
NITROGEN, NITRATE-NITRITE	mg/L	ND	U	U	1.5	0.25	0.75	ND	U	U	1.5	0.25	0.75	0.67	J	J	1.5	0.25	0.75	0.382	J	J	1.5	0.25	0.75
SULFATE	mg/L	31	*		2.5	0.33	1	31.3			2.5	0.33	1	28			2.5	0.33	1	35.9			2.5	0.33	1
TOTAL DISSOLVED SOLIDS	mg/L	166	H1	J-	20	20	20	162	H1	J-	20	20	20	162	H1	J-	20	20	20	176	H1	J-	20	20	20
MERCURY	mg/L	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016
ARSENIC, DISSOLVED	mg/L	0.00133	J	J	0.0025	0.00075	0.0015	0.000997	J	J	0.0025	0.00075	0.0015	0.00132	J	J	0.0025	0.00075	0.0015	0.00119	J	J	0.0025	0.00075	0.0015
BARIUM, DISSOLVED	mg/L	0.0861			0.01	0.00125	0.0025	0.101			0.01	0.00125	0.0025	0.102			0.01	0.00125	0.0025	0.107			0.01	0.00125	0.0025
CADMIUM, DISSOLVED	mg/L	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005
CHROMIUM, DISSOLVED	mg/L	ND	J	U	0.0025	0.0005	0.001	ND	J	U	0.0025	0.0005	0.001	ND	J	U	0.0025	0.0005	0.001	ND		U	0.0025	0.0005	0.001
IRON, DISSOLVED	mg/L	ND	U	U	0.025	0.0075	0.015	ND	U	U	0.025	0.0075	0.015	ND	U	U	0.025	0.0075	0.015	ND	U	U	0.025	0.0075	0.015
LEAD, DISSOLVED	mg/L	ND	U	U	0.00075	0.000375	0.00075	ND	U	U	0.00075	0.000375	0.00075	ND	U	U	0.00075	0.000375	0.00075	ND	U	U	0.00075	0.000375	0.00075
MANGANESE, DISSOLVED	mg/L	ND	U	U	0.00375	0.00075	0.0015	ND	U	U	0.00375	0.00075	0.0015	ND	U	U	0.00375	0.00075	0.0015	ND	U	U	0.00375	0.00075	0.0015
SELENIUM, DISSOLVED	mg/L	ND	U	U	0.0025	0.00075	0.00125	ND	U	U	0.0025	0.00075	0.00125	ND	U	U	0.0025	0.00075	0.00125	0.000956	J	J	0.0025	0.00075	0.00125
SILVER, DISSOLVED	mg/L	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005
GROSS ALPHA PARTICLE RADIOACTIVITY	pCi/L	ND	U	U	1.95	1.95	1.95	ND	U	U	1.81	1.81	1.81	ND	U	U	2.5	2.5	2.5	ND	U	U	1.9	1.9	1.9
GROSS BETA PARTICLE RADIOACTIVITY	pCi/L	ND	U	U	2.7	2.7	2.7	ND	U	U	2.8	2.8	2.8	ND	U	U	3.4	3.4	3.4	ND	U	U	3.4	3.4	3.4
RA-228	pCi/L	ND	U	U	0.46	0.46	0.46	ND	U	U	0.47	0.47	0.47	ND	U	U	0.46	0.46	0.46	ND	U	U	0.46	0.46	0.46
RADIUM-226	pCi/L	ND	Y1,U	U	0.21	0.21	0.21	ND	U	U	0.22	0.22	0.22	ND	Y1,U	U	0.22	0.22	0.22	ND	U	U	0.19	0.19	0.19
1,1,1,2-TETRACHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,1-TRICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,2-TRICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,3-TRICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,3-TRICHLOROPROPANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,2,4-TRICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,4-TRIMETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,2-DIBROMOETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3,5-TRIMETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROPROPENE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,4-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2,2-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2-BUTANONE	ug/L	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5
2-CHLOROTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2-HEXANONE	ug/L	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5
4-CHLOROTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
4-METHYL-2-PENTANONE	ug/L	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5
ACETONE	ug/L	ND	XU	U	10	2.5	5	ND	XU	U	10	2.5	5	ND	XU	U	10	2.5	5	ND	XU	U	10	2.5	5
BENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOCHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMODICHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOFORM	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
CARBON DISULFIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CARBON TETRACHLORIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
CHLOROFORM	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CIS-1,2-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CIS-1,3-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DCE12TOT	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
DIBROMOCHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DIBROMOMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DICHLORODIFLUOROMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
ETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
HEXACHLOROBUTADIENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
ISOPROPYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
M,P-XYLENES	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
METHYL TERT-BUTYL ETHER	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
METHYLENE CHLORIDE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
NAPHTHALENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
N-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
N-PROPYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
O-XYLENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
P-ISOPROPYLTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
SEC-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
STYRENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TERT-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TETRACHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	0.317	J	J	1	0.25	0.5
TRANS-1,2-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRANS-1,3-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRICHLOROFLUOROMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
VINYL CHLORIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
XYLENES	ug/L	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5

Notes:

-Indicates analyte concentration above detection limit.
mg/L - milligrams per liter
µg/L - microgram per liter
pCi/L - picocuries per liter
ND - Non detect

Qualifiers:

J - Estimated value below the lowest calibration point. Confidence correlates with concentration.
H1 - The result was analyzed outside of the EPA recommended holding time.
Y1 - Chemical Yield is in control ar 100-110%. Quantitative Yield is assumed.
* - Exceeding quality control criteria are associated with the reported results.

X - The parameter shows a potential positive bias on a reported concentration due to an ICV or CCV exceeding the upper control limit on the high side.
U - The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.

LOCATION_CODE		KAFB0213						KAFB0213						KAFB0219						KAFB0220					
SAMPLE_NO		LF002-30001						LF002-30002						LF002-30003						LF002-30004					
SAMPLE_DATE		3-Apr-14						3-Apr-14						7-Apr-14						3-Apr-14					
SAMPLE_PURPOSE		REG						FD						REG						REG					
SAMPLE_DEPTH		379.88-429.88 FT						379.88-429.88 FT						396-426 FT						424-454 FT					
Parameter	Units	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD
CHLORIDE	mg/L	16			0.5	0.17	0.33	16.1			0.5	0.17	0.33	16.1			0.5	0.17	0.33	16.4			0.5	0.17	0.33
FLUORIDE	mg/L	0.324			0.25	0.033	0.1	0.325			0.25	0.033	0.1	0.307			0.25	0.033	0.1	0.298			0.25	0.033	0.1
NITROGEN, NITRATE-NITRITE	mg/L	4.27			1.5	0.25	0.75	4.31			1.5	0.25	0.75	5.68			1.5	0.25	0.75	4.39			1.5	0.25	0.75
SULFATE	mg/L	71.4			2.5	0.33	1	71.9			2.5	0.33	1	66.8			2.5	0.33	1	77.1			2.5	0.33	1
TOTAL DISSOLVED SOLIDS	mg/L	333			20	20	20	299			20	20	20	325			20	20	20	313			20	20	20
MERCURY	mg/L	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016
ARSENIC, DISSOLVED	mg/L	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015
BARIUM, DISSOLVED	mg/L	0.0562			0.01	0.00125	0.0025	0.0564			0.01	0.00125	0.0025	0.0488			0.01	0.00125	0.0025	0.0456			0.01	0.00125	0.0025
CADMIUM, DISSOLVED	mg/L	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005
CHROMIUM, DISSOLVED	mg/L	0.000732	J	J	0.0025	0.0005	0.001	0.000716	J	J	0.0025	0.0005	0.001	0.000949	J	J	0.0025	0.0005	0.001	0.000818	J	J	0.0025	0.0005	0.001
IRON, DISSOLVED	mg/L	ND	U	U	0.025	0.0075	0.015	ND	U	U	0.025	0.0075	0.015	ND	U	U	0.025	0.0075	0.015	ND	U	U	0.025	0.0075	0.015
LEAD, DISSOLVED	mg/L	ND	U	U	0.00075	0.000375	0.00075	ND	U	U	0.00075	0.000375	0.00075	ND	U	U	0.00075	0.000375	0.00075	ND	U	U	0.00075	0.000375	0.00075
MANGANESE, DISSOLVED	mg/L	ND	U	U	0.00375	0.00075	0.0015	ND	U	U	0.00375	0.00075	0.0015	0.00147	J	J	0.00375	0.00075	0.0015	ND	U	U	0.00375	0.00075	0.0015
SELENIUM, DISSOLVED	mg/L	0.00176	J	J	0.0025	0.00075	0.00125	0.00183	J	J	0.0025	0.00075	0.00125	0.00214	J	J	0.0025	0.00075	0.00125	0.0017	J	J	0.0025	0.00075	0.00125
SILVER, DISSOLVED	mg/L	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005
GROSS ALPHA PARTICLE RADIOACTIVITY	pCi/L	4.3			2.5	2.5	2.5	3.4			2.7	2.7	2.7	3.3			2	2	2	2.59	LT		1.12	1.12	1.12
GROSS BETA PARTICLE RADIOACTIVITY	pCi/L	ND	U	U	3	3	3	5.9	M3		4.3	4.3	4.3	3	LT		2.9	2.9	2.9	3.1	LT		1.5	1.5	1.5
RA-228	pCi/L	ND	U	U	0.47	0.47	0.47	ND	U	U	0.6	0.6	0.6	ND	U	U	0.46	0.46	0.46	ND	Y1,U	U	0.43	0.43	0.43
RADIUM-226	pCi/L	ND	U	U	0.21	0.21	0.21	ND	U	U	0.21	0.21	0.21	ND	U	U	0.23	0.23	0.23	ND	U	U	0.21	0.21	0.21
1,1,1,2-TETRACHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,1-TRICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,2-TRICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,3-TRICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,3-TRICHLOROPROPANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,2,4-TRICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,4-TRIMETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,2-DIBROMOETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3,5-TRIMETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROPROPENE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,4-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2,2-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2-BUTANONE	ug/L	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5
2-CHLOROTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2-HEXANONE	ug/L	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5
4-CHLOROTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
4-METHYL-2-PENTANONE	ug/L	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5
ACETONE	ug/L	ND	XU	U	10	2.5	5	ND	QU	U	10	2.5	5	ND	XQU	U	10	2.5	5	ND	XU	U	10	2.5	5
BENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOCHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMODICHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOFORM	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
CARBON DISULFIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CARBON TETRACHLORIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
CHLOROFORM	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CIS-1,2-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CIS-1,3-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DCE12TOT	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
DIBROMOCHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DIBROMOMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DICHLORODIFLUOROMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
ETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
HEXACHLOROBUTADIENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
ISOPROPYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
M,P-XYLENES	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
METHYL TERT-BUTYL ETHER	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
METHYLENE CHLORIDE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
NAPHTHALENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
N-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
N-PROPYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
O-XYLENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
P-ISOPROPYLTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
SEC-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
STYRENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TERT-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TETRACHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	0.27	J	J	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRANS-1,2-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRANS-1,3-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRICHLOROFLUOROMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
VINYL CHLORIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
XYLENES	ug/L	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5

Notes:

-Indicates analyte concentration above detection limit.
mg/L - milligrams per liter
µg/L - microgram per liter
pCi/L - picocuries per liter
ND - Non detect

Qualifiers:

J - Estimated value below the lowest calibration point. Confidence correlates with concentration.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
Y1 - Chemical Yield is in control ar 100-110%. Quantitative Yield is assumed.
* - Exceeding quality control criteria are associated with the reported results.
Q - The relative percent difference (RPD) and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

X - The parameter shows a potential positive bias on a reported concentration due to an ICV or CCV exceeding the upper control limit on the high side.
U - The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.
LT - Result is less than Requested minimum detectable concentration, greater than sample specific method detectable concentration.

LOCATION_CODE		KAFB0221						KAFB0222						KAFB0223					
SAMPLE_NO		LF002-30005						LF002-30006						LF002-30007					
SAMPLE_DATE		2-Apr-14						7-Apr-14						7-Apr-14					
SAMPLE_PURPOSE		REG						REG						REG					
SAMPLE_DEPTH		410-440 FT						366-396 FT						376-406 FT					
Parameter	Units	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD
CHLORIDE	mg/L	15.7			0.5	0.17	0.33	16.4			0.5	0.17	0.33	16.6			0.5	0.17	0.33
FLUORIDE	mg/L	0.287			0.25	0.033	0.1	0.401			0.25	0.033	0.1	0.356			0.25	0.033	0.1
NITROGEN, NITRATE-NITRITE	mg/L	3.86			1.5	0.25	0.75	3.27			1.5	0.25	0.75	4.09			1.5	0.25	0.75
SULFATE	mg/L	72.1			2.5	0.33	1	78.5			2.5	0.33	1	74.2			2.5	0.33	1
TOTAL DISSOLVED SOLIDS	mg/L	328			20	20	20	316			20	20	20	317			20	20	20
MERCURY	mg/L	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016
ARSENIC, DISSOLVED	mg/L	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015
BARIUM, DISSOLVED	mg/L	0.0415			0.01	0.00125	0.0025	0.0562			0.01	0.00125	0.0025	0.05			0.01	0.00125	0.0025
CADMIUM, DISSOLVED	mg/L	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005
CHROMIUM, DISSOLVED	mg/L	0.00065	J	J	0.0025	0.0005	0.001	0.00125	J	J	0.0025	0.0005	0.001	0.000888	J	J	0.0025	0.0005	0.001
IRON, DISSOLVED	mg/L	ND	U	U	0.025	0.0075	0.015	0.0113	J	J	0.025	0.0075	0.015	ND	U	U	0.025	0.0075	0.015
LEAD, DISSOLVED	mg/L	ND	U	U	0.00075	0.000375	0.00075	ND	U	U	0.00075	0.000375	0.00075	ND	U	U	0.00075	0.000375	0.00075
MANGANESE, DISSOLVED	mg/L	ND	U	U	0.00375	0.00075	0.0015	0.00272	J	J	0.00375	0.00075	0.0015	0.000931	J	J	0.00375	0.00075	0.0015
SELENIUM, DISSOLVED	mg/L	0.00195	J	J	0.0025	0.00075	0.00125	0.00204	J	J	0.0025	0.00075	0.00125	0.00189	J	J	0.0025	0.00075	0.00125
SILVER, DISSOLVED	mg/L	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005
GROSS ALPHA PARTICLE RADIOACTIVITY	pCi/L	3.4			2.7	2.7	2.7	2.6	LT		2.2	2.2	2.2	3.3			2.4	2.4	2.4
GROSS BETA PARTICLE RADIOACTIVITY	pCi/L	ND	U	U	3.3	3.3	3.3	3.7	LT		3.2	3.2	3.2	3.3	LT		3.1	3.1	3.1
RA-228	pCi/L	ND	U	U	0.46	0.46	0.46	ND	U	U	0.45	0.45	0.45	ND	U	U	0.54	0.54	0.54
RADIUM-226	pCi/L	0.22	LT		0.2	0.2	0.2	0.25	LT		0.24	0.24	0.24	0.26	LT		0.22	0.22	0.22
1,1,1,2-TETRACHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,1-TRICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,2-TRICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,3-TRICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,3-TRICHLOROPROPANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,2,4-TRICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,4-TRIMETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,2-DIBROMOETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3,5-TRIMETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROPROPENE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,4-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2,2-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2-BUTANONE	ug/L	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5
2-CHLOROTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2-HEXANONE	ug/L	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5
4-CHLOROTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
4-METHYL-2-PENTANONE	ug/L	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5
ACETONE	ug/L	ND	XU	U	10	2.5	5	ND	XQU	U	10	2.5	5	ND	XQU	U	10	2.5	5
BENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOCHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMODICHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOFORM	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
CARBON DISULFIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CARBON TETRACHLORIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
CHLOROFORM	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CIS-1,2-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CIS-1,3-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DCE12TOT	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
DIBROMOCHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DIBROMOMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DICHLORODIFLUOROMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
ETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
HEXACHLOROBUTADIENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
ISOPROPYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
M,P-XYLENES	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
METHYL TERT-BUTYL ETHER	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
METHYLENE CHLORIDE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
NAPHTHALENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
N-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
N-PROPYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
O-XYLENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
P-ISOPROPYLTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
SEC-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
STYRENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TERT-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TETRACHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TOLUENE	ug/L	ND	U	U	1	0.25	0.5	0.324	J	J	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRANS-1,2-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRANS-1,3-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRICHLOROFLUOROMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
VINYL CHLORIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
XYLENES	ug/L	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5

Notes:

-Indicates analyte concentration above detection limit.

mg/L - milligrams per liter

µg/L - microgram per liter

pCi/L - picocuries per liter

ND - Non detect

Qualifiers:

J - Estimated value below the lowest calibration point. Confidence correlates with concentration.

X - The parameter shows a potential positive bias on a reported concentration due to an ICV or CCV exceeding the upper control limit on the high side.

Q - The relative percent difference (RPD) and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

U - The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.

LT - Result is less than Requested minimum detectable concentration, greater than sample specific method detectable concentration.

LOCATION_CODE		KAFB0307						KAFB0310						KAFB0311						KAFB0312					
SAMPLE_NO		LF008-30001						LF008-30002						LF008-30003						LF008-30004					
SAMPLE_DATE		17-Apr-14						24-Apr-14						16-Apr-14						23-Apr-14					
SAMPLE_PURPOSE		REG						REG						REG						REG					
SAMPLE_DEPTH		406-451 FT						401-446 FT						434-459 FT						504.6-529.6 FT					
Parameter	Units	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD
ALKALINITY (AS CACO3)	mg/L	132			1	1	1	114			1	1	1	144			1	1	1	131			1	1	1
CHLORIDE	mg/L	58.1			0.5	0.17	0.33	92.3			0.5	0.17	0.33	18.5			0.5	0.17	0.33	20			0.5	0.17	0.33
FLUORIDE	mg/L	0.357			0.25	0.033	0.1	0.293			0.25	0.033	0.1	0.376			0.25	0.033	0.1	0.349			0.25	0.033	0.1
NITROGEN, NITRATE-NITRITE	mg/L	7.94			1.5	0.25	0.75	6.96	N	J-	1.5	0.25	0.75	8.8			1.5	0.25	0.75	18.4	DN		3	0.5	1.5
SULFATE	mg/L	39.2			2.5	0.33	1	95.8			2.5	0.33	1	35.3			2.5	0.33	1	41			2.5	0.33	1
TOTAL DISSOLVED SOLIDS	mg/L	398	QB		20	20	20	469			20	20	20	332	QB		20	20	20	339			20	20	20
ALUMINUM	mg/L	0.0405	J	J	0.05	0.0125	0.025	0.0246	J	J	0.05	0.0125	0.025	ND		U	0.05	0.0125	0.025	0.0417	J	J	0.05	0.0125	0.025
ARSENIC	mg/L	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015
BARIUM	mg/L	0.162			0.01	0.00125	0.0025	0.0667			0.01	0.00125	0.0025	0.143			0.01	0.00125	0.0025	0.168			0.01	0.00125	0.0025
BERYLLIUM	mg/L	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005
BORON	mg/L	0.0409			0.01	0.0025	0.005	0.0241			0.01	0.0025	0.005	0.0384			0.01	0.0025	0.005	0.0444			0.01	0.0025	0.005
CADMIUM	mg/L	ND	U	U	0.00125	0.00025	0.0005	ND	MU	U	0.00125	0.0005	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005
CHROMIUM	mg/L	0.0106			0.0025	0.0005	0.001	0.218	N*		0.0025	0.0005	0.001	0.00229	J	J	0.0025	0.0005	0.001	0.00105	JN*	J	0.0025	0.0005	0.001
COBALT	mg/L	ND	U	U	0.00312	0.00125	0.0025	0.00316			0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025
COPPER	mg/L	0.00501			0.0025	0.001	0.002	0.0166			0.0025	0.001	0.002	ND		U	0.0025	0.001	0.002	ND	U	U	0.0025	0.001	0.002
IRON	mg/L	0.0527			0.025	0.0075	0.015	0.897	N*		0.025	0.0075	0.015	ND		U	0.025	0.0075	0.015	0.0195	NJ*	J	0.025	0.0075	0.015
LEAD	mg/L	ND	U	U	0.00075	0.000375	0.00075	0.000663	J	J	0.00075	0.000375	0.00075	0.000994			0.00075	0.000375	0.00075	0.000832			0.00075	0.000375	0.00075
MANGANESE	mg/L	0.000928	J	J	0.00375	0.00075	0.0015	0.0192	N*	J-	0.00375	0.00075	0.0015	ND	J	U	0.00375	0.00075	0.0015	0.00136	NJ*	J	0.00375	0.00075	0.0015
MERCURY	mg/L	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016
MOLYBDENUM	mg/L	0.00182	J	J	0.005	0.00125	0.0025	0.00287	J	J	0.005	0.00125	0.0025	0.00202	J	J	0.005	0.00125	0.0025	0.00198	J	J	0.005	0.00125	0.0025
NICKEL	mg/L	0.00227	J	J	0.0025	0.00075	0.0015	0.00533			0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015
SELENIUM	mg/L	0.00496			0.0025	0.00075	0.00125	0.00823			0.0025	0.00075	0.00125	0.00282			0.0025	0.00075	0.00125	0.0044			0.0025	0.00075	0.00125
SILVER	mg/L	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005
THALLIUM	mg/L	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001
TIN	mg/L	ND	U	U	0.0075	0.0025	0.005	0.00556	J	J	0.0075	0.0025	0.005	ND	U	U	0.0075	0.0025	0.005	ND	U	U	0.0075	0.0025	0.005
URANIUM-238	mg/L	0.0024			0.002	0.00046	0.002	0.0023	J	J	0.0025	0.00058	0.0025	0.0021			0.002	0.00046	0.002	0.0025			0.0025	0.00058	0.0025
VANADIUM	mg/L	0.00485			0.00312	0.00125	0.0025	0.00733			0.00312	0.00125	0.0025	0.0045			0.00312	0.00125	0.0025	0.00462			0.00312	0.00125	0.0025
ZINC	mg/L	0.00508			0.005	0.00125	0.0025	0.017			0.005	0.00125	0.0025	0.0114			0.005	0.00125	0.0025	ND	U	U	0.005	0.00125	0.0025
ALUMINUM, DISSOLVED	mg/L	0.0304	J	J	0.05	0.0125	0.025	0.025	J	J	0.05	0.0125	0.025	ND	U	U	0.05	0.0125	0.025	0.0324	J	J	0.05	0.0125	0.025
ARSENIC, DISSOLVED	mg/L	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015
BARIUM, DISSOLVED	mg/L	0.16			0.01	0.00125	0.0025	0.065			0.01	0.00125	0.0025	ND	U	U	0.01	0.00125	0.0025	0.166			0.01	0.00125	0.0025
BERYLLIUM, DISSOLVED	mg/L	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005
BORON, DISSOLVED	mg/L	0.0413			0.01	0.0025	0.005	0.0244			0.01	0.0025	0.005	ND	U	U	0.01	0.0025	0.005	0.0428			0.01	0.0025	0.005
CADMIUM, DISSOLVED	mg/L	ND	U	U	0.00125	0.00025	0.0005	ND	MU	U	0.00125	0.0005	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005
CHROMIUM, DISSOLVED	mg/L	0.00111	J	J	0.0025	0.0005	0.001	0.00101	JN*	J	0.0025	0.0005	0.001	ND	U	U	0.0025	0.0005	0.001	0.000974	JN*	J	0.0025	0.0005	0.001
COBALT, DISSOLVED	mg/L	ND	U	U	0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025
COPPER, DISSOLVED	mg/L	0.00415			0.0025	0.001	0.002	0.0105			0.0025	0.001	0.002	ND	U	U	0.0025	0.001	0.002	ND	U	U	0.0025	0.001	0.002
IRON, DISSOLVED	mg/L	ND	U	U	0.025	0.0075	0.015	ND	NU*	U	0.025	0.0075	0.015	ND	U	U	0.025	0.0075	0.015	ND	NU*	U	0.025	0.0075	0.015
LEAD, DISSOLVED	mg/L	0.000589	J	J	0.00075	0.000375	0.00075	0.000767			0.00075	0.000375	0.00075	ND	U	U	0.00075	0.000375	0.00075	0.000702	J	J	0.00075	0.000375	0.00075
MANGANESE, DISSOLVED	mg/L	ND	U	U	0.00375	0.00075	0.0015	0.00176	NJ*	J	0.00375	0.00075	0.0015	ND	U	U	0.00375	0.00075	0.0015	0.000781	NJ*	J	0.00375	0.00075	0.0015
MERCURY, DISSOLVED	mg/L	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016
MOLYBDENUM, DISSOLVED	mg/L	0.00171	J	J	0.005	0.00125	0.0025	0.00156	J	J	0.005	0.00125	0.0025	ND	U	U	0.005	0.00125	0.0025	0.00181	J	J	0.005	0.00125	0.0025
NICKEL, DISSOLVED	mg/L	0.00172	J	J	0.0025	0.00075	0.0015	0.000799	J	J	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015
SELENIUM, DISSOLVED	mg/L	0.00517			0.0025	0.00075	0.00125	0.00837			0.0025	0.00075	0.00125	ND	U	U	0.0025	0.00075	0.00125	0.00388			0.0025	0.00075	0.00125
SILVER, DISSOLVED	mg/L	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005
THALLIUM, DISSOLVED	mg/L	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001
TIN, DISSOLVED	mg/L	ND	U	U	0.0075	0.0025	0.005	ND	U	U	0.0075	0.0025	0.005	ND	U	U	0.0075	0.0025	0.005	ND	U	U	0.0075	0.0025	0.005
URANIUM, DISSOLVED	mg/L	0.0022			0.002	0.00046	0.002	0.0024	J	J	0.0025	0.00058	0.0025	ND	U	U	0.002	0.00046	0.002	0.0024	J	J	0.0025	0.00058	0.0025
VANADIUM, DISSOLVED	mg/L	0.00463			0.00312	0.00125	0.0025	0.00456			0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025	0.00435			0.00312	0.00125	0.0025
ZINC, DISSOLVED	mg/L	0.00453	J	J	0.005	0.00125	0.0025	0.017			0.005	0.00125	0.0025	ND	U	U	0.005	0.00125	0.0025	ND	U	U	0.005	0.00125	0.0025
GROSS ALPHA PARTICLE RADIOACTIVITY	pCi/L	2.15	LT		1.17	1.17	1.17	ND	U	U	2.1	2.1	2.1	2.71	LT		0.9	0.9	0.9	3.9			2.8	2.8	2.8
GROSS BETA PARTICLE RADIOACTIVITY	pCi/L	2.9	LT		1.5	1.5	1.5	ND	U	U	2.3	2.3	2.3	3.01	LT		1.31	1.31	1.31	ND	U	U	3.4	3.4	3.4
RA-228	pCi/L	ND	U	U	0.43	0.43	0.43	ND	U	U	0.48	0.48	0.48	ND	Y1,U	U	0.44	0.44	0.44	ND	U	U	0.55	0.55	0.55
RADIUM-226	pCi/L	ND	U	U	0.42	0.42	0.42	ND	U	U	0.187	0.187	0.187	ND	U	U	0.37	0.37	0.37	ND	U	U	0.22	0.22	0.22

Notes:

-Indicates analyte concentration above detection limit.

mg/L - milligrams per liter

µg/L - microgram per liter

pCi/L - picocuries per liter

ND - Non detect

Qualifiers:

J - Estimated value below the lowest calibration point. Confidence correlates with concentration.

Y1 - Chemical Yield is in control ar 100-110%. Quantitative Yield is assumed.

* - Exceeding quality control criteria are associated with the reported results.

Q - The relative percent difference (RPD) and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

U - The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.

LT - Result is less than Requested minimum detectable concentration, greater than sample specific method detectable concentration.

LOCATION_CODE		KAFB0313						KAFB0313						KAFB0314						KAFB0315					
SAMPLE_NO		LF008-30005						LF008-30006						LF008-30007						LF008-30008					
SAMPLE_DATE		21-Apr-14						21-Apr-14						21-Apr-14						28-Apr-14					
SAMPLE_PURPOSE		REG						FD						REG						REG					
SAMPLE_DEPTH		350.25-375.25 FT						350.25-375.25 FT						430.17-450.17 FT						449-474 FT					
Parameter	Units	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD
ALKALINITY (AS CACO3)	mg/L	119			1	1	1	119			1	1	1	97.5			1	1	1	122			1	1	1
CHLORIDE	mg/L	30.9			0.5	0.17	0.33	31			0.5	0.17	0.33	124			0.5	0.17	0.33	63.5			0.5	0.17	0.33
FLUORIDE	mg/L	0.385			0.25	0.033	0.1	0.382			0.25	0.033	0.1	0.285			0.25	0.033	0.1	0.32			0.25	0.033	0.1
NITROGEN, NITRATE-NITRITE	mg/L	9.46	N		1.5	0.25	0.75	9.52	N		1.5	0.25	0.75	5.38	N		1.5	0.25	0.75	6.74	N		1.5	0.25	0.75
SULFATE	mg/L	95.2			2.5	0.33	1	95.6			2.5	0.33	1	183			2.5	0.33	1	83.7			2.5	0.33	1
TOTAL DISSOLVED SOLIDS	mg/L	361	QB	J+	20	20	20	367	QB	J+	20	20	20	10600	Q	J+	20	20	20	396			20	20	20
ALUMINUM	mg/L	0.0614			0.05	0.0125	0.025	0.0302	J	J	0.05	0.0125	0.025	ND	U	U	0.05	0.0125	0.025	0.0328	J	J	0.05	0.0125	0.025
ARSENIC	mg/L	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015
BARIUM	mg/L	0.0437			0.01	0.00125	0.0025	0.0418			0.01	0.00125	0.0025	0.039			0.01	0.00125	0.0025	0.0743			0.01	0.00125	0.0025
BERYLLIUM	mg/L	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005
BORON	mg/L	0.0248			0.01	0.0025	0.005	0.0248			0.01	0.0025	0.005	0.0252			0.01	0.0025	0.005	0.0237			0.01	0.0025	0.005
CADMIUM	mg/L	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	MU	U	0.00125	0.0005	0.0005	ND	U	U	0.00125	0.00025	0.0005
CHROMIUM	mg/L	0.00542	N*		0.0025	0.0005	0.001	0.00259			0.0025	0.0005	0.001	0.0146			0.0025	0.0005	0.001	0.000884	J	J	0.0025	0.0005	0.001
COBALT	mg/L	ND	U	U	0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025
COPPER	mg/L	0.00198	J	J	0.0025	0.001	0.002	ND	U	U	0.0025	0.001	0.002	ND	U	U	0.0025	0.001	0.002	ND	U	U	0.0025	0.001	0.002
IRON	mg/L	0.117	N*		0.025	0.0075	0.015	0.0398			0.025	0.0075	0.015	0.0641			0.025	0.0075	0.015	0.0164	J	J	0.025	0.0075	0.015
LEAD	mg/L	0.000701	J	J	0.00075	0.000375	0.00075	0.00043	J	J	0.00075	0.000375	0.00075	0.000407	J	J	0.00075	0.000375	0.00075	ND	U	U	0.00075	0.000375	0.00075
MANGANESE	mg/L	0.00582	N*		0.00375	0.00075	0.0015	0.00274	J	J	0.00375	0.00075	0.0015	0.0018	J	J	0.00375	0.00075	0.0015	0.000997	J	J	0.00375	0.00075	0.0015
MERCURY	mg/L	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016
MOLYBDENUM	mg/L	0.00176	J	J	0.005	0.00125	0.0025	0.00173	J	J	0.005	0.00125	0.0025	0.00142	J	J	0.005	0.00125	0.0025	0.00138	J	J	0.005	0.00125	0.0025
NICKEL	mg/L	0.00163	J	J	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015
SELENIUM	mg/L	0.00464			0.0025	0.00075	0.00125	0.00432			0.0025	0.00075	0.00125	0.0123			0.0025	0.00075	0.00125	0.00702			0.0025	0.00075	0.00125
SILVER	mg/L	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005
THALLIUM	mg/L	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001
TIN	mg/L	ND	U	U	0.0075	0.0025	0.005	ND	U	U	0.0075	0.0025	0.005	ND	U	U	0.0075	0.0025	0.005	ND	U	U	0.0075	0.0025	0.005
URANIUM-238	mg/L	0.0026			0.0025	0.00058	0.0025	0.0024	J	J	0.0025	0.00058	0.0025	0.0019	J	J	0.0025	0.00058	0.0025	0.0023	J	J	0.0025	0.00058	0.0025
VANADIUM	mg/L	0.00538			0.00312	0.00125	0.0025	0.00493			0.00312	0.00125	0.0025	0.00419			0.00312	0.00125	0.0025	0.00389			0.00312	0.00125	0.0025
ZINC	mg/L	0.00346	J	J	0.005	0.00125	0.0025	0.00194	J	J	0.005	0.00125	0.0025	0.0017	J	J	0.005	0.00125	0.0025	ND	U	U	0.005	0.00125	0.0025
ALUMINUM, DISSOLVED	mg/L	0.0307	J	J	0.05	0.0125	0.025	0.0272	J	J	0.05	0.0125	0.025	0.0464	DJ	J	0.1	0.025	0.05	0.0194	J	J	0.05	0.0125	0.025
ARSENIC, DISSOLVED	mg/L	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015
BARIUM, DISSOLVED	mg/L	0.0435			0.01	0.00125	0.0025	0.0439			0.01	0.00125	0.0025	0.0407			0.01	0.00125	0.0025	0.0774			0.01	0.00125	0.0025
BERYLLIUM, DISSOLVED	mg/L	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005
BORON, DISSOLVED	mg/L	0.0252			0.01	0.0025	0.005	0.0243			0.01	0.0025	0.005	0.0255			0.01	0.0025	0.005	0.025			0.01	0.0025	0.005
CADMIUM, DISSOLVED	mg/L	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005	ND	U	U	0.00125	0.00025	0.0005
CHROMIUM, DISSOLVED	mg/L	0.00139	JN*	J	0.0025	0.0005	0.001	0.00155	JN*	J	0.0025	0.0005	0.001	0.00152	JN*	J	0.0025	0.0005	0.001	0.000797	J	J	0.0025	0.0005	0.001
COBALT, DISSOLVED	mg/L	ND	U	U	0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025	ND	U	U	0.00312	0.00125	0.0025
COPPER, DISSOLVED	mg/L	ND	U	U	0.0025	0.001	0.002	ND	U	U	0.0025	0.001	0.002	ND	U	U	0.0025	0.001	0.002	ND	U	U	0.0025	0.001	0.002
IRON, DISSOLVED	mg/L	ND	NU*	U	0.025	0.0075	0.015	ND	NU*	U	0.025	0.0075	0.015	ND	NU*	U	0.025	0.0075	0.015	ND	U	U	0.025	0.0075	0.015
LEAD, DISSOLVED	mg/L	0.000581	J	J	0.00075	0.000375	0.00075	0.000566	J	J	0.00075	0.000375	0.00075	0.000825			0.00075	0.000375	0.00075	ND	U	U	0.00075	0.000375	0.00075
MANGANESE, DISSOLVED	mg/L	ND	NU*	U	0.00375	0.00075	0.0015	ND	NU*	U	0.00375	0.00075	0.0015	ND	NU*	U	0.00375	0.00075	0.0015	ND	U	U	0.00375	0.00075	0.0015
MERCURY, DISSOLVED	mg/L	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016	ND	U	U	0.0002	0.00008	0.00016
MOLYBDENUM, DISSOLVED	mg/L	0.00182	J	J	0.005	0.00125	0.0025	0.00177	J	J	0.005	0.00125	0.0025	0.00134	J	J	0.005	0.00125	0.0025	0.00147	J	J	0.005	0.00125	0.0025
NICKEL, DISSOLVED	mg/L	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015	ND	U	U	0.0025	0.00075	0.0015
SELENIUM, DISSOLVED	mg/L	0.00437			0.0025	0.00075	0.00125	0.00462			0.0025	0.00075	0.00125	0.0129			0.0025	0.00075	0.00125	0.00738			0.0025	0.00075	0.00125
SILVER, DISSOLVED	mg/L	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005	ND	U	U	0.0025	0.00025	0.0005
THALLIUM, DISSOLVED	mg/L	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001	ND	U	U	0.002	0.00075	0.001
TIN, DISSOLVED	mg/L	ND	U	U	0.0075	0.0025	0.005	ND	U	U	0.0075	0.0025	0.005	ND	U	U	0.0075	0.0025	0.005	ND	U	U	0.0075	0.0025	0.005
URANIUM, DISSOLVED	mg/L	0.0028			0.0025	0.00058	0.0025	0.0023	J	J	0.0025	0.00058	0.0025	0.0022	J	J	0.0025	0.00058	0.0025	0.0019	J	J	0.0025	0.00058	0.0025
VANADIUM, DISSOLVED	mg/L	0.00487			0.00312	0.00125	0.0025	0.00473			0.00312	0.00125	0.0025	0.00408			0.00312	0.00125	0.0025	0.00415			0.00312	0.00125	0.0025
ZINC, DISSOLVED	mg/L	0.00156	J	J	0.005	0.00125	0.0025	0.00361	J	J	0.005	0.00125	0.0025	ND	U	U	0.01	0.0025	0.005	ND	U	U	0.005	0.00125	0.0025
GROSS ALPHA PARTICLE RADIOACTIVITY	pCi/L	3.6			1.9	1.9	1.9	4.2			2.8	2.8	2.8	3	LT		1.5	1.5	1.5	3.2			2.3	2.3	2.3
GROSS BETA PARTICLE RADIOACTIVITY	pCi/L	ND	LT	U	2.6	2.6	2.6	ND	LT	U	2.4	2.4	2.4	ND	LT	U	1.8	1.8	1.8	ND	U	U	2.9	2.9	2.9
RA-228	pCi/L	ND	U	U	0.49	0.49	0.49	ND	U	U	0.5	0.5	0.5	ND	U	U	0.48	0.48	0.48	ND	U	U	0.56	0.56	0.56
RADIUM-226	pCi/L	0.57	LT		0.39	0.39	0.39	0.68	LT		0.37	0.37	0.37	0.71	LT		0.36	0.36	0.36	ND	U	U	0.2	0.2	0.2

Notes:

-Indicates analyte concentration above detection limit.

mg/L - milligrams per liter
µg/L - microgram per liter
pCi/L - picocuries per liter
ND - Non detect

Qualifiers:

J - Estimated value below the lowest calibration point. Confidence correlates with concentration.
Y1 - Chemical Yield is in control ar 100-110%. Quantitative Yield is assumed.
* - Exceeding quality control criteria are associated with the reported results.
Q - The relative percent difference (RPD) and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

U - The presence of a "U" indicates that the analyte was analyzed for but was not detected or theconcentration of the analyte quantitated below the DL.
LT - Result is less than Requested minimum detectable concentration, greater than sample specific method detectable concentration.

LOCATION_CODE		KAFB0307						KAFB0310						KAFB0311						KAFB0312					
SAMPLE_NO		LF008-30001						LF008-30002						LF008-30003						LF008-30004					
SAMPLE_DATE		17-Apr-14						24-Apr-14						16-Apr-14						23-Apr-14					
SAMPLE_PURPOSE		REG						REG						REG						REG					
SAMPLE_DEPTH		406-451 FT						401-446 FT						434-459 FT						504.6-529.6 FT					
Parameter	Units	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD
1,1,1,2-TETRACHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,1-TRICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,2-TRICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,3-TRICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,3-TRICHLOROPROPANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,2,4-TRICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,4-TRIMETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,2-DIBROMOETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3,5-TRIMETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROPROPENE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,4-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2,2-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2-BUTANONE	ug/L	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5
2-CHLOROTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2-HEXANONE	ug/L	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5
4-CHLOROTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
4-METHYL-2-PENTANONE	ug/L	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5
ACETONE	ug/L	ND	QU	U	10	2.5	5	ND	U	U	10	2.5	5	ND	QU	U	10	2.5	5	ND	U	U	10	2.5	5
BENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOCHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMODICHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOFORM	ug/L	ND	QU	UJ	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	QU	UJ	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOMETHANE	ug/L	ND	U	U	2	0.5	1	ND	YU	UJ	2	0.5	1	ND	U	U	2	0.5	1	ND	YU	UJ	2	0.5	1
CARBON DISULFIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CARBON TETRACHLORIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
CHLOROFORM	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CIS-1,2-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	0.266	J	J	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CIS-1,3-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DCE12TOT	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
DIBROMOCHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DIBROMOMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DICHLORODIFLUOROMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
ETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
HEXACHLOROBUTADIENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
ISOPROPYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
M,P-XYLENES	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
METHYL TERT-BUTYL ETHER	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
METHYLENE CHLORIDE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
NAPHTHALENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
N-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
N-PROPYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
O-XYLENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
P-ISOPROPYLTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
SEC-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
STYRENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TERT-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TETRACHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TOLUENE	ug/L	1.08			1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRANS-1,2-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRANS-1,3-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	1.1			1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRICHLOROFLUOROMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
VINYL CHLORIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
XYLENES	ug/L	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5

Notes:

-Indicates analyte concentration above detection limit.

mg/L - milligrams per liter

µg/L - microgram per liter

pCi/L - picocuries per liter

ND - Non detect

Qualifiers:

J - Estimated value below the lowest calibration point. Confidence correlates with concentration.

U - The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the detection limit.

Y -The parameter shows a potential negative bias on a reported concentration due to an ICV or CCV exceeding the lower control limit on the low side.

Q - The relative percent difference (RPD) and/or percent recovery exceeded limits in the

LOCATION_CODE		KAFB0313						KAFB0313						KAFB0314						KAFB0315					
SAMPLE_NO		LF008-30005						LF008-30006						LF008-30007						LF008-30008					
SAMPLE_DATE		21-Apr-14						21-Apr-14						21-Apr-14						28-Apr-14					
SAMPLE_PURPOSE		REG						FD						REG						REG					
SAMPLE_DEPTH		350.25-375.25 FT						350.25-375.25 FT						430.17-450.17 FT						449-474 FT					
Parameter	Units	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD	Result	Qual	VALQUAL	LOQ	DL	LOD
1,1,1,2-TETRACHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,1-TRICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,2,2-TETRACHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1,2-TRICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,1-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,3-TRICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,3-TRICHLOROPROPANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,2,4-TRICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2,4-TRIMETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,2-DIBROMOETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,2-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3,5-TRIMETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
1,3-DICHLOROPROPENE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
1,4-DICHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2,2-DICHLOROPROPANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2-BUTANONE	ug/L	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5
2-CHLOROTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
2-HEXANONE	ug/L	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5
4-CHLOROTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
4-METHYL-2-PENTANONE	ug/L	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5	ND	U	U	5	1.25	2.5
ACETONE	ug/L	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5	ND	U	U	10	2.5	5	ND	XQU	U	10	2.5	5
BENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOCHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMODICHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
BROMOFORM	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	XU	U	1	0.25	0.5
BROMOMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
CARBON DISULFIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CARBON TETRACHLORIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
CHLOROFORM	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CIS-1,2-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
CIS-1,3-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DCE12TOT	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
DIBROMOCHLOROMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DIBROMOMETHANE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
DICHLORODIFLUOROMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
ETHYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
HEXACHLOROBUTADIENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
ISOPROPYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
M,P-XYLENES	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
METHYL TERT-BUTYL ETHER	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
METHYLENE CHLORIDE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
NAPHTHALENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
N-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
N-PROPYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
O-XYLENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
P-ISOPROPYLTOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
SEC-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
STYRENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TERT-BUTYLBENZENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TETRACHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	0.658	J	J	1	0.25	0.5	ND	U	U	1	0.25	0.5
TOLUENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRANS-1,2-DICHLOROETHENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRANS-1,3-DICHLOROPROPENE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
TRICHLOROETHENE	ug/L	0.536	J	J	1	0.25	0.5	0.599	J	J	1	0.25	0.5	0.549	J	J	1	0.25	0.5	0.267	J	J	1	0.25	0.5
TRICHLOROFLUOROMETHANE	ug/L	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1	ND	U	U	2	0.5	1
VINYL CHLORIDE	ug/L	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5	ND	U	U	1	0.25	0.5
XYLENES	ug/L	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5	ND	U	U	3	0.75	1.5

Notes:

-Indicates analyte concentration above detection limit.
mg/L - milligrams per liter
µg/L - microgram per liter
pCi/L - picocuries per liter
ND - Non detect

Qualifiers:

J - Estimated value below the lowest calibration point. Confidence correlates with concentration.
U - The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.

X - The parameter shows a potential positive bias on a reported concentration due to an ICV or CCV exceeding the upper control limit on the high side.
Q - The relative percent difference (RPD) and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

APPENDIX B

Analytical Laboratory Reports (provided electronically)

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ANALYTICAL DATA PACKAGE
SDG # KIRTLANDECOS_008

PROJECT NAME: KIRTLAND AFB (ECOS)
PROJECT LOCATION: ALBUQUERQUE, NEW MEXICO

SUBMITTAL TO:
Susan Huang
SHAW E&I, Inc.
4005 Port Chicago Highway
Concord, CA 94520

SUBMITTAL BY:
Empirical Laboratories, LLC (EL)
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Original Report Date: April 25, 2014
Report Revision #: N/A
Revision Date: N/A
Total # of Pages: 437

THIS DOCUMENT MEETS DoD QSM 4.2 STANDARDS

The results relate to only the samples associated with the referenced SDG and the submitted data has been produced in accordance with laboratory procedures. The Laboratory's Technical Lab Director, Mr. Rick Davis, is responsible for the final data produced and reported. His signature is listed at the end of the Case Narrative within the Analytical Data Package. If applicable to this report package, details on report revisions and the information on subcontracted analysis are listed in the package Case Narrative. This report shall not be reproduced, except in full, without the written approval of Empirical Laboratories, LLC.

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Sample Delivery Group Case Narrative

Receipt Information:
The samples were received within the preservation guidelines for the associated methods. The information associated with sample receipt and the Sample Delivery Group (SDG) are included within section 4 of this package, which also provides information on the link between the client sample ID listed on the COC and laboratory's assigned unique sample ID or WorkOrder #. The sample is tracked through the laboratory for all analysis via the assigned WorkOrder #.

All samples that were received were analyzed and none of the samples were placed on hold without analyses. Samples were subcontracted to ALS Environmental for Gross Alpha, Gross Beta, and Ra226.

Changes to the Revision:
This is an original submittal of the final report package.

Analytical Information:
All samples were prepped (where applicable) and analyzed within the standard allowed holding times, unless noted within the exceptions listed below. The laboratory analyzed all samples within the program and method guidelines. Sample preparation and dilution information is provided within the final results report and at the beginning of each form set. The following information is provided specific to individual methods:

SW8260B:
Note – Samples 1404017-09 and 1404041-09 were analyzed at a 2x only due to the samples foaming during screening. No lower analyses were able to be performed.

The following batch spikes exceeded criteria:
4D07017-BS1 with a positive bias for Acetone; note – no positive results were detected in the associated samples

The following blanks have reported results:
4D10015-BLK1 for Hexachlorobutadiene; note – no positive results were detected in the associated samples

The following continuing calibration verifications exceeded criteria:
4D10104-CCV1 with a positive bias for Acetone; note – no positive results above the LOQ were detected in the associated samples

No additional anomalies or deviations are noted and the proper data qualifiers have been applied.

SW6010C/SW7470A:
No anomalies or deviations are noted.

Wet Chemistry:
The following samples were analyzed after the method recommended holding time:

Total Dissolved Solids for 1404017-01, -03, -05, and -07 were analyzed 9 days after sampling with a 7 day method recommended holding time due to an error when the samples were logged in

The following duplicates exceeded relative percent difference criteria:
4D03010-DUP1 (1404017-01) for Sulfate as SO4 at 10.4% (10%)

No additional anomalies or deviations are noted and the proper data qualifiers have been applied.

Data Qualifiers:
As applicable and where required, the following general qualifiers are associated with the sample results. Additional qualifiers will be specified within the reporting sections of the data package or within the body of the Case Narrative.

Analytical Report Terms and Qualifiers

DL: The detection limit (DL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The DL is supported by the method detection limit (MDL) which is determined from analysis of a sample containing the analyte in a given matrix.

LOD: The Limit of Detection is an estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. This definition is further clarified in the DoD QSM 4.2 revisions as the smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.

LOQ: The Limit of Quantitation is the minimum level, concentration, or quantity of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. This term is further clarified within the DoD QSM 4.2 as the lowest concentration that produces a quantitative result within specified limits of precision and bias.

*****: Exceeding quality control criteria are associated with the reported result.

B: The presence of a "B" to the right of an analytical value indicates that this compound was also detected in the method blank and the data should be interpreted with caution. One should consider the possibility that the correct sample result might be less than the reported result and, perhaps, zero.

D: When a sample (or sample extract) is rerun diluted because one of the compound concentrations exceeded the highest concentration range for the standard curve, all of the values obtained in the dilution run will be flagged with a "D".

E: The concentration for any compound found which exceeds the highest concentration level on the standard curve for that compound will be flagged with an "E". Usually the sample will be rerun at a dilution to quantitate the flagged compound. For Metals, the qualifier indicates that the serial dilution was outside of the control limits and the compound should be considered estimated due to the presence of interference.

H1: The result was analyzed outside of the EPA recommended holding time.

H2: The result was extracted outside of the EPA recommended holding time.

H3: The sample for this analyte was received outside of the EPA recommended holding time.

J: The presence of a "J" to the right of an analytical result indicates that the reported result is estimated. The mass spectral data pass the identification criteria showing that the compound is present, but the calculated result is less than the LOQ. One should feel confident that the result is greater than zero and less than the LOQ.

M: Indicates that the sample matrix interfered with the quantitation of the analyte. In dual column analysis the result is reported from the column with the lower concentration. In inorganics, it indicates that the parameters DL/LOD/LOQ have been raised.

N: The MS/MSD accuracy and/or precision are outside criteria. The predigested spike recovery is not within control limits for the associated parameter.

P: The associated numerical value is an estimated quantity. There is greater than a 40% difference between the two GC columns for the detected concentrations. The higher of the two values is reported unless matrix interference is obvious or for HPLC analysis where the primary column is reported.

Q: The relative percent difference (RPD) and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

S: The associated internal standard exceeded criteria.

U: The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.

X: The parameter shows a potential positive bias on a reported concentration due to an ICV or CCV exceeding the upper control limit on the high side.

Y: The parameter shows a potential negative bias on a reported concentration due to an ICV or CCV exceeding the lower control limit on the low side.

Z: The parameter shows lack of confirmation/detection, which may be due to a negative bias in the ICV or CCV which exceeds the lower control limit.

Chromatographic Flags for Manual Integration:

The following letters are used to denote manual integrations on the laboratory's raw data in association with chromatographic integrations:

A: The peak was manually integrated as it was not integrated in the original chromatogram.

B: The peak was manually integrated due to resolution or coelution issues in the original chromatogram.

C: The peak was manually integrated to correct the baseline from the original chromatogram.

D: The peak was manually integrated to identify the correct peak as the wrong peak was identified in the original chromatogram.

E: The peak was manually integrated to include the entire peak as the original chromatogram only integrated part of the peak.

LIMS Definitions / Naming Conventions:

The following are general naming conventions that are used throughout the laboratory; however, on a method by method basis, there are additional QAQC items that are named in a consistent format.

BLK: LIMS assigns a unique identifier to the Method Blank by naming it as the letters BLK appended to the Batch ID. A Method Blank is an analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The Method Blank is used to assess for possible contamination during preparation and/or analysis steps. Method Blanks within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally.

BS: LIMS assigns a unique identifier to the Blank Spike by naming it as the letters BS appended to the Batch ID. The Blank Spike or Lab Control Sample is a controlled analyte-free matrix, which is spiked with known and verified concentrations of target analytes. Spiking concentrations can be referenced in the method SOP. The BS is used to evaluate the viability of analytes taken through the entire prep (when applicable) and analytical process. Blank Spikes within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally. A duplicate Blank Spike will be designated

as a BSD.

MS: The LIMS assigns each Client sample with a unique identifier. The Matrix Spike is designated with a MS at the end of the sample's unique identifier. The Matrix Spike sample is used to assess the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. A duplicate Matrix Spike will be designated as a MSD.

IDs: The LIMS assigns each Client sample with a unique identifier. The letter "RE" may potentially be appended to the end of the LIMS Sample ID. And "**RE"** implies that the sample was either re-prepped, re-analyzed straight, or re-analyzed at a dilution. Subsequent re-analysis for the sample will be appended with a numerical value beginning with 1 that will increase incrementally. Eg: RE1, RE2, RE3, etc.

Statement of Data Authenticity:

I certify that, based upon my inquiry of those individuals immediately responsible for obtaining the information and to the best of my knowledge, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in this Case Narrative, as verified by my signature below. During absences, the Data Quality Manager, Technical Directors or Project Managers are authorized to sign this Statement of Data Authenticity.

Lorraine Noronha for

Mr. Rick D. Davis
Laboratory Technical Director / VP Operations

Empirical Laboratories, LLC
Certifications/Approvals
(Revised 03/19/2014)

DoD ELAP, Certificate Number L2226
- Aqueous
- Non-aqueous
- Expires: 11/30/2015

State of Florida, Department of Health – NELAP, Lab ID: E87646
- Clean Water Act
- RCRA/CERCLA
- Expires: 06/30/2014

State of Georgia, Environmental Protection Agency – NELAP
- Expires: 06/30/2014

State of Illinois, Environmental Protection Agency – NELAP, Certificate No.: 003300
- Groundwater
- Solid and Hazardous Waste
- Expires: 09/13/2014

State of Kansas Department of Health and Environment – NELAP, Certificate No.: E-10407
- Aqueous
- Non-aqueous
- Expires: 04/30/2014

State of Kentucky Department of Environmental Protection – NELAP, Certificate No.: 77
- Aqueous
- Non-aqueous
- Expires: 06/30/2014

State of Nevada, Department of Conservation and Natural Resources – NELAP, Certificate No.: TN000042013-1
- Aqueous
- Non-aqueous
- Expires: 07/31/2014

State of New Jersey Department of Environmental Protection – NELAP, Lab ID: TN473
- Water Pollution
- Solid and Hazardous Waste
- Expires: 06/30/2014

State of North Carolina, Department of Environment and Natural Resources - Certificate No.: 643
- Aqueous
- Non-aqueous
- Expires: 12/31/2014

State of North Dakota, Department of Health – NELAP, Certificate No.: R-204
- Aqueous
- Non-aqueous
- Expires: 06/30/2014

State of Texas, Commission on Environmental Quality – NELAP, Certificate No.: T104704307-14-10
- Aqueous
- Non-aqueous
- Expires: 12/31/2014

State of Utah, Department of Health – NELAP, Certificate No.: TN0042013-5
- Aqueous
- Non-aqueous
- Expires: 07/31/2014

Commonwealth of Virginia, Department of General Services – VELAP, Certificate No.: 2633 – Lab ID: 460243
- Aqueous
- Non-aqueous
- Expires: 12/14/2014

State of Washington, Department of Ecology – NELAP, Lab ID: C934-14
- Groundwater
- Solid and Hazardous Waste
- Expires: 03/18/2015

ORGANIC CALCULATIONS

GC/MS Volatiles

$$\text{Final Concentration} = \frac{\text{On-column(ug/L or ug/Kg) * Expected Vol/Weight (mL or g) * Dilution}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

Note - Expected Vol/Weight value is found in "Final Vol" column of Preparation Batch Summary.

GC/MS Extractables

$$\text{Final Concentration} = \frac{\text{On-column(ng/uL) * Final Vol (ml) * Dilution *(1000uL/mL)}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

= ng/mL or ng/g

= ug/L or ug/kg

GC or LC Extractables

$$\text{Final Concentration} = \frac{\text{On-column(ng/mL) * Final Vol (mL) * Dilution}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

= ng/mL or ng/g

= ug/L or ug/kg

Sample Receipt Information

LF 001 1404017

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-118

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 01 APR 2014
Lab Destination: Empirical Laboratories, Inc.
Lab Contact: Jennifer Chandler
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370761

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

1. Relinquished By (Signature/Affiliation) Nagar/Shaw Date: 4/1/14 Time: 1600
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Received By (Signature/Affiliation) Date: Time:
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) [signature] Date: 4/2/14 Time: 0845

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
01	LF001-30001	KAFB0118-GW-LF001-30001-REG	31 MAR 2014	16:26	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF001-30001	KAFB0118-GW-LF001-30001-REG	31 MAR 2014	16:26	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		
	LF001-30001	KAFB0118-GW-LF001-30001-REG	31 MAR 2014	16:26	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
02	LF001-30001	KAFB0118-GW-LF001-30001-REG	31 MAR 2014	16:26	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
01	LF001-30001	KAFB0118-GW-LF001-30001-REG	31 MAR 2014	16:26	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300. TDS by SM 2540C			N		
03	LF001-30002	KAFB0119-GW-LF001-30002-REG	31 MAR 2014	12:23	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF001-30002	KAFB0119-GW-LF001-30002-REG	31 MAR 2014	12:23	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		

Kirtlandcoc_008

1404017

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-118

	Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
03	LF001-30002	KAFB0119-GW-LF001-30002-REG	31 MAR 2014	12:23	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, TDS by SM 2540C			N		
04	LF001-30002	KAFB0119-GW-LF001-30002-REG	31 MAR 2014	12:23	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
03	LF001-30002	KAFB0119-GW-LF001-30002-REG	31 MAR 2014	12:23	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		
05	LF001-30003	KAFB0120-GW-LF001-30003-REG	31 MAR 2014	16:50	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		
06	LF001-30003	KAFB0120-GW-LF001-30003-REG	31 MAR 2014	16:50	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
05	LF001-30003	KAFB0120-GW-LF001-30003-REG	31 MAR 2014	16:50	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
↓	LF001-30003	KAFB0120-GW-LF001-30003-REG	31 MAR 2014	16:50	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, TDS by SM 2540C			N		
↓	LF001-30003	KAFB0120-GW-LF001-30003-REG	31 MAR 2014	16:50	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
07	LF001-30004	KAFB0121-GW-LF001-30004-REG	31 MAR 2014	12:36	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
↓	LF001-30004	KAFB0121-GW-LF001-30004-REG	31 MAR 2014	12:36	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		
08	LF001-30004	KAFB0121-GW-LF001-30004-REG	31 MAR 2014	12:36	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
07	LF001-30004	KAFB0121-GW-LF001-30004-REG	31 MAR 2014	12:36	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
↓	LF001-30004	KAFB0121-GW-LF001-30004-REG	31 MAR 2014	12:36	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, TDS by SM 2540C			N		
09	LF001-80001	FIELDQC-BW-LF001-80001-ER	01 APR 2014	7:45	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
↓	LF001-80001	FIELDQC-BW-LF001-80001-ER	01 APR 2014	7:45	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		
10	LF001-80001	FIELDQC-BW-LF001-80001-ER	01 APR 2014	7:45	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
11	LF001-80003	FIELDQC-BW-LF001-80003-TB	31 MAR 2014	08:00	40 mL VOA VIAL	2	HCl<pH 2	VOCs by SW846 8260B			N		

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

Cooler Received/Opened On: 04/02/14 0845 Workorder# 1404017

1. Tracking # 0761 (last 4 digits, FedEx)

   Courier: FedEx

2. Temperature of rep. sample or temp blank when opened: 1.1 °C + *correction factor (+0.1)* = 1.2 °C

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO (NA)

4. Were custody seals on outside of cooler? (YES) NO NA

   If yes, how many and where: 2. front + back

5. Were the seals intact, signed, and dated correctly? (YES) NO NA

6. Were custody papers inside cooler? (YES) NO NA

I certify that I opened the cooler and answered questions 1-6 (initial) JTG

7. Were custody seals on containers: YES (NO) and Intact YES NO (NA)

   Were these signed and dated correctly? YES NO (NA)

8. Packing material used? (Bubblewrap) (Plastic bag) Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES) NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES) NO NA

12. Did all container labels and tags agree with custody papers? (YES) NO NA

13. a. Were VOA vials received? (YES) NO NA

    b. Was there any observable headspace present in any VOA vial? YES (NO) NA

    JTG 4/2/14

14. Was there a Trip Blank in this cooler? YES (NO) NA If multiple coolers, sequence # —

I certify that I unloaded the cooler and answered questions 7-14 (initial) JTG

15. a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? (YES) NO NA

    b. Did the bottle labels indicate that the correct preservatives were used (YES) NO NA

16. Was residual chlorine present? YES NO (NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) JTG

17. Were custody papers properly filled out (ink, signed, etc)? (YES) NO NA

18. Did you sign the custody papers in the appropriate place? (YES) NO NA

19. Were correct containers used for the analysis requested? (YES) NO NA

20. Was sufficient amount of sample sent in each container? (YES) NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) JTG

I certify that I attached a label with the unique LIMS number to each container (initial) JTG

I certify that I have performed a second check of the LIMS information against the COC to confirm accuracy (initial) ☆ No Login 2nd Check performed JTG 4/2/14

21. Were there Non-Conformance issues at login? YES (NO) Was a NCR generated? YES (NO) #

Additional Details:

Kirtlandcoco_008

LF002 1404041

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-221

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 03 APR 2014
Lab Destination: Empirical Laboratories, Inc.
Lab Contact: ~~Jennifer Chandler~~ Marianne Walker
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370809

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) [signature] Date: 4/3/14 Time: 1600
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) Date: Time:
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) [signature] Date: 4/4/14 Time: 0850

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
01	LF002-30001	KAFB0213-GW-LF002-30001-REG	03 APR 2014	10:49	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
↓	LF002-30001	KAFB0213-GW-LF002-30001-REG	03 APR 2014	10:49	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		
02	LF002-30001	KAFB0213-GW-LF002-30001-REG	03 APR 2014	10:49	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
01	LF002-30001	KAFB0213-GW-LF002-30001-REG	03 APR 2014	10:49	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, TDS by SM 2540C			N		
↓	~~LF002-30001~~	~~KAFB0213-GW-LF002-30001-REG~~	~~03 APR 2014~~	~~10:49~~	~~250 mL HDPE~~	~~1~~	~~H2SO4<pH 2~~	~~Nitrate plus Nitrite by EPA 353.2~~			~~N~~		
03	LF002-30002	KAFB0213-GW-LF002-30002-FD	03 APR 2014	10:49	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
↓	LF002-30002	KAFB0213-GW-LF002-30002-FD	03 APR 2014	10:49	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		

14

Kirtlandecos_008

1404041

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-221

	Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
03	LF002-30002	KAFB0213-GW-LF002-30002-FD	03 APR 2014	10:49	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
↓	LF002-30002	KAFB0213-GW-LF002-30002-FD	03 APR 2014	10:49	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, TDS by SM 2540C			N		
04	LF002-30002	KAFB0213-GW-LF002-30002-FD	03 APR 2014	10:49	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
05	LF002-30004	KAFB0220-GW-LF002-30004-REG	03 APR 2014	15:16	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		
06	LF002-30004	KAFB0220-GW-LF002-30004-REG	03 APR 2014	15:16	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
05	LF002-30004	KAFB0220-GW-LF002-30004-REG	03 APR 2014	15:16	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF002-30004	KAFB0220-GW-LF002-30004-REG	03 APR 2014	15:16	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
↓	LF002-30004	KAFB0220-GW-LF002-30004-REG	03 APR 2014	15:16	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, TDS by SM 2540C			N		
07	LF002-30005	KAFB0221-GW-LF002-30005-REG	02 APR 2014	14:21	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
↓	LF002-30005	KAFB0221-GW-LF002-30005-REG	02 APR 2014	14:21	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
	LF002-30005	KAFB0221-GW-LF002-30005-REG	02 APR 2014	14:21	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, TDS by SM 2540C			N		
08	LF002-30005	KAFB0221-GW-LF002-30005-REG	02 APR 2014	14:21	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
07	LF002-30005	KAFB0221-GW-LF002-30005-REG	02 APR 2014	14:21	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		
10	LF002-80001	FIELDQC-BW-LF002-80001-ER	03 APR 2014	07:50	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
09	LF002-80001	FIELDQC-BW-LF002-80001-ER	03 APR 2014	07:50	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		
↓	LF002-80001	FIELDQC-BW-LF002-80001-ER	03 APR 2014	07:50	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
11	LF002-80003	FIELDQC-BW-LF002-80003-TB	02 APR 2014	08:00	40 mL VOA VIAL	2	HCl<pH 2	VOCs by SW846 8260B			N		

Kirtlandocos_008

C

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

Cooler Received/Opened On: 04/04/14 0850 Workorder# 1404041

1. Tracking # 0809 (last 4 digits, FedEx)

   Courier: FedEx

2. Temperature of rep. sample or temp blank when opened: 0.8 °C + correction factor (+0.1) = 0.9 °C

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

   If yes, how many and where: 1 on front

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (initial) JTG

7. Were custody seals on containers: YES NO and Intact YES NO NA

   Were these signed and dated correctly? YES NO NA

8. Packing material used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13. a. Were VOA vials received? YES NO NA

    b. Was there any observable headspace present in any VOA vial? YES NO NA

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence #____

I certify that I unloaded the cooler and answered questions 7-14 (initial) JTG

15. a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

    b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) JTG

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) JTG

I certify that I attached a label with the unique LIMS number to each container (initial) JTG

I certify that I have performed a second check of the LIMS information against the COC to confirm accuracy (initial) ★ No Login 2nd Check JTG 4/4/14

21. Were there Non-Conformance issues at login? YES NO Was a NCR generated? YES NO #____

Additional Details:

WORK ORDER

Printed: 4/8/2014 12:12:31AM

1404017

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Report To:
Shaw Environmental, Inc.
Susan Huang
4005 Port Chicago Highway
Concord, CA 94520
Phone: (925) 288-2099
Fax: (925) 288-0888

Invoice To:
Shaw Environmental, Inc.
Accounts Payable
PO Box 98519
Baton Rouge, LA 70884
Phone :(225) 932-2500
Fax: (225) 932-2661

Due to Client: 04/23/2014 16:00 *This is the projected due date to the client, at the time of receipt, and is for report delivery via upload, and/or email, and/or shipment to meet TAT as setup by project*

Received By: Joshua T. Gross
Date Received: 04/02/2014 08:45
Logged In By: Joshua T. Gross
Date Logged In: 04/02/2014 13:04

Samples Received at: **1.2°C**

Custody Seals	Yes	Received On Ice	Yes
Containers Intact	Yes		
COC/Labels Agree	Yes		
Preservation Confirme	Yes		

Method	Test Code	Due	TAT	Expires	Comments
1404017-01 LF001-30001 [Water] Sampled 03/31/2014 16:26 Mountain 'Client Sample'					
SW9056A	WC_ANIONS_9056A (Regular)	04/18/2014 14:00	15	04/28/2014 17:26	see versions
E353.2	WC_NO3NO2_N_353.2	04/18/2014 14:00	15	04/28/2014 17:26	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	04/18/2014 14:00	15	04/07/2014 17:26	
SW8260B	VOC_8260B_REG	04/18/2014 14:00	15	04/14/2014 17:26	see versions
EPA 9315	SUB_RAD_Ra226	04/18/2014 14:00	15	09/27/2014 17:26	Radium 226
SW7470A	MET_7470A_MERCURY	04/18/2014 14:00	15	04/28/2014 17:26	
1404017-02 LF001-30001 [Water] Sampled 03/31/2014 16:26 Mountain 'Client Sample'					
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/18/2014 14:00	15	09/27/2014 17:26	see versions
1404017-03 LF001-30002 [Water] Sampled 03/31/2014 12:23 Mountain 'Client Sample'					
SW8260B	VOC_8260B_REG	04/18/2014 14:00	15	04/14/2014 13:23	see versions
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	04/18/2014 14:00	15	04/07/2014 13:23	
SW9056A	WC_ANIONS_9056A (Regular)	04/18/2014 14:00	15	04/28/2014 13:23	see versions
EPA 9315	SUB_RAD_Ra226	04/18/2014 14:00	15	09/27/2014 13:23	Radium 226
SW7470A	MET_7470A_MERCURY	04/18/2014 14:00	15	04/28/2014 13:23	
E353.2	WC_NO3NO2_N_353.2	04/18/2014 14:00	15	04/28/2014 13:23	
1404017-04 LF001-30002 [Water] Sampled 03/31/2014 12:23 Mountain 'Client Sample'					
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/18/2014 14:00	15	09/27/2014 13:23	see versions

1404017

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Method	Test Code	Due	TAT	Expires	Comments
1404017-05 LF001-30003 [Water] Sampled 03/31/2014 16:50 Mountain 'Client Sample'					
SW7470A	MET_7470A_MERCURY	04/18/2014 14:00	15	04/28/2014 17:50	
SW8260B	VOC_8260B_REG	04/18/2014 14:00	15	04/14/2014 17:50	see versions
EPA 9315	SUB_RAD_Ra226	04/18/2014 14:00	15	09/27/2014 17:50	Radium 226
E353.2	WC_NO3NO2_N_353.2	04/18/2014 14:00	15	04/28/2014 17:50	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	04/18/2014 14:00	15	04/07/2014 17:50	
SW9056A	WC_ANIONS_9056A (Regular)	04/18/2014 14:00	15	04/28/2014 17:50	see versions
1404017-06 LF001-30003 [Water] Sampled 03/31/2014 16:50 Mountain 'Client Sample'					
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/18/2014 14:00	15	09/27/2014 17:50	see versions
1404017-07 LF001-30004 [Water] Sampled 03/31/2014 12:36 Mountain 'Client Sample'					
SW8260B	VOC_8260B_REG	04/18/2014 14:00	15	04/14/2014 13:36	see versions
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	04/18/2014 14:00	15	04/07/2014 13:36	
SW9056A	WC_ANIONS_9056A (Regular)	04/18/2014 14:00	15	04/28/2014 13:36	see versions
EPA 9315	SUB_RAD_Ra226	04/18/2014 14:00	15	09/27/2014 13:36	Radium 226
SW7470A	MET_7470A_MERCURY	04/18/2014 14:00	15	04/28/2014 13:36	
E353.2	WC_NO3NO2_N_353.2	04/18/2014 14:00	15	04/28/2014 13:36	
1404017-08 LF001-30004 [Water] Sampled 03/31/2014 12:36 Mountain 'Client Sample'					
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/18/2014 14:00	15	09/27/2014 13:36	see versions
1404017-09 LF001-80001 [Water] Sampled 04/01/2014 07:45 Mountain 'Client Sample'					
SW7470A	MET_7470A_MERCURY	04/18/2014 14:00	15	04/29/2014 08:45	
SW8260B	VOC_8260B_REG	04/18/2014 14:00	15	04/15/2014 08:45	see versions
1404017-10 LF001-80001 [Water] Sampled 04/01/2014 07:45 Mountain 'Client Sample'					**Field Filtered**
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/18/2014 14:00	15	09/28/2014 08:45	see versions
1404017-11 LF001-80003 [Water] Sampled 03/31/2014 08:00 Mountain 'Trip Blank'					
SW8260B	VOC_8260B_REG	04/18/2014 14:00	15	04/14/2014 09:00	see versions

ALS Environmental - CO (SUB)

1404017

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Method	Test Code	Due	TAT	Expires	Comments
ALS Environmental - CO (SUB)					
1404017-01 LF001-30001 [Water] Sampled 03/31/2014 16:26 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossAlpha	04/18/2014 14:00	15	04/14/2014 17:26	
EPA 900.0	SUB_RAD_GrossBeta	04/18/2014 14:00	15	04/14/2014 17:26	
1404017-03 LF001-30002 [Water] Sampled 03/31/2014 12:23 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossBeta	04/18/2014 14:00	15	04/14/2014 13:23	
EPA 900.0	SUB_RAD_GrossAlpha	04/18/2014 14:00	15	04/14/2014 13:23	
1404017-05 LF001-30003 [Water] Sampled 03/31/2014 16:50 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossBeta	04/18/2014 14:00	15	04/14/2014 17:50	
EPA 900.0	SUB_RAD_GrossAlpha	04/18/2014 14:00	15	04/14/2014 17:50	
1404017-07 LF001-30004 [Water] Sampled 03/31/2014 12:36 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossAlpha	04/18/2014 14:00	15	04/14/2014 13:36	
EPA 900.0	SUB_RAD_GrossBeta	04/18/2014 14:00	15	04/14/2014 13:36	

Reviewed By

Date

WORK ORDER

Printed: 4/8/2014 12:15:26AM

1404041

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Report To:
Shaw Environmental, Inc.
Susan Huang
4005 Port Chicago Highway
Concord, CA 94520
Phone: (925) 288-2099
Fax: (925) 288-0888

Invoice To:
Shaw Environmental, Inc.
Accounts Payable
PO Box 98519
Baton Rouge, LA 70884
Phone :(225) 932-2500
Fax: (225) 932-2661

Due to Client: 04/28/2014 16:00 *This is the projected due date to the client, at the time of receipt, and is for report delivery via upload, and/or email, and/or shipment to meet TAT as setup by project*

Received By: Joshua T. Gross
Date Received: 04/04/2014 08:50
Logged In By: Joshua T. Gross
Date Logged In: 04/04/2014 14:04

Samples Received at: **0.9°C**
Custody Seals Yes Received On Ice Yes
Containers Intact Yes
COC/Labels Agree Yes
Preservation Confirme Yes

Method	Test Code	Due	TAT	Expires	Comments
1404041-01 LF002-30001 [Water] Sampled 04/03/2014 10:49 Mountain 'Client Sample'					
SW9056A	WC_ANIONS_9056A (Regular)	04/22/2014 14:00	15	05/01/2014 11:49	see versions
E353.2	WC_NO3NO2_N_353.2	04/22/2014 14:00	15	05/01/2014 11:49	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	04/22/2014 14:00	15	04/10/2014 11:49	
SW8260B	VOC_8260B_REG	04/22/2014 14:00	15	04/17/2014 11:49	see versions
EPA 9315	SUB_RAD_Ra226	04/22/2014 14:00	15	09/30/2014 11:49	Radium 226
SW7470A	MET_7470A_MERCURY	04/22/2014 14:00	15	05/01/2014 11:49	
1404041-02 LF002-30001 [Water] Sampled 04/03/2014 10:49 Mountain 'Client Sample'					
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/22/2014 14:00	15	09/30/2014 11:49	see versions
1404041-03 LF002-30002 [Water] Sampled 04/03/2014 10:49 Mountain 'Client Sample'					
SW8260B	VOC_8260B_REG	04/22/2014 14:00	15	04/17/2014 11:49	see versions
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	04/22/2014 14:00	15	04/10/2014 11:49	
SW9056A	WC_ANIONS_9056A (Regular)	04/22/2014 14:00	15	05/01/2014 11:49	see versions
EPA 9315	SUB_RAD_Ra226	04/22/2014 14:00	15	09/30/2014 11:49	Radium 226
SW7470A	MET_7470A_MERCURY	04/22/2014 14:00	15	05/01/2014 11:49	
E353.2	WC_NO3NO2_N_353.2	04/22/2014 14:00	15	05/01/2014 11:49	
1404041-04 LF002-30002 [Water] Sampled 04/03/2014 10:49 Mountain 'Client Sample'					
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/22/2014 14:00	15	09/30/2014 11:49	see versions

1404041

Empirical Laboratories, LLC

Client:	**Shaw Environmental, Inc.**	**Project Manager:**	**Marianne J. Walker**
Project:	**Kirtland AFB (ECOS)**	**Project Number:**	**SHW_Kirtland_ECOS**

Method	Test Code	Due	TAT	Expires	Comments
1404041-05 LF002-30004 [Water] Sampled 04/03/2014 15:16 Mountain 'Client Sample'					
SW7470A	MET_7470A_MERCURY	04/22/2014 14:00	15	05/01/2014 16:16	
SW8260B	VOC_8260B_REG	04/22/2014 14:00	15	04/17/2014 16:16	see versions
EPA 9315	SUB_RAD_Ra226	04/22/2014 14:00	15	09/30/2014 16:16	Radium 226
E353.2	WC_NO3NO2_N_353.2	04/22/2014 14:00	15	05/01/2014 16:16	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	04/22/2014 14:00	15	04/10/2014 16:16	
SW9056A	WC_ANIONS_9056A (Regular)	04/22/2014 14:00	15	05/01/2014 16:16	see versions
1404041-06 LF002-30004 [Water] Sampled 04/03/2014 15:16 Mountain 'Client Sample'					
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/22/2014 14:00	15	09/30/2014 16:16	see versions
1404041-07 LF002-30005 [Water] Sampled 04/02/2014 14:21 Mountain 'Client Sample'					
SW8260B	VOC_8260B_REG	04/22/2014 14:00	15	04/16/2014 15:21	see versions
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	04/22/2014 14:00	15	04/09/2014 15:21	
SW9056A	WC_ANIONS_9056A (Regular)	04/22/2014 14:00	15	04/30/2014 15:21	see versions
EPA 9315	SUB_RAD_Ra226	04/22/2014 14:00	15	09/29/2014 15:21	Radium 226
SW7470A	MET_7470A_MERCURY	04/22/2014 14:00	15	04/30/2014 15:21	
E353.2	WC_NO3NO2_N_353.2	04/22/2014 14:00	15	04/30/2014 15:21	
1404041-08 LF002-30005 [Water] Sampled 04/02/2014 14:21 Mountain 'Client Sample'					
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/22/2014 14:00	15	09/29/2014 15:21	see versions
1404041-09 LF002-80001 [Water] Sampled 04/03/2014 07:50 Mountain 'Client Sample'					
SW7470A	MET_7470A_MERCURY	04/22/2014 14:00	15	05/01/2014 08:50	
SW8260B	VOC_8260B_REG	04/22/2014 14:00	15	04/17/2014 08:50	see versions
1404041-10 LF002-80001 [Water] Sampled 04/03/2014 07:50 Mountain 'Client Sample'					
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/22/2014 14:00	15	09/30/2014 08:50	see versions
1404041-11 LF002-80003 [Water] Sampled 04/02/2014 08:00 Mountain 'Trip Blank'					
SW8260B	VOC_8260B_REG	04/22/2014 14:00	15	04/16/2014 09:00	see versions

ALS Environmental - CO (SUB)

1404041

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Method	Test Code	Due	TAT	Expires	Comments
ALS Environmental - CO (SUB)					
1404041-01 LF002-30001 [Water] Sampled 04/03/2014 10:49 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossAlpha	04/22/2014 14:00	15	04/17/2014 11:49	
EPA 900.0	SUB_RAD_GrossBeta	04/22/2014 14:00	15	04/17/2014 11:49	
1404041-03 LF002-30002 [Water] Sampled 04/03/2014 10:49 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossBeta	04/22/2014 14:00	15	04/17/2014 11:49	
EPA 900.0	SUB_RAD_GrossAlpha	04/22/2014 14:00	15	04/17/2014 11:49	
1404041-05 LF002-30004 [Water] Sampled 04/03/2014 15:16 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossBeta	04/22/2014 14:00	15	04/17/2014 16:16	
EPA 900.0	SUB_RAD_GrossAlpha	04/22/2014 14:00	15	04/17/2014 16:16	
1404041-07 LF002-30005 [Water] Sampled 04/02/2014 14:21 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossAlpha	04/22/2014 14:00	15	04/16/2014 15:21	
EPA 900.0	SUB_RAD_GrossBeta	04/22/2014 14:00	15	04/16/2014 15:21	

Reviewed By

Date

SUBCONTRACT ORDER

Empirical Laboratories, LLC

1404017

SENDING LABORATORY:

Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Phone: 615.345.1115
Fax: 866.417.0548
Project Manager: Marianne J. Walker

RECEIVING LABORATORY:

ALS Environmental - CO (SUB)
225 Commerce Drive
Fort Collins, CO 80524
Phone :(970) 490-1511
Fax: (970) 490-1522

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: LF001-30001				
Reference No: 1404017-01	**Water**	**Sampled:03/31/2014 16:26**		
SUB_RAD_GrossBeta	04/21/2014 14:00	04/14/2014 17:26		
SUB_RAD_GrossAlpha	04/21/2014 14:00	04/14/2014 17:26		
Containers Supplied:				
Sample ID: LF001-30002				
Reference No: 1404017-03	**Water**	**Sampled:03/31/2014 12:23**		
SUB_RAD_GrossBeta	04/21/2014 14:00	04/14/2014 13:23		
SUB_RAD_GrossAlpha	04/21/2014 14:00	04/14/2014 13:23		
Containers Supplied:				
Sample ID: LF001-30003				
Reference No: 1404017-05	**Water**	**Sampled:03/31/2014 16:50**		
SUB_RAD_GrossBeta	04/21/2014 14:00	04/14/2014 17:50		
SUB_RAD_GrossAlpha	04/21/2014 14:00	04/14/2014 17:50		
Containers Supplied:				
Sample ID: LF001-30004				
Reference No: 1404017-07	**Water**	**Sampled:03/31/2014 12:36**		
SUB_RAD_GrossBeta	04/21/2014 14:00	04/14/2014 13:36		
SUB_RAD_GrossAlpha	04/21/2014 14:00	04/14/2014 13:36		
Containers Supplied:				

Released By	Date	Received By	Date

Released By	Date	Received By	Date

SUBCONTRACT ORDER

Empirical Laboratories, LLC

1404041

SENDING LABORATORY:

Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Phone: 615.345.1115
Fax: 866.417.0548
Project Manager: Marianne J. Walker

RECEIVING LABORATORY:

ALS Environmental - CO (SUB)
225 Commerce Drive
Fort Collins, CO 80524
Phone :(970) 490-1511
Fax: (970) 490-1522

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: LF002-30001				
Reference No: 1404041-01	**Water**	**Sampled:04/03/2014 10:49**		
SUB_RAD_Ra226	04/22/2014 14:00	09/30/2014 11:49		Radium 226
SUB_RAD_GrossBeta	04/22/2014 14:00	04/17/2014 11:49		
SUB_RAD_GrossAlpha	04/22/2014 14:00	04/17/2014 11:49		
Containers Supplied:				
Sample ID: LF002-30002				
Reference No: 1404041-03	**Water**	**Sampled:04/03/2014 10:49**		
SUB_RAD_Ra226	04/22/2014 14:00	09/30/2014 11:49		Radium 226
SUB_RAD_GrossBeta	04/22/2014 14:00	04/17/2014 11:49		
SUB_RAD_GrossAlpha	04/22/2014 14:00	04/17/2014 11:49		
Containers Supplied:				
Sample ID: LF002-30004				
Reference No: 1404041-05	**Water**	**Sampled:04/03/2014 15:16**		
SUB_RAD_Ra226	04/22/2014 14:00	09/30/2014 16:16		Radium 226
SUB_RAD_GrossBeta	04/22/2014 14:00	04/17/2014 16:16		
SUB_RAD_GrossAlpha	04/22/2014 14:00	04/17/2014 16:16		
Containers Supplied:				
Sample ID: LF002-30005				
Reference No: 1404041-07	**Water**	**Sampled:04/02/2014 14:21**		
SUB_RAD_Ra226	04/22/2014 14:00	09/29/2014 15:21		Radium 226
SUB_RAD_GrossBeta	04/22/2014 14:00	04/16/2014 15:21		
SUB_RAD_GrossAlpha	04/22/2014 14:00	04/16/2014 15:21		
Containers Supplied:				

Released By	Date	Received By	Date

Released By	Date	Received By	Date

Sample Delivery Group Assignment Form

CLIENT: Shaw Environmental, Inc.
PROJECT NAME: Kirtland AFB (ECOS)
SDG #: KirtlandECOS_008

QC LEVEL: Level III
Report Due: 4/23/2014 - 4/25/2014
Client Sample Count: 20

Lab ID	Client ID	Sampled	Received	Matrix	E 353.2	E 900.0	E 9315	SM 2540C	SW 6010C	SW 7470A	SW 8260B	SW 9056A
1404017-01	LF001-30001	3/31/2014	4/2/2014	Water	X	X	X	X		X	X	X
1404017-02	LF001-30001	3/31/2014	4/2/2014	Water					DISS			
1404017-03	LF001-30002	3/31/2014	4/2/2014	Water	X	X	X	X		X	X	X
1404017-04	LF001-30002	3/31/2014	4/2/2014	Water					DISS			
1404017-05	LF001-30003	3/31/2014	4/2/2014	Water	X	X	X	X		X	X	X
1404017-06	LF001-30003	3/31/2014	4/2/2014	Water					DISS			
1404017-07	LF001-30004	3/31/2014	4/2/2014	Water	X	X	X	X		X	X	X
1404017-08	LF001-30004	3/31/2014	4/2/2014	Water					DISS			
1404017-09	LF001-80001	4/1/2014	4/2/2014	Water						X	X	
1404017-10	LF001-80001	4/1/2014	4/2/2014	Water					DISS			
1404017-11	LF001-80003	3/31/2014	4/2/2014	Water							X	
1404041-01	LF002-30001	4/3/2014	4/4/2014	Water	X	X	X	X		X	X	X
1404041-02	LF002-30001	4/3/2014	4/4/2014	Water					DISS			
1404041-03	LF002-30002	4/3/2014	4/4/2014	Water	X	X	X	X		X	X	X
1404041-04	LF002-30002	4/3/2014	4/4/2014	Water					DISS			
1404041-05	LF002-30004	4/3/2014	4/4/2014	Water	X	X	X	X		X	X	X
1404041-06	LF002-30004	4/3/2014	4/4/2014	Water					DISS			
1404041-07	LF002-30005	4/2/2014	4/4/2014	Water	X	X	X	X		X	X	X
1404041-08	LF002-30005	4/2/2014	4/4/2014	Water					DISS			
1404041-09	LF002-80001	4/3/2014	4/4/2014	Water						X	X	
1404041-10	LF002-80001	4/3/2014	4/4/2014	Water					DISS			
1404041-11	LF002-80003	4/2/2014	4/4/2014	Water							X	

Data for SW8260B Forms

Sample Extraction Data

Prep Method: 5030B-SW8260B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404041-03 [LF002-30002]	4D07017	5.00/5.00	5.00	5.00	1.00			04/07/14

Sample Extraction Data

Prep Method: 5030B-SW8260B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404017-01 [LF001-30001]	4D10015	5.00/5.00	5.00	5.00	1.00			04/10/14
1404017-03 [LF001-30002]	4D10015	5.00/5.00	5.00	5.00	1.00			04/10/14
1404017-05 [LF001-30003]	4D10015	5.00/5.00	5.00	5.00	1.00			04/10/14
1404017-07 [LF001-30004]	4D10015	5.00/5.00	5.00	5.00	1.00			04/10/14
1404017-09 [LF001-80001]	4D10015	5.00/5.00	5.00	5.00	2.00			04/10/14
1404017-11 [LF001-80003]	4D10015	5.00/5.00	5.00	5.00	1.00			04/10/14
1404041-01RE1 [LF002-30001]	4D10015	5.00/5.00	5.00	5.00	1.00			04/10/14
1404041-05 [LF002-30004]	4D10015	5.00/5.00	5.00	5.00	1.00			04/10/14
1404041-07 [LF002-30005]	4D10015	5.00/5.00	5.00	5.00	1.00			04/10/14
1404041-09 [LF002-80001]	4D10015	5.00/5.00	5.00	5.00	2.00			04/10/14
1404041-11 [LF002-80003]	4D10015	5.00/5.00	5.00	5.00	1.00			04/10/14

ANALYSIS DATA SHEET

LF001-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-01	File ID:	0401701.D
Sampled:	03/31/14 16:26	Prepared:	04/10/14 14:16	Analyzed:	04/10/14 14:16
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF001-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-01	File ID:	0401701.D
Sampled:	03/31/14 16:26	Prepared:	04/10/14 14:16	Analyzed:	04/10/14 14:16
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.06	96.9	75 - 120	
Dibromofluoromethane	30.00	29.72	99.1	85 - 115	
1,2-Dichloroethane-d4	30.00	28.90	96.3	70 - 120	
Toluene-d8	30.00	31.00	103	85 - 120	

ANALYSIS DATA SHEET

LF001-30002

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-03	File ID:	0401703.D
Sampled:	03/31/14 12:23	Prepared:	04/10/14 14:43	Analyzed:	04/10/14 14:43
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF001-30002

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-03	File ID:	0401703.D
Sampled:	03/31/14 12:23	Prepared:	04/10/14 14:43	Analyzed:	04/10/14 14:43
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.76	95.9	75 - 120	
Dibromofluoromethane	30.00	30.03	100	85 - 115	
1,2-Dichloroethane-d4	30.00	29.84	99.5	70 - 120	
Toluene-d8	30.00	31.31	104	85 - 120	

ANALYSIS DATA SHEET

LF001-30003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-05	File ID:	0401705.D
Sampled:	03/31/14 16:50	Prepared:	04/10/14 15:11	Analyzed:	04/10/14 15:11
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF001-30003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-05	File ID:	0401705.D
Sampled:	03/31/14 16:50	Prepared:	04/10/14 15:11	Analyzed:	04/10/14 15:11
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.04	93.5	75 - 120	
Dibromofluoromethane	30.00	29.77	99.2	85 - 115	
1,2-Dichloroethane-d4	30.00	28.98	96.6	70 - 120	
Toluene-d8	30.00	29.90	99.7	85 - 120	

ANALYSIS DATA SHEET

LF001-30004

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404017-07 File ID: 0401707.D

Sampled: 03/31/14 12:36 Prepared: 04/10/14 15:39 Analyzed: 04/10/14 15:39

Solids: Preparation: 5030B Dilution: 1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF001-30004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-07	File ID:	0401707.D
Sampled:	03/31/14 12:36	Prepared:	04/10/14 15:39	Analyzed:	04/10/14 15:39
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene	**0.317**	0.250	0.500	1.00	J
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.54	95.1	75 - 120	
Dibromofluoromethane	30.00	29.69	99.0	85 - 115	
1,2-Dichloroethane-d4	30.00	29.87	99.6	70 - 120	
Toluene-d8	30.00	30.53	102	85 - 120	

ANALYSIS DATA SHEET

LF001-80001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-09	File ID:	0401709.D
Sampled:	04/01/14 07:45	Prepared:	04/10/14 16:07	Analyzed:	04/10/14 16:07
Solids:		Preparation:	5030B	Dilution:	2

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**5.06**	5.00	10.0	20.0	XJD
71-43-2	Benzene		0.500	1.00	2.00	U
108-86-1	Bromobenzene		0.500	1.00	2.00	U
74-97-5	Bromochloromethane		0.500	1.00	2.00	U
75-27-4	Bromodichloromethane		0.500	1.00	2.00	U
75-25-2	Bromoform		0.500	1.00	2.00	U
74-83-9	Bromomethane		1.00	2.00	4.00	U
104-51-8	n-Butylbenzene		0.500	1.00	2.00	U
78-93-3	2-Butanone		5.00	10.0	20.0	U
135-98-8	sec-Butylbenzene		0.500	1.00	2.00	U
98-06-6	tert-Butylbenzene		0.500	1.00	2.00	U
75-15-0	Carbon disulfide		0.500	1.00	2.00	U
56-23-5	Carbon tetrachloride		0.500	1.00	2.00	U
108-90-7	Chlorobenzene		0.500	1.00	2.00	U
75-00-3	Chloroethane		1.00	2.00	4.00	U
67-66-3	Chloroform		0.500	1.00	2.00	U
74-87-3	Chloromethane		0.500	1.00	2.00	U
95-49-8	2-Chlorotoluene		0.500	1.00	2.00	U
106-43-4	4-Chlorotoluene		0.500	1.00	2.00	U
124-48-1	Dibromochloromethane		0.500	1.00	2.00	U
96-12-8	1,2-Dibromo-3-chloropropane		1.00	2.00	4.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.500	1.00	2.00	U
74-95-3	Dibromomethane		0.500	1.00	2.00	U
95-50-1	1,2-Dichlorobenzene		0.500	1.00	2.00	U
541-73-1	1,3-Dichlorobenzene		0.500	1.00	2.00	U
106-46-7	1,4-Dichlorobenzene		0.500	1.00	2.00	U
75-71-8	Dichlorodifluoromethane		1.00	2.00	4.00	U
75-34-3	1,1-Dichloroethane		0.500	1.00	2.00	U
107-06-2	1,2-Dichloroethane		0.500	1.00	2.00	U
75-35-4	1,1-Dichloroethene		0.500	1.00	2.00	U
156-59-2	cis-1,2-Dichloroethene		0.500	1.00	2.00	U
156-60-5	trans-1,2-Dichloroethene		0.500	1.00	2.00	U
540-59-0	1,2-Dichloroethene (total)		1.00	2.00	4.00	U
78-87-5	1,2-Dichloropropane		0.500	1.00	2.00	U
142-28-9	1,3-Dichloropropane		0.500	1.00	2.00	U
594-20-7	2,2-Dichloropropane		0.500	1.00	2.00	U
563-58-6	1,1-Dichloropropene		0.500	1.00	2.00	U
10061-01-5	cis-1,3-Dichloropropene		0.500	1.00	2.00	U
10061-02-6	trans-1,3-Dichloropropene		0.500	1.00	2.00	U
542-75-6	1,3-Dichloropropene (total)		1.00	2.00	4.00	U

ANALYSIS DATA SHEET

LF001-80001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-09	File ID:	0401709.D
Sampled:	04/01/14 07:45	Prepared:	04/10/14 16:07	Analyzed:	04/10/14 16:07
Solids:		Preparation:	5030B	Dilution:	2

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.500	1.00	2.00	U
87-68-3	Hexachlorobutadiene		0.500	1.00	2.00	U
591-78-6	2-Hexanone		2.50	5.00	10.0	U
98-82-8	Isopropylbenzene		0.500	1.00	2.00	U
99-87-6	p-Isopropyltoluene		0.500	1.00	2.00	U
75-09-2	Methylene chloride		1.00	2.00	4.00	U
91-20-3	Naphthalene		0.500	1.00	2.00	U
108-10-1	4-Methyl-2-pentanone		2.50	5.00	10.0	U
1634-04-4	Methyl t-Butyl Ether		0.500	1.00	2.00	U
103-65-1	n-Propylbenzene		0.500	1.00	2.00	U
100-42-5	Styrene		0.500	1.00	2.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.500	1.00	2.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.500	1.00	2.00	U
127-18-4	Tetrachloroethene		0.500	1.00	2.00	U
108-88-3	Toluene		0.500	1.00	2.00	U
87-61-6	1,2,3-Trichlorobenzene		0.500	1.00	2.00	U
120-82-1	1,2,4-Trichlorobenzene		0.500	1.00	2.00	U
79-00-5	1,1,2-Trichloroethane		0.500	1.00	2.00	U
71-55-6	1,1,1-Trichloroethane		0.500	1.00	2.00	U
79-01-6	Trichloroethene		0.500	1.00	2.00	U
75-69-4	Trichlorofluoromethane		1.00	2.00	4.00	U
96-18-4	1,2,3-Trichloropropane		1.00	2.00	4.00	U
108-67-8	1,3,5-Trimethylbenzene		0.500	1.00	2.00	U
95-63-6	1,2,4-Trimethylbenzene		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.500	1.00	2.00	U
108-38-3/106-42-	m,p-Xylene		1.00	2.00	4.00	U
95-47-6	o-Xylene		0.500	1.00	2.00	U
1330-20-7	Xylenes (total)		1.50	3.00	6.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.09	90.3	75 - 120	
Dibromofluoromethane	30.00	29.34	97.8	85 - 115	
1,2-Dichloroethane-d4	30.00	30.36	101	70 - 120	
Toluene-d8	30.00	30.92	103	85 - 120	

ANALYSIS DATA SHEET

LF001-80003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-11	File ID:	0401711.D
Sampled:	03/31/14 08:00	Prepared:	04/10/14 16:35	Analyzed:	04/10/14 16:35
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**3.86**	2.50	5.00	10.0	XJ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF001-80003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-11	File ID:	0401711.D
Sampled:	03/31/14 08:00	Prepared:	04/10/14 16:35	Analyzed:	04/10/14 16:35
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.44	94.8	75 - 120	
Dibromofluoromethane	30.00	29.75	99.2	85 - 115	
1,2-Dichloroethane-d4	30.00	27.83	92.8	70 - 120	
Toluene-d8	30.00	30.43	101	85 - 120	

ANALYSIS DATA SHEET

LF002-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-01RE1	File ID:	0404101R.D
Sampled:	04/03/14 10:49	Prepared:	04/10/14 17:30	Analyzed:	04/10/14 17:30
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF002-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-01RE1	File ID:	0404101R.D
Sampled:	04/03/14 10:49	Prepared:	04/10/14 17:30	Analyzed:	04/10/14 17:30
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.37	94.6	75 - 120	
Dibromofluoromethane	30.00	29.42	98.1	85 - 115	
1,2-Dichloroethane-d4	30.00	30.81	103	70 - 120	
Toluene-d8	30.00	31.15	104	85 - 120	

ANALYSIS DATA SHEET

LF002-30002

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-03	File ID:	0404103.D
Sampled:	04/03/14 10:49	Prepared:	04/07/14 13:06	Analyzed:	04/07/14 13:06
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D07017 Sequence: 4D09805 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF002-30002

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-03	File ID:	0404103.D
Sampled:	04/03/14 10:49	Prepared:	04/07/14 13:06	Analyzed:	04/07/14 13:06
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D07017 Sequence: 4D09805 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.28	97.6	75 - 120	
Dibromofluoromethane	30.00	30.38	101	85 - 115	
1,2-Dichloroethane-d4	30.00	31.01	103	70 - 120	
Toluene-d8	30.00	30.04	100	85 - 120	

ANALYSIS DATA SHEET

LF002-30004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-05	File ID:	0404105.D
Sampled:	04/03/14 15:16	Prepared:	04/10/14 17:58	Analyzed:	04/10/14 17:58
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF002-30004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-05	File ID:	0404105.D
Sampled:	04/03/14 15:16	Prepared:	04/10/14 17:58	Analyzed:	04/10/14 17:58
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.26	97.5	75 - 120	
Dibromofluoromethane	30.00	28.47	94.9	85 - 115	
1,2-Dichloroethane-d4	30.00	28.69	95.6	70 - 120	
Toluene-d8	30.00	30.82	103	85 - 120	

ANALYSIS DATA SHEET

LF002-30005

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404041-07 File ID: 0404107.D

Sampled: 04/02/14 14:21 Prepared: 04/10/14 18:26 Analyzed: 04/10/14 18:26

Solids: Preparation: 5030B Dilution: 1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF002-30005

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-07	File ID:	0404107.D
Sampled:	04/02/14 14:21	Prepared:	04/10/14 18:26	Analyzed:	04/10/14 18:26
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.23	94.1	75 - 120	
Dibromofluoromethane	30.00	30.94	103	85 - 115	
1,2-Dichloroethane-d4	30.00	31.46	105	70 - 120	
Toluene-d8	30.00	30.25	101	85 - 120	

ANALYSIS DATA SHEET

LF002-80001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-09	File ID:	0404109.D
Sampled:	04/03/14 07:50	Prepared:	04/10/14 18:54	Analyzed:	04/10/14 18:54
Solids:		Preparation:	5030B	Dilution:	2

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**9.27**	5.00	10.0	20.0	XJD
71-43-2	Benzene		0.500	1.00	2.00	U
108-86-1	Bromobenzene		0.500	1.00	2.00	U
74-97-5	Bromochloromethane		0.500	1.00	2.00	U
75-27-4	Bromodichloromethane		0.500	1.00	2.00	U
75-25-2	Bromoform		0.500	1.00	2.00	U
74-83-9	Bromomethane		1.00	2.00	4.00	U
104-51-8	n-Butylbenzene		0.500	1.00	2.00	U
78-93-3	2-Butanone		5.00	10.0	20.0	U
135-98-8	sec-Butylbenzene		0.500	1.00	2.00	U
98-06-6	tert-Butylbenzene		0.500	1.00	2.00	U
75-15-0	Carbon disulfide		0.500	1.00	2.00	U
56-23-5	Carbon tetrachloride		0.500	1.00	2.00	U
108-90-7	Chlorobenzene		0.500	1.00	2.00	U
75-00-3	Chloroethane		1.00	2.00	4.00	U
67-66-3	Chloroform		0.500	1.00	2.00	U
74-87-3	Chloromethane		0.500	1.00	2.00	U
95-49-8	2-Chlorotoluene		0.500	1.00	2.00	U
106-43-4	4-Chlorotoluene		0.500	1.00	2.00	U
124-48-1	Dibromochloromethane		0.500	1.00	2.00	U
96-12-8	1,2-Dibromo-3-chloropropane		1.00	2.00	4.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.500	1.00	2.00	U
74-95-3	Dibromomethane		0.500	1.00	2.00	U
95-50-1	1,2-Dichlorobenzene		0.500	1.00	2.00	U
541-73-1	1,3-Dichlorobenzene		0.500	1.00	2.00	U
106-46-7	1,4-Dichlorobenzene		0.500	1.00	2.00	U
75-71-8	Dichlorodifluoromethane		1.00	2.00	4.00	U
75-34-3	1,1-Dichloroethane		0.500	1.00	2.00	U
107-06-2	1,2-Dichloroethane		0.500	1.00	2.00	U
75-35-4	1,1-Dichloroethene		0.500	1.00	2.00	U
156-59-2	cis-1,2-Dichloroethene		0.500	1.00	2.00	U
156-60-5	trans-1,2-Dichloroethene		0.500	1.00	2.00	U
540-59-0	1,2-Dichloroethene (total)		1.00	2.00	4.00	U
78-87-5	1,2-Dichloropropane		0.500	1.00	2.00	U
142-28-9	1,3-Dichloropropane		0.500	1.00	2.00	U
594-20-7	2,2-Dichloropropane		0.500	1.00	2.00	U
563-58-6	1,1-Dichloropropene		0.500	1.00	2.00	U
10061-01-5	cis-1,3-Dichloropropene		0.500	1.00	2.00	U
10061-02-6	trans-1,3-Dichloropropene		0.500	1.00	2.00	U
542-75-6	1,3-Dichloropropene (total)		1.00	2.00	4.00	U

ANALYSIS DATA SHEET

LF002-80001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-09	File ID:	0404109.D
Sampled:	04/03/14 07:50	Prepared:	04/10/14 18:54	Analyzed:	04/10/14 18:54
Solids:		Preparation:	5030B	Dilution:	2

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.500	1.00	2.00	U
87-68-3	Hexachlorobutadiene		0.500	1.00	2.00	U
591-78-6	2-Hexanone		2.50	5.00	10.0	U
98-82-8	Isopropylbenzene		0.500	1.00	2.00	U
99-87-6	p-Isopropyltoluene		0.500	1.00	2.00	U
75-09-2	Methylene chloride		1.00	2.00	4.00	U
91-20-3	Naphthalene		0.500	1.00	2.00	U
108-10-1	4-Methyl-2-pentanone		2.50	5.00	10.0	U
1634-04-4	Methyl t-Butyl Ether		0.500	1.00	2.00	U
103-65-1	n-Propylbenzene		0.500	1.00	2.00	U
100-42-5	Styrene		0.500	1.00	2.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.500	1.00	2.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.500	1.00	2.00	U
127-18-4	Tetrachloroethene		0.500	1.00	2.00	U
108-88-3	Toluene		0.500	1.00	2.00	U
87-61-6	1,2,3-Trichlorobenzene		0.500	1.00	2.00	U
120-82-1	1,2,4-Trichlorobenzene		0.500	1.00	2.00	U
79-00-5	1,1,2-Trichloroethane		0.500	1.00	2.00	U
71-55-6	1,1,1-Trichloroethane		0.500	1.00	2.00	U
79-01-6	Trichloroethene		0.500	1.00	2.00	U
75-69-4	Trichlorofluoromethane		1.00	2.00	4.00	U
96-18-4	1,2,3-Trichloropropane		1.00	2.00	4.00	U
108-67-8	1,3,5-Trimethylbenzene		0.500	1.00	2.00	U
95-63-6	1,2,4-Trimethylbenzene		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.500	1.00	2.00	U
108-38-3/106-42-	m,p-Xylene		1.00	2.00	4.00	U
95-47-6	o-Xylene		0.500	1.00	2.00	U
1330-20-7	Xylenes (total)		1.50	3.00	6.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.69	95.6	75 - 120	
Dibromofluoromethane	30.00	29.39	98.0	85 - 115	
1,2-Dichloroethane-d4	30.00	28.45	94.8	70 - 120	
Toluene-d8	30.00	31.01	103	85 - 120	

ANALYSIS DATA SHEET

LF002-80003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-11	File ID:	0404111.D
Sampled:	04/02/14 08:00	Prepared:	04/10/14 19:22	Analyzed:	04/10/14 19:22
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**4.26**	2.50	5.00	10.0	XJ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF002-80003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-11	File ID:	0404111.D
Sampled:	04/02/14 08:00	Prepared:	04/10/14 19:22	Analyzed:	04/10/14 19:22
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.54	91.8	75 - 120	
Dibromofluoromethane	30.00	29.93	99.8	85 - 115	
1,2-Dichloroethane-d4	30.00	28.68	95.6	70 - 120	
Toluene-d8	30.00	30.46	102	85 - 120	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D09805	Instrument:	MS-VOA4
		Calibration:	4069001

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
Calibration Check (4D09805-CCV1) ug/L				Lab File ID: 0407CCV1.D		Analyzed: 04/07/14 07:03		
Bromofluorobenzene	30.00	98.6	80 - 120	12.06	12.06	0.0000	+/-1.000	
Dibromofluoromethane	30.00	96.1	80 - 120	6.72	6.72	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	95.8	80 - 120	7.21	7.21	0.0000	+/-1.000	
Toluene-d8	30.00	106	80 - 120	9.44	9.44	0.0000	+/-1.000	
Calibration Check (4D09805-CCV2) ug/L				Lab File ID: 0407CCV2.D		Analyzed: 04/07/14 07:31		
Bromofluorobenzene	30.00	98.9	80 - 120	12.06	12.06	0.0000	+/-1.000	
Dibromofluoromethane	30.00	97.1	80 - 120	6.72	6.72	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	94.7	80 - 120	7.21	7.21	0.0000	+/-1.000	
Toluene-d8	30.00	102	80 - 120	9.44	9.44	0.0000	+/-1.000	
LCS (4D07017-BS1) ug/L				Lab File ID: 0407LCS1.D		Analyzed: 04/07/14 07:59		
Bromofluorobenzene	30.00	92.8	75 - 120	12.07	12.06	0.0100	+/-1.000	
Dibromofluoromethane	30.00	98.9	85 - 115	6.72	6.72	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	99.7	70 - 120	7.21	7.21	0.0000	+/-1.000	
Toluene-d8	30.00	101	85 - 120	9.44	9.44	0.0000	+/-1.000	
Blank (4D07017-BLK1) ug/L				Lab File ID: 0407BLK1.D		Analyzed: 04/07/14 09:51		
Bromofluorobenzene	30.00	94.5	75 - 120	12.06	12.06	0.0000	+/-1.000	
Dibromofluoromethane	30.00	98.0	85 - 115	6.71	6.72	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	99.2	70 - 120	7.21	7.21	0.0000	+/-1.000	
Toluene-d8	30.00	104	85 - 120	9.43	9.44	-0.0100	+/-1.000	
LF002-30002 (1404041-03) ug/L				Lab File ID: 0404103.D		Analyzed: 04/07/14 13:06		
Bromofluorobenzene	30.00	97.6	75 - 120	12.06	12.06	0.0000	+/-1.000	
Dibromofluoromethane	30.00	101	85 - 115	6.72	6.72	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	103	70 - 120	7.22	7.21	0.0100	+/-1.000	
Toluene-d8	30.00	100	85 - 120	9.44	9.44	0.0000	+/-1.000	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10104	Instrument:	MS-VOA4
		Calibration:	4069001

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
Calibration Check (4D10104-CCV1) ug/L				Lab File ID: 0410CCV1.D		Analyzed: 04/10/14 09:04		
Bromofluorobenzene	30.00	99.2	80 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	96.4	80 - 120	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	100	80 - 120	7.19	7.19	0.0000	+/-1.000	
Toluene-d8	30.00	103	80 - 120	9.42	9.42	0.0000	+/-1.000	
LCS (4D10015-BS1) ug/L				Lab File ID: 0410LCS1.D		Analyzed: 04/10/14 10:05		
Bromofluorobenzene	30.00	101	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	95.9	85 - 115	6.69	6.7	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	98.9	70 - 120	7.19	7.19	0.0000	+/-1.000	
Toluene-d8	30.00	104	85 - 120	9.42	9.42	0.0000	+/-1.000	
Blank (4D10015-BLK1) ug/L				Lab File ID: 0410BLK1.D		Analyzed: 04/10/14 11:56		
Bromofluorobenzene	30.00	98.7	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	96.9	85 - 115	6.69	6.7	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	97.9	70 - 120	7.19	7.19	0.0000	+/-1.000	
Toluene-d8	30.00	104	85 - 120	9.42	9.42	0.0000	+/-1.000	
LF001-30001 (1404017-01) ug/L				Lab File ID: 0401701.D		Analyzed: 04/10/14 14:16		
Bromofluorobenzene	30.00	96.9	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	99.1	85 - 115	6.69	6.7	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	96.3	70 - 120	7.2	7.19	0.0100	+/-1.000	
Toluene-d8	30.00	103	85 - 120	9.42	9.42	0.0000	+/-1.000	
LF001-30002 (1404017-03) ug/L				Lab File ID: 0401703.D		Analyzed: 04/10/14 14:43		
Bromofluorobenzene	30.00	95.9	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	100	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	99.5	70 - 120	7.19	7.19	0.0000	+/-1.000	
Toluene-d8	30.00	104	85 - 120	9.42	9.42	0.0000	+/-1.000	
LF001-30003 (1404017-05) ug/L				Lab File ID: 0401705.D		Analyzed: 04/10/14 15:11		
Bromofluorobenzene	30.00	93.5	75 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	99.2	85 - 115	6.69	6.7	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	96.6	70 - 120	7.19	7.19	0.0000	+/-1.000	
Toluene-d8	30.00	99.7	85 - 120	9.42	9.42	0.0000	+/-1.000	
LF001-30004 (1404017-07) ug/L				Lab File ID: 0401707.D		Analyzed: 04/10/14 15:39		
Bromofluorobenzene	30.00	95.1	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	99.0	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	99.6	70 - 120	7.2	7.19	0.0100	+/-1.000	
Toluene-d8	30.00	102	85 - 120	9.42	9.42	0.0000	+/-1.000	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10104	Instrument:	MS-VOA4
		Calibration:	4069001

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
LF001-80001 (1404017-09) ug/L				Lab File ID: 0401709.D		Analyzed: 04/10/14 16:07		
Bromofluorobenzene	30.00	90.3	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	97.8	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	101	70 - 120	7.2	7.19	0.0100	+/-1.000	
Toluene-d8	30.00	103	85 - 120	9.42	9.42	0.0000	+/-1.000	
LF001-80003 (1404017-11) ug/L				Lab File ID: 0401711.D		Analyzed: 04/10/14 16:35		
Bromofluorobenzene	30.00	94.8	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	99.2	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	92.8	70 - 120	7.2	7.19	0.0100	+/-1.000	
Toluene-d8	30.00	101	85 - 120	9.42	9.42	0.0000	+/-1.000	
LF002-30001 (1404041-01RE1) ug/L				Lab File ID: 0404101R.D		Analyzed: 04/10/14 17:30		
Bromofluorobenzene	30.00	94.6	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	98.1	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	103	70 - 120	7.2	7.19	0.0100	+/-1.000	
Toluene-d8	30.00	104	85 - 120	9.43	9.42	0.0100	+/-1.000	
LF002-30004 (1404041-05) ug/L				Lab File ID: 0404105.D		Analyzed: 04/10/14 17:58		
Bromofluorobenzene	30.00	97.5	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	94.9	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	95.6	70 - 120	7.2	7.19	0.0100	+/-1.000	
Toluene-d8	30.00	103	85 - 120	9.43	9.42	0.0100	+/-1.000	
LF002-30005 (1404041-07) ug/L				Lab File ID: 0404107.D		Analyzed: 04/10/14 18:26		
Bromofluorobenzene	30.00	94.1	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	103	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	105	70 - 120	7.2	7.19	0.0100	+/-1.000	
Toluene-d8	30.00	101	85 - 120	9.43	9.42	0.0100	+/-1.000	
LF002-80001 (1404041-09) ug/L				Lab File ID: 0404109.D		Analyzed: 04/10/14 18:54		
Bromofluorobenzene	30.00	95.6	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	98.0	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	94.8	70 - 120	7.2	7.19	0.0100	+/-1.000	
Toluene-d8	30.00	103	85 - 120	9.42	9.42	0.0000	+/-1.000	
LF002-80003 (1404041-11) ug/L				Lab File ID: 0404111.D		Analyzed: 04/10/14 19:22		
Bromofluorobenzene	30.00	91.8	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	99.8	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	95.6	70 - 120	7.2	7.19	0.0100	+/-1.000	
Toluene-d8	30.00	102	85 - 120	9.42	9.42	0.0000	+/-1.000	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10104	Instrument:	MS-VOA4
		Calibration:	4069001

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
LCS Dup (4D10015-BSD1) ug/L				Lab File ID: 0410LCD1.D		Analyzed: 04/10/14 20:17		
Bromofluorobenzene	30.00	98.6	75 - 120	12.04	12.05	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	94.2	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	96.4	70 - 120	7.2	7.19	0.0100	+/-1.000	
Toluene-d8	30.00	101	85 - 120	9.42	9.42	0.0000	+/-1.000	

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D07017	Laboratory ID:	4D07017-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Acetone	**100.0**	**153**	**153**	**40 - 140**
Benzene	50.00	47.6	95.2	80 - 120
Bromobenzene	50.00	48.2	96.3	75 - 125
Bromochloromethane	50.00	43.9	87.9	65 - 130
Bromodichloromethane	50.00	45.6	91.2	75 - 120
Bromoform	50.00	49.6	99.3	70 - 130
Bromomethane	50.00	49.7	99.3	30 - 145
n-Butylbenzene	50.00	49.7	99.4	70 - 135
2-Butanone	100.0	119	119	30 - 150
sec-Butylbenzene	50.00	51.0	102	70 - 125
tert-Butylbenzene	50.00	49.2	98.4	70 - 130
Carbon disulfide	50.00	36.8	73.6	35 - 160
Carbon tetrachloride	50.00	46.1	92.3	65 - 140
Chlorobenzene	50.00	51.5	103	80 - 120
Chloroethane	50.00	45.5	91.0	60 - 135
Chloroform	50.00	41.5	83.1	65 - 135
Chloromethane	50.00	42.5	85.1	40 - 125
2-Chlorotoluene	50.00	47.6	95.3	75 - 125
4-Chlorotoluene	50.00	47.9	95.9	75 - 130
Dibromochloromethane	50.00	48.8	97.6	60 - 135
1,2-Dibromo-3-chloropropane	50.00	50.7	101	50 - 130
1,2-Dibromoethane (EDB)	50.00	48.3	96.6	80 - 120
Dibromomethane	50.00	43.0	86.0	75 - 125
1,2-Dichlorobenzene	50.00	51.0	102	70 - 120
1,3-Dichlorobenzene	50.00	50.0	100	75 - 125
1,4-Dichlorobenzene	50.00	47.8	95.7	75 - 125
Dichlorodifluoromethane	50.00	46.3	92.5	30 - 155
1,1-Dichloroethane	50.00	42.0	83.9	70 - 135
1,2-Dichloroethane	50.00	45.2	90.3	70 - 130
1,1-Dichloroethene	50.00	43.7	87.4	70 - 130

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D07017	Laboratory ID:	4D07017-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
cis-1,2-Dichloroethene	50.00	47.8	95.6	70 - 125
trans-1,2-Dichloroethene	50.00	46.8	93.6	60 - 140
1,2-Dichloroethene (total)	100.0	94.6	94.6	75 - 125
1,2-Dichloropropane	50.00	46.5	92.9	75 - 125
1,3-Dichloropropane	50.00	47.6	95.2	75 - 125
2,2-Dichloropropane	50.00	44.8	89.5	70 - 135
1,1-Dichloropropene	50.00	45.9	91.8	75 - 130
cis-1,3-Dichloropropene	50.00	53.3	107	70 - 130
trans-1,3-Dichloropropene	50.00	46.3	92.6	55 - 140
Ethylbenzene	50.00	49.0	97.9	75 - 125
Hexachlorobutadiene	50.00	45.6	91.2	50 - 140
2-Hexanone	100.0	120	120	55 - 130
Isopropylbenzene	50.00	56.5	113	75 - 125
p-Isopropyltoluene	50.00	44.9	89.8	75 - 130
Methylene chloride	50.00	46.0	92.1	55 - 140
Naphthalene	50.00	52.1	104	55 - 140
4-Methyl-2-pentanone	100.0	101	101	60 - 135
Methyl t-Butyl Ether	50.00	47.2	94.3	65 - 125
n-Propylbenzene	50.00	50.0	99.9	70 - 130
Styrene	50.00	54.0	108	65 - 135
1,1,2,2-Tetrachloroethane	50.00	49.3	98.7	65 - 130
1,1,1,2-Tetrachloroethane	50.00	48.1	96.1	80 - 130
Tetrachloroethene	50.00	44.2	88.4	45 - 150
Toluene	50.00	49.6	99.1	75 - 120
1,2,3-Trichlorobenzene	50.00	48.9	97.8	55 - 140
1,2,4-Trichlorobenzene	50.00	50.6	101	65 - 135
1,1,2-Trichloroethane	50.00	47.7	95.3	75 - 125
1,1,1-Trichloroethane	50.00	43.3	86.5	65 - 130
Trichloroethene	50.00	46.4	92.7	70 - 125
Trichlorofluoromethane	50.00	48.9	97.7	60 - 145

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D07017	Laboratory ID:	4D07017-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
1,2,3-Trichloropropane	50.00	48.3	96.6	75 - 125
1,3,5-Trimethylbenzene	50.00	51.5	103	75 - 130
1,2,4-Trimethylbenzene	50.00	49.0	98.0	75 - 130
Vinyl chloride	50.00	54.6	109	50 - 145
m,p-Xylene	100.0	104	104	75 - 130
o-Xylene	50.00	51.0	102	80 - 120
Xylenes (total)	150.0	155	104	75 - 130

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D10015	Laboratory ID:	4D10015-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Acetone	100.0	130	130	40 - 140
Benzene	50.00	44.3	88.5	80 - 120
Bromobenzene	50.00	43.9	87.9	75 - 125
Bromochloromethane	50.00	38.6	77.2	65 - 130
Bromodichloromethane	50.00	41.0	82.1	75 - 120
Bromoform	50.00	45.6	91.2	70 - 130
Bromomethane	50.00	45.6	91.3	30 - 145
n-Butylbenzene	50.00	46.8	93.6	70 - 135
2-Butanone	100.0	103	103	30 - 150
sec-Butylbenzene	50.00	48.9	97.8	70 - 125
tert-Butylbenzene	50.00	46.4	92.8	70 - 130
Carbon disulfide	50.00	36.9	73.7	35 - 160
Carbon tetrachloride	50.00	43.6	87.2	65 - 140
Chlorobenzene	50.00	48.2	96.4	80 - 120
Chloroethane	50.00	41.5	83.1	60 - 135
Chloroform	50.00	37.8	75.5	65 - 135
Chloromethane	50.00	38.6	77.1	40 - 125
2-Chlorotoluene	50.00	45.2	90.3	75 - 125
4-Chlorotoluene	50.00	43.9	87.8	75 - 130
Dibromochloromethane	50.00	44.6	89.1	60 - 135
1,2-Dibromo-3-chloropropane	50.00	40.5	81.1	50 - 130
1,2-Dibromoethane (EDB)	50.00	45.3	90.6	80 - 120
Dibromomethane	50.00	37.8	75.6	75 - 125
1,2-Dichlorobenzene	50.00	45.9	91.8	70 - 120
1,3-Dichlorobenzene	50.00	46.1	92.1	75 - 125
1,4-Dichlorobenzene	50.00	44.4	88.9	75 - 125
Dichlorodifluoromethane	50.00	47.0	94.1	30 - 155
1,1-Dichloroethane	50.00	37.8	75.7	70 - 135
1,2-Dichloroethane	50.00	40.0	80.0	70 - 130
1,1-Dichloroethene	50.00	42.2	84.5	70 - 130

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D10015	Laboratory ID:	4D10015-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
cis-1,2-Dichloroethene	50.00	44.7	89.3	70 - 125
trans-1,2-Dichloroethene	50.00	45.0	90.1	60 - 140
1,2-Dichloroethene (total)	100.0	89.7	89.7	75 - 125
1,2-Dichloropropane	50.00	40.8	81.6	75 - 125
1,3-Dichloropropane	50.00	44.0	88.1	75 - 125
2,2-Dichloropropane	50.00	41.9	83.7	70 - 135
1,1-Dichloropropene	50.00	43.8	87.7	75 - 130
cis-1,3-Dichloropropene	50.00	48.0	95.9	70 - 130
trans-1,3-Dichloropropene	50.00	44.1	88.3	55 - 140
Ethylbenzene	50.00	48.2	96.4	75 - 125
Hexachlorobutadiene	50.00	42.5	85.0	50 - 140
2-Hexanone	100.0	113	113	55 - 130
Isopropylbenzene	50.00	55.5	111	75 - 125
p-Isopropyltoluene	50.00	43.2	86.5	75 - 130
Methylene chloride	50.00	42.5	85.0	55 - 140
Naphthalene	50.00	43.6	87.1	55 - 140
4-Methyl-2-pentanone	100.0	88.5	88.5	60 - 135
Methyl t-Butyl Ether	50.00	41.4	82.8	65 - 125
n-Propylbenzene	50.00	47.3	94.7	70 - 130
Styrene	50.00	52.0	104	65 - 135
1,1,2,2-Tetrachloroethane	50.00	43.1	86.1	65 - 130
1,1,1,2-Tetrachloroethane	50.00	46.8	93.5	80 - 130
Tetrachloroethene	50.00	46.2	92.5	45 - 150
Toluene	50.00	50.6	101	75 - 120
1,2,3-Trichlorobenzene	50.00	41.5	83.0	55 - 140
1,2,4-Trichlorobenzene	50.00	43.3	86.6	65 - 135
1,1,2-Trichloroethane	50.00	44.7	89.4	75 - 125
1,1,1-Trichloroethane	50.00	40.2	80.5	65 - 130
Trichloroethene	50.00	44.0	87.9	70 - 125
Trichlorofluoromethane	50.00	48.0	96.0	60 - 145

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D10015	Laboratory ID:	4D10015-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
1,2,3-Trichloropropane	50.00	44.8	89.5	75 - 125
1,3,5-Trimethylbenzene	50.00	46.3	92.7	75 - 130
1,2,4-Trimethylbenzene	50.00	46.1	92.3	75 - 130
Vinyl chloride	50.00	51.9	104	50 - 145
m,p-Xylene	100.0	98.1	98.1	75 - 130
o-Xylene	50.00	49.6	99.2	80 - 120
Xylenes (total)	150.0	148	98.5	75 - 130

ANALYTE	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Acetone	100.0	108	108	18.8	30	40 - 140
Benzene	50.00	43.9	87.8	0.796	30	80 - 120
Bromobenzene	50.00	44.0	88.1	0.257	30	75 - 125
Bromochloromethane	50.00	39.4	78.8	2.05	30	65 - 130
Bromodichloromethane	50.00	42.4	84.9	3.36	30	75 - 120
Bromoform	50.00	44.4	88.7	2.70	30	70 - 130
Bromomethane	50.00	41.5	82.9	9.60	30	30 - 145
n-Butylbenzene	50.00	46.5	93.0	0.617	30	70 - 135
2-Butanone	100.0	84.7	84.7	19.5	30	30 - 150
sec-Butylbenzene	50.00	49.9	99.8	2.00	30	70 - 125
tert-Butylbenzene	50.00	48.4	96.8	4.19	30	70 - 130
Carbon disulfide	50.00	35.5	71.0	3.72	30	35 - 160
Carbon tetrachloride	50.00	44.1	88.3	1.26	30	65 - 140
Chlorobenzene	50.00	49.1	98.2	1.76	30	80 - 120
Chloroethane	50.00	39.9	79.9	3.94	30	60 - 135
Chloroform	50.00	38.5	77.0	1.90	30	65 - 135
Chloromethane	50.00	39.9	79.9	3.49	30	40 - 125
2-Chlorotoluene	50.00	45.9	91.8	1.64	30	75 - 125
4-Chlorotoluene	50.00	45.4	90.7	3.24	30	75 - 130
Dibromochloromethane	50.00	44.6	89.3	0.131	30	60 - 135

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D10015	Laboratory ID:	4D10015-BSD1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,2-Dibromo-3-chloropropane	50.00	40.9	81.7	0.814	30	50 - 130
1,2-Dibromoethane (EDB)	50.00	44.2	88.3	2.54	30	80 - 120
Dibromomethane	50.00	37.5	75.1	0.730	30	75 - 125
1,2-Dichlorobenzene	50.00	46.2	92.5	0.719	30	70 - 120
1,3-Dichlorobenzene	50.00	46.5	93.0	0.933	30	75 - 125
1,4-Dichlorobenzene	50.00	45.5	90.9	2.24	30	75 - 125
Dichlorodifluoromethane	50.00	46.8	93.6	0.500	30	30 - 155
1,1-Dichloroethane	50.00	37.8	75.6	0.0201	30	70 - 135
1,2-Dichloroethane	50.00	42.0	84.0	4.83	30	70 - 130
1,1-Dichloroethene	50.00	41.1	82.2	2.75	30	70 - 130
cis-1,2-Dichloroethene	50.00	44.8	89.7	0.390	30	70 - 125
trans-1,2-Dichloroethene	50.00	44.2	88.4	1.86	30	60 - 140
1,2-Dichloroethene (total)	100.0	89.0	89.0	0.734	30	75 - 125
1,2-Dichloropropane	50.00	39.8	79.6	2.44	30	75 - 125
1,3-Dichloropropane	50.00	44.0	88.0	0.141	30	75 - 125
2,2-Dichloropropane	50.00	38.7	77.5	7.74	30	70 - 135
1,1-Dichloropropene	50.00	43.6	87.2	0.603	30	75 - 130
cis-1,3-Dichloropropene	50.00	48.1	96.1	0.208	30	70 - 130
trans-1,3-Dichloropropene	50.00	42.2	84.4	4.50	30	55 - 140
Ethylbenzene	50.00	47.6	95.2	1.24	30	75 - 125
Hexachlorobutadiene	50.00	41.7	83.5	1.79	30	50 - 140
2-Hexanone	100.0	91.1	91.1	21.8	30	55 - 130
Isopropylbenzene	50.00	55.6	111	0.178	30	75 - 125
p-Isopropyltoluene	50.00	43.3	86.6	0.0915	30	75 - 130
Methylene chloride	50.00	41.4	82.9	2.46	30	55 - 140
Naphthalene	50.00	39.6	79.2	9.61	30	55 - 140
4-Methyl-2-pentanone	100.0	80.0	80.0	10.1	30	60 - 135
Methyl t-Butyl Ether	50.00	39.0	78.0	6.03	30	65 - 125
n-Propylbenzene	50.00	47.2	94.3	0.367	30	70 - 130
Styrene	50.00	52.4	105	0.711	30	65 - 135

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D10015	Laboratory ID:	4D10015-BSD1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1,2,2-Tetrachloroethane	50.00	43.0	86.0	0.0902	30	65 - 130
1,1,1,2-Tetrachloroethane	50.00	45.2	90.4	3.32	30	80 - 130
Tetrachloroethene	50.00	43.9	87.8	5.16	30	45 - 150
Toluene	50.00	47.4	94.7	6.52	30	75 - 120
1,2,3-Trichlorobenzene	50.00	41.1	82.1	0.983	30	55 - 140
1,2,4-Trichlorobenzene	50.00	41.3	82.6	4.74	30	65 - 135
1,1,2-Trichloroethane	50.00	44.8	89.7	0.358	30	75 - 125
1,1,1-Trichloroethane	50.00	40.9	81.9	1.72	30	65 - 130
Trichloroethene	50.00	42.5	85.0	3.41	30	70 - 125
Trichlorofluoromethane	50.00	48.8	97.6	1.59	30	60 - 145
1,2,3-Trichloropropane	50.00	45.1	90.2	0.728	30	75 - 125
1,3,5-Trimethylbenzene	50.00	47.3	94.6	2.12	30	75 - 130
1,2,4-Trimethylbenzene	50.00	46.5	93.1	0.849	30	75 - 130
Vinyl chloride	50.00	50.3	101	3.11	30	50 - 145
m,p-Xylene	100.0	101	101	2.42	30	75 - 130
o-Xylene	50.00	48.9	97.7	1.51	30	80 - 120
Xylenes (total)	150.0	149	99.6	1.12	30	75 - 130

PREPARATION BATCH SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D07017 Batch Matrix: Water Preparation: 5030B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30002	1404041-03	04/07/14 13:06	5.00	5.00
Blank	4D07017-BLK1	04/07/14 09:51	5.00	5.00
LCS	4D07017-BS1	04/07/14 07:59	5.00	5.00

PREPARATION BATCH SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D10015 Batch Matrix: Water Preparation: 5030B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF001-30001	1404017-01	04/10/14 14:16	5.00	5.00
LF001-30002	1404017-03	04/10/14 14:43	5.00	5.00
LF001-30003	1404017-05	04/10/14 15:11	5.00	5.00
LF001-30004	1404017-07	04/10/14 15:39	5.00	5.00
LF001-80001	1404017-09	04/10/14 16:07	5.00	5.00
LF001-80003	1404017-11	04/10/14 16:35	5.00	5.00
LF002-30001	1404041-01RE1	04/10/14 17:30	5.00	5.00
LF002-30004	1404041-05	04/10/14 17:58	5.00	5.00
LF002-30005	1404041-07	04/10/14 18:26	5.00	5.00
LF002-80001	1404041-09	04/10/14 18:54	5.00	5.00
LF002-80003	1404041-11	04/10/14 19:22	5.00	5.00
Blank	4D10015-BLK1	04/10/14 11:56	5.00	5.00
LCS	4D10015-BS1	04/10/14 10:05	5.00	5.00
LCS Dup	4D10015-BSD1	04/10/14 20:17	5.00	5.00

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D07017-BLK1 File ID: 0407BLK1.D

Sampled: Prepared: Analyzed: 04/07/14 09:51

Solids: Preparation: 5030B Dilution:

Batch: 4D07017 Sequence: 4D09805 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D07017-BLK1 File ID: 0407BLK1.D

Sampled: Prepared: Analyzed: 04/07/14 09:51

Solids: Preparation: 5030B Dilution:

Batch: 4D07017 Sequence: 4D09805 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.35	94.5	75 - 120	
Dibromofluoromethane	30.00	29.40	98.0	85 - 115	
1,2-Dichloroethane-d4	30.00	29.77	99.2	70 - 120	
Toluene-d8	30.00	31.26	104	85 - 120	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D07017-BS1 File ID: 0407LCS1.D

Sampled: Prepared: Analyzed: 04/07/14 07:59

Solids: Preparation: 5030B Dilution:

Batch: 4D07017 Sequence: 4D09805 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**153**	2.50	5.00	10.0	
71-43-2	Benzene	**47.6**	0.250	0.500	1.00	
108-86-1	Bromobenzene	**48.2**	0.250	0.500	1.00	
74-97-5	Bromochloromethane	**43.9**	0.250	0.500	1.00	
75-27-4	Bromodichloromethane	**45.6**	0.250	0.500	1.00	
75-25-2	Bromoform	**49.6**	0.250	0.500	1.00	
74-83-9	Bromomethane	**49.7**	0.500	1.00	2.00	
104-51-8	n-Butylbenzene	**49.7**	0.250	0.500	1.00	
78-93-3	2-Butanone	**119**	2.50	5.00	10.0	
135-98-8	sec-Butylbenzene	**51.0**	0.250	0.500	1.00	
98-06-6	tert-Butylbenzene	**49.2**	0.250	0.500	1.00	
75-15-0	Carbon disulfide	**36.8**	0.250	0.500	1.00	
56-23-5	Carbon tetrachloride	**46.1**	0.250	0.500	1.00	
108-90-7	Chlorobenzene	**51.5**	0.250	0.500	1.00	
75-00-3	Chloroethane	**45.5**	0.500	1.00	2.00	
67-66-3	Chloroform	**41.5**	0.250	0.500	1.00	
74-87-3	Chloromethane	**42.5**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene	**47.6**	0.250	0.500	1.00	
106-43-4	4-Chlorotoluene	**47.9**	0.250	0.500	1.00	
124-48-1	Dibromochloromethane	**48.8**	0.250	0.500	1.00	
96-12-8	1,2-Dibromo-3-chloropropane	**50.7**	0.500	1.00	2.00	
106-93-4	1,2-Dibromoethane (EDB)	**48.3**	0.250	0.500	1.00	
74-95-3	Dibromomethane	**43.0**	0.250	0.500	1.00	
95-50-1	1,2-Dichlorobenzene	**51.0**	0.250	0.500	1.00	
541-73-1	1,3-Dichlorobenzene	**50.0**	0.250	0.500	1.00	
106-46-7	1,4-Dichlorobenzene	**47.8**	0.250	0.500	1.00	
75-71-8	Dichlorodifluoromethane	**46.3**	0.500	1.00	2.00	
75-34-3	1,1-Dichloroethane	**42.0**	0.250	0.500	1.00	
107-06-2	1,2-Dichloroethane	**45.2**	0.250	0.500	1.00	
75-35-4	1,1-Dichloroethene	**43.7**	0.250	0.500	1.00	
156-59-2	cis-1,2-Dichloroethene	**47.8**	0.250	0.500	1.00	
156-60-5	trans-1,2-Dichloroethene	**46.8**	0.250	0.500	1.00	
540-59-0	1,2-Dichloroethene (total)	**94.6**	0.500	1.00	2.00	
78-87-5	1,2-Dichloropropane	**46.5**	0.250	0.500	1.00	
142-28-9	1,3-Dichloropropane	**47.6**	0.250	0.500	1.00	
594-20-7	2,2-Dichloropropane	**44.8**	0.250	0.500	1.00	
563-58-6	1,1-Dichloropropene	**45.9**	0.250	0.500	1.00	
10061-01-5	cis-1,3-Dichloropropene	**53.3**	0.250	0.500	1.00	
10061-02-6	trans-1,3-Dichloropropene	**46.3**	0.250	0.500	1.00	
100-41-4	Ethylbenzene	**49.0**	0.250	0.500	1.00	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D07017-BS1 File ID: 0407LCS1.D

Sampled: Prepared: Analyzed: 04/07/14 07:59

Solids: Preparation: 5030B Dilution:

Batch: 4D07017 Sequence: 4D09805 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
87-68-3	Hexachlorobutadiene	**45.6**	0.250	0.500	1.00	
591-78-6	2-Hexanone	**120**	1.25	2.50	5.00	
98-82-8	Isopropylbenzene	**56.5**	0.250	0.500	1.00	
99-87-6	p-Isopropyltoluene	**44.9**	0.250	0.500	1.00	
75-09-2	Methylene chloride	**46.0**	0.500	1.00	2.00	
91-20-3	Naphthalene	**52.1**	0.250	0.500	1.00	
108-10-1	4-Methyl-2-pentanone	**101**	1.25	2.50	5.00	
1634-04-4	Methyl t-Butyl Ether	**47.2**	0.250	0.500	1.00	
103-65-1	n-Propylbenzene	**50.0**	0.250	0.500	1.00	
100-42-5	Styrene	**54.0**	0.250	0.500	1.00	
79-34-5	1,1,2,2-Tetrachloroethane	**49.3**	0.250	0.500	1.00	
630-20-6	1,1,1,2-Tetrachloroethane	**48.1**	0.250	0.500	1.00	
127-18-4	Tetrachloroethene	**44.2**	0.250	0.500	1.00	
108-88-3	Toluene	**49.6**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene	**48.9**	0.250	0.500	1.00	
120-82-1	1,2,4-Trichlorobenzene	**50.6**	0.250	0.500	1.00	
79-00-5	1,1,2-Trichloroethane	**47.7**	0.250	0.500	1.00	
71-55-6	1,1,1-Trichloroethane	**43.3**	0.250	0.500	1.00	
79-01-6	Trichloroethene	**46.4**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane	**48.9**	0.500	1.00	2.00	
96-18-4	1,2,3-Trichloropropane	**48.3**	0.500	1.00	2.00	
108-67-8	1,3,5-Trimethylbenzene	**51.5**	0.250	0.500	1.00	
95-63-6	1,2,4-Trimethylbenzene	**49.0**	0.250	0.500	1.00	
75-01-4	Vinyl chloride	**54.6**	0.250	0.500	1.00	
108-38-3/106-42-	m,p-Xylene	**104**	0.500	1.00	2.00	
95-47-6	o-Xylene	**51.0**	0.250	0.500	1.00	
1330-20-7	Xylenes (total)	**155**	0.750	1.50	3.00	

Total Target Analytes Reported: 67

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.85	92.8	75 - 120	
Dibromofluoromethane	30.00	29.67	98.9	85 - 115	
1,2-Dichloroethane-d4	30.00	29.92	99.7	70 - 120	
Toluene-d8	30.00	30.33	101	85 - 120	

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D10015-BLK1 File ID: 0410BLK1.D

Sampled: Prepared: Analyzed: 04/10/14 11:56

Solids: Preparation: 5030B Dilution:

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D10015-BLK1 File ID: 0410BLK1.D

Sampled: Prepared: Analyzed: 04/10/14 11:56

Solids: Preparation: 5030B Dilution:

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene	**0.250**	0.250	0.500	1.00	J
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.60	98.7	75 - 120	
Dibromofluoromethane	30.00	29.08	96.9	85 - 115	
1,2-Dichloroethane-d4	30.00	29.37	97.9	70 - 120	
Toluene-d8	30.00	31.32	104	85 - 120	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D10015-BS1 File ID: 0410LCS1.D

Sampled: Prepared: Analyzed: 04/10/14 10:05

Solids: Preparation: 5030B Dilution:

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**130**	2.50	5.00	10.0	X
71-43-2	Benzene	**44.3**	0.250	0.500	1.00	
108-86-1	Bromobenzene	**43.9**	0.250	0.500	1.00	
74-97-5	Bromochloromethane	**38.6**	0.250	0.500	1.00	
75-27-4	Bromodichloromethane	**41.0**	0.250	0.500	1.00	
75-25-2	Bromoform	**45.6**	0.250	0.500	1.00	
74-83-9	Bromomethane	**45.6**	0.500	1.00	2.00	
104-51-8	n-Butylbenzene	**46.8**	0.250	0.500	1.00	
78-93-3	2-Butanone	**103**	2.50	5.00	10.0	
135-98-8	sec-Butylbenzene	**48.9**	0.250	0.500	1.00	
98-06-6	tert-Butylbenzene	**46.4**	0.250	0.500	1.00	
75-15-0	Carbon disulfide	**36.9**	0.250	0.500	1.00	
56-23-5	Carbon tetrachloride	**43.6**	0.250	0.500	1.00	
108-90-7	Chlorobenzene	**48.2**	0.250	0.500	1.00	
75-00-3	Chloroethane	**41.5**	0.500	1.00	2.00	
67-66-3	Chloroform	**37.8**	0.250	0.500	1.00	
74-87-3	Chloromethane	**38.6**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene	**45.2**	0.250	0.500	1.00	
106-43-4	4-Chlorotoluene	**43.9**	0.250	0.500	1.00	
124-48-1	Dibromochloromethane	**44.6**	0.250	0.500	1.00	
96-12-8	1,2-Dibromo-3-chloropropane	**40.5**	0.500	1.00	2.00	
106-93-4	1,2-Dibromoethane (EDB)	**45.3**	0.250	0.500	1.00	
74-95-3	Dibromomethane	**37.8**	0.250	0.500	1.00	
95-50-1	1,2-Dichlorobenzene	**45.9**	0.250	0.500	1.00	
541-73-1	1,3-Dichlorobenzene	**46.1**	0.250	0.500	1.00	
106-46-7	1,4-Dichlorobenzene	**44.4**	0.250	0.500	1.00	
75-71-8	Dichlorodifluoromethane	**47.0**	0.500	1.00	2.00	
75-34-3	1,1-Dichloroethane	**37.8**	0.250	0.500	1.00	
107-06-2	1,2-Dichloroethane	**40.0**	0.250	0.500	1.00	
75-35-4	1,1-Dichloroethene	**42.2**	0.250	0.500	1.00	
156-59-2	cis-1,2-Dichloroethene	**44.7**	0.250	0.500	1.00	
156-60-5	trans-1,2-Dichloroethene	**45.0**	0.250	0.500	1.00	
540-59-0	1,2-Dichloroethene (total)	**89.7**	0.500	1.00	2.00	
78-87-5	1,2-Dichloropropane	**40.8**	0.250	0.500	1.00	
142-28-9	1,3-Dichloropropane	**44.0**	0.250	0.500	1.00	
594-20-7	2,2-Dichloropropane	**41.9**	0.250	0.500	1.00	
563-58-6	1,1-Dichloropropene	**43.8**	0.250	0.500	1.00	
10061-01-5	cis-1,3-Dichloropropene	**48.0**	0.250	0.500	1.00	
10061-02-6	trans-1,3-Dichloropropene	**44.1**	0.250	0.500	1.00	
100-41-4	Ethylbenzene	**48.2**	0.250	0.500	1.00	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D10015-BS1 File ID: 0410LCS1.D

Sampled: Prepared: Analyzed: 04/10/14 10:05

Solids: Preparation: 5030B Dilution:

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
87-68-3	Hexachlorobutadiene	**42.5**	0.250	0.500	1.00	B
591-78-6	2-Hexanone	**113**	1.25	2.50	5.00	
98-82-8	Isopropylbenzene	**55.5**	0.250	0.500	1.00	
99-87-6	p-Isopropyltoluene	**43.2**	0.250	0.500	1.00	
75-09-2	Methylene chloride	**42.5**	0.500	1.00	2.00	
91-20-3	Naphthalene	**43.6**	0.250	0.500	1.00	
108-10-1	4-Methyl-2-pentanone	**88.5**	1.25	2.50	5.00	
1634-04-4	Methyl t-Butyl Ether	**41.4**	0.250	0.500	1.00	
103-65-1	n-Propylbenzene	**47.3**	0.250	0.500	1.00	
100-42-5	Styrene	**52.0**	0.250	0.500	1.00	
79-34-5	1,1,2,2-Tetrachloroethane	**43.1**	0.250	0.500	1.00	
630-20-6	1,1,1,2-Tetrachloroethane	**46.8**	0.250	0.500	1.00	
127-18-4	Tetrachloroethene	**46.2**	0.250	0.500	1.00	
108-88-3	Toluene	**50.6**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene	**41.5**	0.250	0.500	1.00	
120-82-1	1,2,4-Trichlorobenzene	**43.3**	0.250	0.500	1.00	
79-00-5	1,1,2-Trichloroethane	**44.7**	0.250	0.500	1.00	
71-55-6	1,1,1-Trichloroethane	**40.2**	0.250	0.500	1.00	
79-01-6	Trichloroethene	**44.0**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane	**48.0**	0.500	1.00	2.00	
96-18-4	1,2,3-Trichloropropane	**44.8**	0.500	1.00	2.00	
108-67-8	1,3,5-Trimethylbenzene	**46.3**	0.250	0.500	1.00	
95-63-6	1,2,4-Trimethylbenzene	**46.1**	0.250	0.500	1.00	
75-01-4	Vinyl chloride	**51.9**	0.250	0.500	1.00	
108-38-3/106-42-	m,p-Xylene	**98.1**	0.500	1.00	2.00	
95-47-6	o-Xylene	**49.6**	0.250	0.500	1.00	
1330-20-7	Xylenes (total)	**148**	0.750	1.50	3.00	

Total Target Analytes Reported: 67

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.44	101	75 - 120	
Dibromofluoromethane	30.00	28.78	95.9	85 - 115	
1,2-Dichloroethane-d4	30.00	29.66	98.9	70 - 120	
Toluene-d8	30.00	31.20	104	85 - 120	

ANALYSIS DATA SHEET

LCS Dup

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D10015-BSD1 File ID: 0410LCD1.D

Sampled: Prepared: Analyzed: 04/10/14 20:17

Solids: Preparation: 5030B Dilution:

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**108**	2.50	5.00	10.0	X
71-43-2	Benzene	**43.9**	0.250	0.500	1.00	
108-86-1	Bromobenzene	**44.0**	0.250	0.500	1.00	
74-97-5	Bromochloromethane	**39.4**	0.250	0.500	1.00	
75-27-4	Bromodichloromethane	**42.4**	0.250	0.500	1.00	
75-25-2	Bromoform	**44.4**	0.250	0.500	1.00	
74-83-9	Bromomethane	**41.5**	0.500	1.00	2.00	
104-51-8	n-Butylbenzene	**46.5**	0.250	0.500	1.00	
78-93-3	2-Butanone	**84.7**	2.50	5.00	10.0	
135-98-8	sec-Butylbenzene	**49.9**	0.250	0.500	1.00	
98-06-6	tert-Butylbenzene	**48.4**	0.250	0.500	1.00	
75-15-0	Carbon disulfide	**35.5**	0.250	0.500	1.00	
56-23-5	Carbon tetrachloride	**44.1**	0.250	0.500	1.00	
108-90-7	Chlorobenzene	**49.1**	0.250	0.500	1.00	
75-00-3	Chloroethane	**39.9**	0.500	1.00	2.00	
67-66-3	Chloroform	**38.5**	0.250	0.500	1.00	
74-87-3	Chloromethane	**39.9**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene	**45.9**	0.250	0.500	1.00	
106-43-4	4-Chlorotoluene	**45.4**	0.250	0.500	1.00	
124-48-1	Dibromochloromethane	**44.6**	0.250	0.500	1.00	
96-12-8	1,2-Dibromo-3-chloropropane	**40.9**	0.500	1.00	2.00	
106-93-4	1,2-Dibromoethane (EDB)	**44.2**	0.250	0.500	1.00	
74-95-3	Dibromomethane	**37.5**	0.250	0.500	1.00	
95-50-1	1,2-Dichlorobenzene	**46.2**	0.250	0.500	1.00	
541-73-1	1,3-Dichlorobenzene	**46.5**	0.250	0.500	1.00	
106-46-7	1,4-Dichlorobenzene	**45.5**	0.250	0.500	1.00	
75-71-8	Dichlorodifluoromethane	**46.8**	0.500	1.00	2.00	
75-34-3	1,1-Dichloroethane	**37.8**	0.250	0.500	1.00	
107-06-2	1,2-Dichloroethane	**42.0**	0.250	0.500	1.00	
75-35-4	1,1-Dichloroethene	**41.1**	0.250	0.500	1.00	
156-59-2	cis-1,2-Dichloroethene	**44.8**	0.250	0.500	1.00	
156-60-5	trans-1,2-Dichloroethene	**44.2**	0.250	0.500	1.00	
540-59-0	1,2-Dichloroethene (total)	**89.0**	0.500	1.00	2.00	
78-87-5	1,2-Dichloropropane	**39.8**	0.250	0.500	1.00	
142-28-9	1,3-Dichloropropane	**44.0**	0.250	0.500	1.00	
594-20-7	2,2-Dichloropropane	**38.7**	0.250	0.500	1.00	
563-58-6	1,1-Dichloropropene	**43.6**	0.250	0.500	1.00	
10061-01-5	cis-1,3-Dichloropropene	**48.1**	0.250	0.500	1.00	
10061-02-6	trans-1,3-Dichloropropene	**42.2**	0.250	0.500	1.00	
100-41-4	Ethylbenzene	**47.6**	0.250	0.500	1.00	

ANALYSIS DATA SHEET

LCS Dup

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D10015-BSD1 File ID: 0410LCD1.D

Sampled: Prepared: Analyzed: 04/10/14 20:17

Solids: Preparation: 5030B Dilution:

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
87-68-3	Hexachlorobutadiene	**41.7**	0.250	0.500	1.00	B
591-78-6	2-Hexanone	**91.1**	1.25	2.50	5.00	
98-82-8	Isopropylbenzene	**55.6**	0.250	0.500	1.00	
99-87-6	p-Isopropyltoluene	**43.3**	0.250	0.500	1.00	
75-09-2	Methylene chloride	**41.4**	0.500	1.00	2.00	
91-20-3	Naphthalene	**39.6**	0.250	0.500	1.00	
108-10-1	4-Methyl-2-pentanone	**80.0**	1.25	2.50	5.00	
1634-04-4	Methyl t-Butyl Ether	**39.0**	0.250	0.500	1.00	
103-65-1	n-Propylbenzene	**47.2**	0.250	0.500	1.00	
100-42-5	Styrene	**52.4**	0.250	0.500	1.00	
79-34-5	1,1,2,2-Tetrachloroethane	**43.0**	0.250	0.500	1.00	
630-20-6	1,1,1,2-Tetrachloroethane	**45.2**	0.250	0.500	1.00	
127-18-4	Tetrachloroethene	**43.9**	0.250	0.500	1.00	
108-88-3	Toluene	**47.4**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene	**41.1**	0.250	0.500	1.00	
120-82-1	1,2,4-Trichlorobenzene	**41.3**	0.250	0.500	1.00	
79-00-5	1,1,2-Trichloroethane	**44.8**	0.250	0.500	1.00	
71-55-6	1,1,1-Trichloroethane	**40.9**	0.250	0.500	1.00	
79-01-6	Trichloroethene	**42.5**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane	**48.8**	0.500	1.00	2.00	
96-18-4	1,2,3-Trichloropropane	**45.1**	0.500	1.00	2.00	
108-67-8	1,3,5-Trimethylbenzene	**47.3**	0.250	0.500	1.00	
95-63-6	1,2,4-Trimethylbenzene	**46.5**	0.250	0.500	1.00	
75-01-4	Vinyl chloride	**50.3**	0.250	0.500	1.00	
108-38-3/106-42-	m,p-Xylene	**101**	0.500	1.00	2.00	
95-47-6	o-Xylene	**48.9**	0.250	0.500	1.00	
1330-20-7	Xylenes (total)	**149**	0.750	1.50	3.00	

Total Target Analytes Reported: 67

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.57	98.6	75 - 120	
Dibromofluoromethane	30.00	28.25	94.2	85 - 115	
1,2-Dichloroethane-d4	30.00	28.93	96.4	70 - 120	
Toluene-d8	30.00	30.37	101	85 - 120	

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0306TUN1.D	Injection Date:	03/06/14
Instrument ID:	MS-VOA4	Injection Time:	14:20
Sequence:	4C06901	Lab Sample ID:	4C06901-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	19.6	PASS
75	30 - 60% of 95	45.7	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.44	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	81.8	PASS
175	5 - 9% of 174	7.22	PASS
176	95 - 101% of 174	97.9	PASS
177	5 - 9% of 176	6.37	PASS

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0407TUN1.D	Injection Date:	04/07/14
Instrument ID:	MS-VOA4	Injection Time:	06:33
Sequence:	4D09805	Lab Sample ID:	4D09805-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	18.9	PASS
75	30 - 60% of 95	44.5	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.11	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	84.9	PASS
175	5 - 9% of 174	7.31	PASS
176	95 - 101% of 174	98	PASS
177	5 - 9% of 176	6.96	PASS

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0410TUN1.D	Injection Date:	04/10/14
Instrument ID:	MS-VOA4	Injection Time:	08:34
Sequence:	4D10104	Lab Sample ID:	4D10104-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	20.6	PASS
75	30 - 60% of 95	46.9	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.72	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	79.9	PASS
175	5 - 9% of 174	7.26	PASS
176	95 - 101% of 174	98.7	PASS
177	5 - 9% of 176	6.34	PASS

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4C06901	Instrument:	MS-VOA4
Calibration:	4069001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4C06901-TUN1	0306TUN1.D	03/06/14 14:20
Cal Standard	4C06901-CAL1	0306CAL1.D	03/06/14 15:44
Cal Standard	4C06901-CAL2	0306CAL2.D	03/06/14 16:12
Cal Standard	4C06901-CAL3	0306CAL3.D	03/06/14 16:40
Cal Standard	4C06901-CAL4	0306CAL4.D	03/06/14 17:08
Cal Standard	4C06901-CAL5	0306CAL5.D	03/06/14 17:36
Cal Standard	4C06901-CAL6	0306CAL6.D	03/06/14 18:04
Cal Standard	4C06901-CAL7	0306CAL7.D	03/06/14 18:31
Cal Standard	4C06901-CAL8	0306CAL8.D	03/06/14 18:59
Cal Standard	4C06901-CAL9	0306CAL9.D	03/06/14 19:27
Initial Cal Check	4C06901-ICV2	0306ICV2.D	03/06/14 20:51

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D09805	Instrument:	MS-VOA4
Calibration:	4069001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4D09805-TUN1	0407TUN1.D	04/07/14 06:33
Calibration Check	4D09805-CCV1	0407CCV1.D	04/07/14 07:03
Calibration Check	4D09805-CCV2	0407CCV2.D	04/07/14 07:31
LCS	4D07017-BS1	0407LCS1.D	04/07/14 07:59
Blank	4D07017-BLK1	0407BLK1.D	04/07/14 09:51
LF002-30002	1404041-03	0404103.D	04/07/14 13:06

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10104	Instrument:	MS-VOA4
Calibration:	4069001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4D10104-TUN1	0410TUN1.D	04/10/14 08:34
Calibration Check	4D10104-CCV1	0410CCV1.D	04/10/14 09:04
LCS	4D10015-BS1	0410LCS1.D	04/10/14 10:05
Blank	4D10015-BLK1	0410BLK1.D	04/10/14 11:56
LF001-30001	1404017-01	0401701.D	04/10/14 14:16
LF001-30002	1404017-03	0401703.D	04/10/14 14:43
LF001-30003	1404017-05	0401705.D	04/10/14 15:11
LF001-30004	1404017-07	0401707.D	04/10/14 15:39
LF001-80001	1404017-09	0401709.D	04/10/14 16:07
LF001-80003	1404017-11	0401711.D	04/10/14 16:35
LF002-30001	1404041-01RE1	0404101R.D	04/10/14 17:30
LF002-30004	1404041-05	0404105.D	04/10/14 17:58
LF002-30005	1404041-07	0404107.D	04/10/14 18:26
LF002-80001	1404041-09	0404109.D	04/10/14 18:54
LF002-80003	1404041-11	0404111.D	04/10/14 19:22
LCS Dup	4D10015-BSD1	0410LCD1.D	04/10/14 20:17

INTERNAL STANDARD AREA AND RT SUMMARY
SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D09805	Instrument:	MS-VOA4
		Calibration:	4069001

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (4D09805-CCV1)			Lab File ID: 0407CCV1.D				Analyzed: 04/07/14 07:03		
Fluorobenzene	1335731	7.75	958742	7.72	139	50 - 200	0.0300	+/-0.50	
Chlorobenzene-d5	539991	10.86	396713	10.85	136	50 - 200	0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	509100	13.26	364225	13.24	140	50 - 200	0.0200	+/-0.50	
Calibration Check (4D09805-CCV2)			Lab File ID: 0407CCV2.D				Analyzed: 04/07/14 07:31		
Fluorobenzene	1189869	7.75	958742	7.75	124	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	473346	10.86	396713	10.86	119	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	431120	13.26	364225	13.26	118	50 - 200	0.0000	+/-0.50	
LCS (4D07017-BS1)			Lab File ID: 0407LCS1.D				Analyzed: 04/07/14 07:59		
Fluorobenzene	1288718	7.74	958742	7.75	134	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	536335	10.87	396713	10.86	135	50 - 200	0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	496065	13.26	364225	13.26	136	50 - 200	0.0000	+/-0.50	
Blank (4D07017-BLK1)			Lab File ID: 0407BLK1.D				Analyzed: 04/07/14 09:51		
Fluorobenzene	1210798	7.75	958742	7.75	126	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	484422	10.86	396713	10.86	122	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	426519	13.26	364225	13.26	117	50 - 200	0.0000	+/-0.50	
LF002-30002 (1404041-03)			Lab File ID: 0404103.D				Analyzed: 04/07/14 13:06		
Fluorobenzene	1149000	7.75	958742	7.75	120	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	466651	10.87	396713	10.86	118	50 - 200	0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	407132	13.26	364225	13.26	112	50 - 200	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10104	Instrument:	MS-VOA4
		Calibration:	4069001

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (4D10104-CCV1)			Lab File ID: 0410CCV1.D				Analyzed: 04/10/14 09:04		
Fluorobenzene	1171529	7.73	958742	7.72	122	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	470508	10.85	396713	10.85	119	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	435904	13.24	364225	13.24	120	50 - 200	0.0000	+/-0.50	
LCS (4D10015-BS1)			Lab File ID: 0410LCS1.D				Analyzed: 04/10/14 10:05		
Fluorobenzene	1139502	7.72	958742	7.73	119	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	449598	10.85	396713	10.85	113	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	436373	13.25	364225	13.24	120	50 - 200	0.0100	+/-0.50	
Blank (4D10015-BLK1)			Lab File ID: 0410BLK1.D				Analyzed: 04/10/14 11:56		
Fluorobenzene	1069456	7.73	958742	7.73	112	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	415469	10.84	396713	10.85	105	50 - 200	-0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	382901	13.24	364225	13.24	105	50 - 200	0.0000	+/-0.50	
LF001-30001 (1404017-01)			Lab File ID: 0401701.D				Analyzed: 04/10/14 14:16		
Fluorobenzene	1025014	7.73	958742	7.73	107	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	397629	10.85	396713	10.85	100	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	355074	13.24	364225	13.24	97	50 - 200	0.0000	+/-0.50	
LF001-30002 (1404017-03)			Lab File ID: 0401703.D				Analyzed: 04/10/14 14:43		
Fluorobenzene	1010217	7.72	958742	7.73	105	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	397429	10.85	396713	10.85	100	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	362517	13.25	364225	13.24	100	50 - 200	0.0100	+/-0.50	
LF001-30003 (1404017-05)			Lab File ID: 0401705.D				Analyzed: 04/10/14 15:11		
Fluorobenzene	1030934	7.73	958742	7.73	108	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	408785	10.85	396713	10.85	103	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	357296	13.25	364225	13.24	98	50 - 200	0.0100	+/-0.50	
LF001-30004 (1404017-07)			Lab File ID: 0401707.D				Analyzed: 04/10/14 15:39		
Fluorobenzene	1004339	7.72	958742	7.73	105	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	401632	10.85	396713	10.85	101	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	359919	13.25	364225	13.24	99	50 - 200	0.0100	+/-0.50	
LF001-80001 (1404017-09)			Lab File ID: 0401709.D				Analyzed: 04/10/14 16:07		
Fluorobenzene	1041468	7.72	958742	7.73	109	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	415177	10.85	396713	10.85	105	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	366854	13.25	364225	13.24	101	50 - 200	0.0100	+/-0.50	
LF001-80003 (1404017-11)			Lab File ID: 0401711.D				Analyzed: 04/10/14 16:35		
Fluorobenzene	1014060	7.72	958742	7.73	106	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	393027	10.85	396713	10.85	99	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	344018	13.25	364225	13.24	94	50 - 200	0.0100	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10104	Instrument:	MS-VOA4
		Calibration:	4069001

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LF002-30001 (1404041-01RE1)			Lab File ID: 0404101R.D				Analyzed: 04/10/14 17:30		
Fluorobenzene	1068050	7.73	958742	7.73	111	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	411967	10.85	396713	10.85	104	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	357707	13.25	364225	13.24	98	50 - 200	0.0100	+/-0.50	
LF002-30004 (1404041-05)			Lab File ID: 0404105.D				Analyzed: 04/10/14 17:58		
Fluorobenzene	1047111	7.73	958742	7.73	109	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	401833	10.85	396713	10.85	101	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	354010	13.25	364225	13.24	97	50 - 200	0.0100	+/-0.50	
LF002-30005 (1404041-07)			Lab File ID: 0404107.D				Analyzed: 04/10/14 18:26		
Fluorobenzene	979762	7.73	958742	7.73	102	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	413211	10.85	396713	10.85	104	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	358172	13.25	364225	13.24	98	50 - 200	0.0100	+/-0.50	
LF002-80001 (1404041-09)			Lab File ID: 0404109.D				Analyzed: 04/10/14 18:54		
Fluorobenzene	1019752	7.72	958742	7.73	106	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	385065	10.85	396713	10.85	97	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	360371	13.25	364225	13.24	99	50 - 200	0.0100	+/-0.50	
LF002-80003 (1404041-11)			Lab File ID: 0404111.D				Analyzed: 04/10/14 19:22		
Fluorobenzene	1039180	7.72	958742	7.73	108	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	411103	10.85	396713	10.85	104	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	353517	13.25	364225	13.24	97	50 - 200	0.0100	+/-0.50	
LCS Dup (4D10015-BSD1)			Lab File ID: 0410LCD1.D				Analyzed: 04/10/14 20:17		
Fluorobenzene	1097936	7.72	958742	7.73	115	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	434722	10.85	396713	10.85	110	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	413446	13.25	364225	13.24	114	50 - 200	0.0100	+/-0.50	

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone	1	~~0.1817697~~	2	0.1013565	4	0.1246573	10	9.431072E-02	20	9.428454E-02	100	0.1038752
Acetonitrile	5	~~8.636614E-02~~	10	7.230517E-02	20	6.223908E-02	50	5.467667E-02	100	5.938497E-02	500	5.413767E-02
Acrolein	2.5	3.340572E-02	5	3.648647E-02	10	3.824711E-02	25	3.557581E-02	50	3.239914E-02	250	3.860854E-02
Acrylonitrile	2.5	0.1189044	5	0.1214299	10	0.1277639	25	0.1259229	50	0.1368723	250	0.1361759
Benzene	0.5	1.260255	1	1.23223	2	1.304196	5	1.317226	10	1.344783	50	1.387101
Allyl chloride	0.5	0.1608486	1	0.1574217	2	0.1539817	5	0.1564073	10	0.1584889	50	0.1680638
Bromobenzene	0.5	0.841611	1	0.8452487	2	0.8889442	5	0.8390291	10	0.9734729	50	0.9897814
Bromochloromethane	0.5	0.1601116	1	0.1794645	2	0.1840551	5	0.1785769	10	0.1932732	50	0.1865958
Tert-Amyl Methyl Ether	0.5	0.6982203	1	0.7106855	2	0.7593249	5	0.7716136	10	0.8461616	50	0.9365341
Bromodichloromethane	0.5	0.4019798	1	0.3901845	2	0.444181	5	0.4425713	10	0.4673252	50	0.4847913
Bromoform	0.5	0.3879039	1	0.4295485	2	0.4733248	5	0.4789225	10	0.5345127	50	0.5494687
Bromomethane	0.5	0.2783243	1	0.2616379	2	0.2257215	5	0.2455686	10	0.245418	50	0.2664123
Bromofluorobenzene	30	0.9076656	35	0.8692293	40	0.932672	50	0.9130213	60	0.9163095	70	0.9352184
n-Butylbenzene	0.5	2.417552	1	2.532604	2	2.530926	5	2.558331	10	2.754252	50	2.775477
2-Butanone	1	0.175448	2	0.1740543	4	0.1563833	10	0.161847	20	0.1641524	100	0.1706297
sec-Butylbenzene	0.5	3.189438	1	3.024494	2	3.028038	5	3.135171	10	3.329131	50	3.463351
tert-Butylbenzene	0.5	2.242447	1	2.200457	2	2.463916	5	2.413864	10	2.564243	50	2.712395
Carbon disulfide	0.5	1.17504	1	1.124242	2	1.216906	5	1.141701	10	1.257788	50	1.228248
Carbon tetrachloride	0.5	0.2906275	1	0.2995712	2	0.3333963	5	0.3502923	10	0.3660728	50	0.3990341
Chlorobenzene	0.5	1.929713	1	1.861658	2	2.005789	5	1.954018	10	1.992879	50	2.057027
Chloroethane	0.5	0.2762265	1	0.2651004	2	0.233537	5	0.2521627	10	0.2818501	50	0.2604267
Chloroform	0.5	0.6394825	1	0.5796038	2	0.6028357	5	0.5699995	10	0.6143706	50	0.6244478
2-Chloroethyl vinyl ether	1	0.1561428	2	0.1780269	4	0.1943292	10	0.2027164	20	0.2282811	100	0.2412599
Chloromethane	0.5	0.5554579	1	0.5131973	2	0.4877525	5	0.4857301	10	0.5247097	50	0.4832602
1-Chlorohexane	0.5	1.063549	1	0.8944065	2	0.9151572	5	0.8906579	10	0.9020968	50	0.9277187
2-Chlorotoluene	0.5	2.474282	1	2.370764	2	2.502694	5	2.459467	10	2.711039	50	2.734163
Chloroprene	0.5	0.524218	1	0.5350237	2	0.5189331	5	0.5702996	10	0.5808781	50	0.608564
4-Chlorotoluene	0.5	2.78852	1	2.716615	2	2.887111	5	2.850225	10	3.131068	50	3.090143
Cyclohexane	0.5	0.5557414	1	0.4920511	2	0.564556	5	0.5699343	10	0.5717472	50	0.5880332
Dibromochloromethane	0.5	0.7469496	1	0.7520169	2	0.7823665	5	0.8021092	10	0.8423679	50	0.9008164
1,2-Dibromo-3-chloropropane	0.5	0.131368	1	0.14377	2	0.1494469	5	0.1466294	10	0.1645168	50	0.1725563

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14_15:44 3/6/14_19:27

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,2-Dibromoethane (EDB)	0.5	0.6822289	1	0.7080334	2	0.7476064	5	0.7354068	10	0.7998019	50	0.812964
Dibromomethane	0.5	0.2170918	1	0.2093907	2	0.224484	5	0.228219	10	0.2409377	50	0.2434638
1,2-Dichlorobenzene	0.5	1.447108	1	1.531015	2	1.518878	5	1.524286	10	1.579365	50	1.617541
1,3-Dichlorobenzene	0.5	1.698118	1	1.593952	2	1.650686	5	1.557979	10	1.64605	50	1.683068
trans-1,4-Dichloro-2-butene	0.5	0.2367477	1	0.2507027	2	0.3050651	5	0.2762793	10	0.3225945	50	0.3318958
cis-1,4-Dichloro-2-butene	0.5	~~0.1966558~~	1	0.2784616	2	0.3010123	5	0.2894836	10	0.343932	50	0.3670605
1,4-Dichlorobenzene	0.5	1.754373	1	1.681244	2	1.630284	5	1.614022	10	1.70343	50	1.720757
Dichlorodifluoromethane	0.5	0.3807186	1	0.2962632	2	0.3617601	5	0.3426807	10	0.4318415	50	0.4173413
1,1-Dichloroethane	0.5	0.6154998	1	0.6025431	2	0.6778971	5	0.6743711	10	0.6897616	50	0.7264121
1,2-Dichloroethane	0.5	0.4799946	1	0.4401749	2	0.4881432	5	0.4890761	10	0.5023016	50	0.5344628
1,1-Dichloroethene	0.5	0.2792881	1	0.2792597	2	0.277662	5	0.2904688	10	0.3102604	50	0.3157095
cis-1,2-Dichloroethene	0.5	0.3480046	1	0.3362679	2	0.3458848	5	0.3387868	10	0.358763	50	0.3610018
trans-1,2-Dichloroethene	0.5	0.3018534	1	0.3029719	2	0.3257599	5	0.321535	10	0.3367613	50	0.3482163
1,2-Dichloroethene (total)	1	0.324929	2	0.3196199	4	0.3358224	10	0.3301609	20	0.3477622	100	0.3546091
1,2-Dichloropropane	0.5	0.3561122	1	0.3679254	2	0.3836109	5	0.3690247	10	0.4032925	50	0.4108862
1,3-Dichloropropane	0.5	1.11426	1	1.160303	2	1.215825	5	1.222409	10	1.26392	50	1.298616
2,2-Dichloropropane	0.5	0.3795846	1	0.3893807	2	0.4226396	5	0.4288025	10	0.4365014	50	0.467324
1,1-Dichloropropene	0.5	0.4325394	1	0.4203581	2	0.4473724	5	0.4635017	10	0.4769097	50	0.4990843
cis-1,3-Dichloropropene	0.5	0.4480176	1	0.4722343	2	0.4721703	5	0.4967073	10	0.5360902	50	0.5758237
trans-1,3-Dichloropropene	0.5	1.054583	1	1.058366	2	1.106072	5	1.16894	10	1.263215	50	1.354317
Diisopropyl Ether	0.5	1.125033	1	1.272977	2	1.3287	5	1.341672	10	1.417436	50	1.484734
1,4-Dioxane	10	2.968074E-03	20	2.159448E-03	40	2.605981E-03	100	2.286103E-03	200	2.585818E-03	1000	2.525788E-03
Ethylbenzene	0.5	2.918315	1	2.949883	2	3.33292	5	3.279502	10	3.320924	50	3.434514
Ethyl tert-Butyl Ether	0.5	0.9413926	1	0.9500643	2	1.020298	5	1.031929	10	1.083101	50	1.168191
Ethyl Methacrylate	0.5	0.7133284	1	0.7459528	2	0.824683	5	0.8147775	10	0.9287054	50	0.9724326
Hexachlorobutadiene	0.5	0.4828448	1	0.4479827	2	0.4199711	5	0.383863	10	0.3786772	50	0.3832276
Hexane	0.5	0.3908673	1	0.3141942	2	0.3410815	5	0.3364713	10	0.3459363	50	0.3520244
2-Hexanone	1	0.4908686	2	0.4004565	4	0.4676676	10	0.4666259	20	0.5358621	100	0.5355248
Iodomethane	0.5	0.2169217	1	0.240739	2	0.2991221	5	0.3645046	10	0.413022	50	0.4916112
Isobutyl alcohol	10	6.576821E-03	20	6.257297E-03	40	5.662983E-03	100	5.375441E-03	200	6.242419E-03	1000	6.310299E-03
Isopropylbenzene	0.5	2.366788	1	2.367199	2	2.570936	5	2.682138	10	2.777959	50	2.85567

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14_15:44 3/6/14_19:27

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
p-Isopropyltoluene	0.5	2.705325	1	2.645385	2	2.697827	5	2.689842	10	2.806242	50	2.881751
Methacrylonitrile	5	0.2259535	10	0.2271362	20	0.2444819	50	0.2378017	100	0.2490852	500	0.2572496
Methylene chloride	0.5	0.6759385	1	0.531963	2	0.4494239	5	0.3963405	10	0.4053878	50	0.3805874
Methyl Acetate	0.5	0.2835971	1	0.2785487	2	0.300099	5	0.2414138	10	0.2733967	50	0.286448
Methylcyclohexane	0.5	0.4052116	1	0.3752523	2	0.408881	5	0.4039326	10	0.3996062	50	0.4062164
Naphthalene	0.5	1.647884	1	1.874509	2	1.957547	5	2.064952	10	2.247312	50	2.330549
Methyl Methacrylate	0.5	0.2782676	1	0.2874832	2	0.2817	5	0.2942192	10	0.3241142	50	0.341161
4-Methyl-2-pentanone	1	0.2742138	2	0.2761373	4	0.2955969	10	0.298749	20	0.3264789	100	0.3533199
Methyl t-Butyl Ether	0.5	0.730991	1	0.7371801	2	0.7867768	5	0.7769359	10	0.7907305	50	0.8889218
n-Propylbenzene	0.5	3.842158	1	3.702753	2	3.935312	5	3.933719	10	4.281019	50	4.468446
Propionitrile	5	0.0435034	10	0.0460641	20	4.627103E-02	50	4.280198E-02	100	4.942294E-02	500	4.444696E-02
Styrene	0.5	1.642112	1	1.672061	2	1.812301	5	1.854045	10	2.036704	50	2.100785
1,1,2,2-Tetrachloroethane	0.5	0.8932708	1	0.8717855	2	0.9595918	5	0.8891167	10	0.968348	50	1.024842
1,1,1,2-Tetrachloroethane	0.5	0.6239523	1	0.6444762	2	0.6924233	5	0.6727441	10	0.7051256	50	0.7300177
tert-Butyl alcohol	2.5	~~7.552005E-03~~	5	~~9.868228E-03~~	10	1.450101E-02	25	1.347399E-02	50	1.731777E-02	250	1.627351E-02
Tetrachloroethene	0.5	0.7154298	1	0.7055004	2	0.7274693	5	0.6935078	10	0.6953616	50	0.7307015
Toluene	0.5	1.693665	1	1.607046	2	1.760917	5	1.683298	10	1.774894	50	1.840607
1,2,3-Trichlorobenzene	0.5	0.8347969	1	0.8119904	2	0.8506729	5	0.8599964	10	0.899581	50	0.916024
1,2,4-Trichlorobenzene	0.5	0.931461	1	0.9307076	2	0.9357355	5	0.9266381	10	0.9683833	50	1.030759
1,1,2-Trichloroethane	0.5	0.582206	1	0.5826077	2	0.6120382	5	0.6058639	10	0.6280671	50	0.6441423
1,1,1-Trichloroethane	0.5	0.4115049	1	0.4011286	2	0.4410711	5	0.4333812	10	0.4494604	50	0.4800068
Tetrahydrofuran	0.5	~~2.097779E-02~~	1	2.324846E-02	2	2.473281E-02	5	3.009438E-02	10	3.250941E-02	50	3.301613E-02
Trichloroethene	0.5	0.2985083	1	0.3256639	2	0.339437	5	0.3151952	10	0.3619768	50	0.3556502
Trichlorofluoromethane	0.5	0.4128656	1	0.4109907	2	0.4483493	5	0.4694175	10	0.4837311	50	0.5015413
1,2,3-Trichloropropane	0.5	0.1915004	1	0.1985779	2	0.2242452	5	0.2011898	10	0.2292653	50	0.2184706
1,3,5-Trimethylbenzene	0.5	2.460813	1	2.496814	2	2.603093	5	2.780765	10	2.92318	50	2.877607
1,2,4-Trimethylbenzene	0.5	2.435141	1	2.554601	2	2.789107	5	2.836861	10	3.004402	50	2.990124
1,1,2-Trichloro-1,2,2-trifluoroethan	0.5	0.3104146	1	0.2741277	2	0.3172117	5	0.3045768	10	0.2957922	50	0.310077
Vinyl chloride	0.5	0.376523	1	0.3558992	2	0.34284	5	0.3487987	10	0.3763757	50	0.3459878
m,p-Xylene	1	2.233004	2	2.290132	4	2.544692	10	2.544548	20	2.568449	100	2.668392
o-Xylene	0.5	2.330925	1	2.350005	2	2.58466	5	2.582439	10	2.736667	50	2.641937

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Vinyl acetate	1	0.6520125	2	0.6805893	4	0.7416749	10	0.794941	20	0.8206862	100	0.9485637
Xylenes (total)	1.5	2.265644	3	2.31009	6	2.558015	15	2.557178	30	2.624522	150	2.659574
Dibromofluoromethane	30	0.2890267	35	0.302116	40	0.3073462	50	0.3185641	60	0.3131544	70	0.33858
1,2-Dichloroethane-d4	30	5.721834E-02	35	5.784025E-02	40	5.932373E-02	50	6.242073E-02	60	6.077057E-02	70	6.676654E-02
Toluene-d8	30	2.194706	35	2.166095	40	2.293095	50	2.346966	60	2.314726	70	2.377644
tert-Amyl alcohol	2.5	~~9.751838E-03~~	5	9.132439E-03	10	1.021877E-02	25	0.0103628	50	1.315689E-02	250	0.0143672
tert-Amyl ethyl ether	0.5	0.664996	1	0.6804502	2	0.7396721	5	0.7329292	10	0.8106747	50	0.8763025
1,3,5-Trichlorobenzene	0.5	1.105615	1	1.037029	2	1.068741	5	1.055951	10	1.048476	50	1.095986
Diethyl ether	0.5	0.2718608	1	0.2801254	2	0.2869592	5	0.2763804	10	0.285275	50	0.3169903

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone	200	8.384159E-02	300	8.954737E-02	400	0.0835834						
Acetonitrile	1000	5.079835E-02	1500	5.266191E-02	2000	4.943161E-02						
Acrolein	500	3.382839E-02	750	3.463738E-02	1000	3.488136E-02						
Acrylonitrile	500	0.1265594	750	0.1285594	1000	0.1260418						
Benzene	100	1.296423	150	1.296849	200	1.285094						
Allyl chloride	100	0.1547885	150	0.1416814	200	0.1444228						
Bromobenzene	100	0.8806199	150	0.8759408	200	0.918877						
Bromochloromethane	100	0.1784642	150	0.1752499	200	0.1785281						
Tert-Amyl Methyl Ether	100	0.8677674	150	0.8742516	200	0.8533745						
Bromodichloromethane	100	0.4549953	150	0.446421	200	0.4384875						
Bromoform	100	0.543411	150	0.5704128	200	0.5810045						
Bromomethane	100	0.272693	150	0.272771	200	0.2706678						
Bromofluorobenzene	30	0.8979111	30	0.9280861	30	0.9371415						
n-Butylbenzene	100	2.550383	150	2.517261	200	2.539486						
2-Butanone	200	0.1600892	300	0.1717088	400	0.1602246						
sec-Butylbenzene	100	3.28804	150	3.123936	200	3.302507						
tert-Butylbenzene	100	2.443873	150	2.338504	200	2.545447						
Carbon disulfide	100	1.17807	150	1.148719	200	1.166433						
Carbon tetrachloride	100	0.3732976	150	0.3598371	200	0.3638982						
Chlorobenzene	100	1.935771	150	1.968974	200	1.927615						
Chloroethane	100	0.2365015	150	0.2454681	200	0.2389202						
Chloroform	100	0.5724542	150	0.5675821	200	0.5693384						
2-Chloroethyl vinyl ether	200	0.2185281	300	0.2211525	400	0.212967						
Chloromethane	100	0.4758267	150	0.4708828	200	0.4558844						
1-Chlorohexane	100	0.8636919	150	0.8713085	200	0.8700311						
2-Chlorotoluene	100	2.480153	150	2.371238	200	2.507249						
Chloroprene	100	0.5532375	150	0.5398555	200	0.522688						
4-Chlorotoluene	100	2.854308	150	2.749586	200	2.852652						
Cyclohexane	100	0.5650007	150	0.5287304	200	0.5436754						
Dibromochloromethane	100	0.8440727	150	0.8754988	200	0.8536455						
1,2-Dibromo-3-chloropropane	100	0.1640826	150	0.1631897	200	0.1704727						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,2-Dibromoethane (EDB)	100	0.7482959	150	0.7910397	200	0.7509562						
Dibromomethane	100	0.2232138	150	0.2233055	200	0.221371						
1,2-Dichlorobenzene	100	1.501009	150	1.524702	200	1.615058						
1,3-Dichlorobenzene	100	1.58533	150	1.556255	200	1.611489						
trans-1,4-Dichloro-2-butene	100	0.2844286	150	0.2838664	200	0.2817126						
cis-1,4-Dichloro-2-butene	100	0.3087251	150	0.2982974	200	0.3079312						
1,4-Dichlorobenzene	100	1.628634	150	1.595686	200	1.644847						
Dichlorodifluoromethane	100	0.4070606	150	0.382495	200	0.3874196						
1,1-Dichloroethane	100	0.6581747	150	0.641007	200	0.617787						
1,2-Dichloroethane	100	0.4790665	150	0.4573703	200	0.4472441						
1,1-Dichloroethene	100	0.2991195	150	0.2959372	200	0.2941732						
cis-1,2-Dichloroethene	100	0.3436688	150	0.3263553	200	0.3408223						
trans-1,2-Dichloroethene	100	0.3289539	150	0.3167339	200	0.3129828						
1,2-Dichloroethene (total)	200	0.3363113	300	0.3215446	400	0.3269026						
1,2-Dichloropropane	100	0.3821692	150	0.3600199	200	0.371036						
1,3-Dichloropropane	100	1.193854	150	1.207048	200	1.185448						
2,2-Dichloropropane	100	0.4236999	150	0.4119757	200	0.4026359						
1,1-Dichloropropene	100	0.4622557	150	0.4422191	200	0.4487826						
cis-1,3-Dichloropropene	100	0.5413722	150	0.5365898	200	0.5185666						
trans-1,3-Dichloropropene	100	1.195994	150	1.219523	200	1.231924						
Diisopropyl Ether	100	1.374923	150	1.378815	200	1.330875						
1,4-Dioxane	2000	2.314502E-03	3000	2.574526E-03	4000	2.503366E-03						
Ethylbenzene	100	3.298314	150	3.282751	200	3.229541						
Ethyl tert-Butyl Ether	100	1.060426	150	1.053539	200	1.018631						
Ethyl Methacrylate	100	0.8877198	150	0.9273883	200	0.8905075						
Hexachlorobutadiene	100	0.3538793	150	0.3455886	200	0.3697962						
Hexane	100	0.3391748	150	0.3208422	200	0.3250742						
2-Hexanone	200	0.49831	300	0.5230792	400	0.4791231						
Iodomethane	100	0.4783487	150	0.4554643	200	0.4613931						
Isobutyl alcohol	2000	6.356251E-03	3000	6.980017E-03	4000	6.79722E-03						
Isopropylbenzene	100	2.821326	150	2.735754	200	2.816105						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
p-Isopropyltoluene	100	2.711537	150	2.646677	200	2.692847						
Methacrylonitrile	1000	0.2242371	1500	0.2193386	2000	0.208372						
Methylene chloride	100	0.3538215	150	0.3426455	200	0.3403141						
Methyl Acetate	100	0.2556779	150	0.2649718	200	0.2560981						
Methylcyclohexane	100	0.39399	150	0.3784436	200	0.4026574						
Naphthalene	100	2.344013	150	2.336375	200	2.409049						
Methyl Methacrylate	100	0.2920621	150	0.3078053	200	0.295845						
4-Methyl-2-pentanone	200	0.3163417	300	0.3264097	400	0.3005327						
Methyl t-Butyl Ether	100	0.8126336	150	0.8081037	200	0.7788036						
n-Propylbenzene	100	4.002272	150	3.867053	200	3.792069						
Propionitrile	1000	4.694749E-02	1500	0.0489272	2000	4.524669E-02						
Styrene	100	2.044558	150	2.140792	200	2.130364						
1,1,2,2-Tetrachloroethane	100	0.9095974	150	0.8808243	200	0.954971						
1,1,1,2-Tetrachloroethane	100	0.7126684	150	0.7031575	200	0.6937245						
tert-Butyl alcohol	500	1.630049E-02	750	0.0191684	1000	1.808311E-02						
Tetrachloroethene	100	0.6897898	150	0.6835116	200	0.7164943						
Toluene	100	1.661251	150	1.713065	200	1.778762						
1,2,3-Trichlorobenzene	100	0.8857069	150	0.8586922	200	0.8930763						
1,2,4-Trichlorobenzene	100	0.9874149	150	0.9702891	200	1.016804						
1,1,2-Trichloroethane	100	0.5848477	150	0.5951533	200	0.5893426						
1,1,1-Trichloroethane	100	0.4368853	150	0.4308223	200	0.4338056						
Tetrahydrofuran	100	2.934189E-02	150	3.168023E-02	200	3.072632E-02						
Trichloroethene	100	0.3312613	150	0.3283271	200	0.3269496						
Trichlorofluoromethane	100	0.4666906	150	0.4482974	200	0.4594569						
1,2,3-Trichloropropane	100	0.2104582	150	0.2076343	200	0.2097475						
1,3,5-Trimethylbenzene	100	2.703917	150	2.572054	200	2.690018						
1,2,4-Trimethylbenzene	100	2.830311	150	2.703401	200	2.854374						
1,1,2-Trichloro-1,2,2-trifluoroethan	100	0.3012097	150	0.2762234	200	0.2892513						
Vinyl chloride	100	0.3622456	150	0.338709	200	0.3194526						
m,p-Xylene	200	2.523362	300	2.471526	400	2.185418						
o-Xylene	100	2.583488	150	2.637181	200	2.624121						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4069001	Instrument:	MS-VOA4	
Matrix:	Water	Calibration Dates:	3/6/14 15:44	3/6/14 19:27

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Vinyl acetate	200	0.8495412	300	0.8649375	400	0.8276118						
Xylenes (total)	300	2.543403	450	2.526744	600	2.331652						
Dibromofluoromethane	30	0.2978987	30	0.2894634	30	0.2944619						
1,2-Dichloroethane-d4	30	0.0588709	30	5.668745E-02	30	5.992906E-02						
Toluene-d8	30	2.185335	30	2.277829	30	2.321873						
tert-Amyl alcohol	500	1.414353E-02	750	1.551941E-02	1000	1.479709E-02						
tert-Amyl ethyl ether	100	0.820233	150	0.8188507	200	0.7968251						
1,3,5-Trichlorobenzene	100	1.044831	150	1.054918	200	1.088602						
Diethyl ether	100	0.2871482	150	0.278202	200	0.2718584						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Acetone	9.693208E-02	13.81043	3.56	0.212248			15	
Acetonitrile	5.695443E-02	13.19796	3.63625	0.3867275			15	
Acrolein	0.0353411	5.992721	3.446667	0.1443014			15	
Acrylonitrile	0.1275811	4.641045	4.374444	0.120048			15	
Benzene	1.302684	3.460694	7.454444	7.143236E-02			15	
Allyl chloride	0.1551227	5.172778	4.448889	0.1341301			15	
Bromobenzene	0.8948361	6.219143	12.20111	2.931441E-02			15	
Bromochloromethane	0.1793688	5.054196	6.545556	8.135115E-02			15	
Tert-Amyl Methyl Ether	0.8131037	10.00822	7.647778	5.965235E-02			15	
Bromodichloromethane	0.4412152	6.684754	8.444444	5.946976E-02			15	
Bromoform	0.5053899	13.17448	11.61	2.412076E-02			SPCC (0.1)	
Bromomethane	0.2599127	6.682592	2.665556	0.1982899			15	
Bromofluorobenzene	0.9152505	2.390126	12.04111	1.858373E-02			15	
n-Butylbenzene	2.575141	4.476977	13.63667	0.0344083			15	
2-Butanone	0.1660597	4.20223	6.002222	0.1384621			15	
sec-Butylbenzene	3.209345	4.594988	13.09556	0.0410019			15	
tert-Butylbenzene	2.436127	6.628439	12.86222	3.659541E-02			15	
Carbon disulfide	1.181905	3.721252	4.542222	9.529546E-02			15	
Carbon tetrachloride	0.3484475	10.05358	7.425555	7.154712E-02			15	
Chlorobenzene	1.959272	2.849043	10.88556	5.062091E-02			SPCC (0.3)	
Chloroethane	0.2544659	6.892176	2.787778	0.1573432			15	
Chloroform	0.5933461	4.630316	6.52	1.531711E-02			CCC (30)	
2-Chloroethyl vinyl ether	0.2059338	12.83609	8.812222	0.0468773			15	
Chloromethane	0.4947446	6.239686	2.116667	0.2359216			SPCC (0.1)	
1-Chlorohexane	0.9109575	6.703025	10.85778	3.947123E-02			15	
2-Chlorotoluene	2.512339	5.152207	12.42444	4.754732E-02			15	
Chloroprene	0.5504108	5.565545	5.813333	8.660556E-02			15	
4-Chlorotoluene	2.880025	4.935073	12.48667	3.607366E-02			15	
Cyclohexane	0.5532744	5.168047	7.353333	6.822593E-02			15	
Dibromochloromethane	0.8222048	6.588217	10.11778	4.309451E-02			15	
1,2-Dibromo-3-chloropropane	0.1562258	8.937716	14.23111	2.518423E-02			15	
1,2-Dibromoethane (EDB)	0.7529259	5.679395	10.33111	5.966478E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Dibromomethane	0.2257197	4.767189	8.378889	4.272819E-02			15	
1,2-Dichlorobenzene	1.539885	3.582958	13.59111	3.020989E-02			15	
1,3-Dichlorobenzene	1.620325	3.204058	13.18	0.033605			15	
trans-1,4-Dichloro-2-butene	0.2859214	10.78032	12.01	2.304143E-02			15	
cis-1,4-Dichloro-2-butene	0.311863	9.402435	11.69625	4.884177E-02			15	
1,4-Dichlorobenzene	1.663697	3.233993	13.27	9.397871E-03			15	
Dichlorodifluoromethane	0.3786201	10.88827	1.908889	0.1748179			15	
1,1-Dichloroethane	0.6559393	6.169721	5.546667	8.908367E-02			SPCC (0.1)	
1,2-Dichloroethane	0.4797593	6.069652	7.286667	6.865682E-02			15	
1,1-Dichloroethene	0.2935421	4.628759	4.006667	0.1232458			CCC (30)	
cis-1,2-Dichloroethene	0.344395	3.136894	6.264445	8.484449E-02			15	
trans-1,2-Dichloroethene	0.321752	4.719039	5.171111	0.0645329			15	
1,2-Dichloroethene (total)	0.3330736	3.559396	6.264445	8.484449E-02			15	
1,2-Dichloropropane	0.3782308	4.948484	8.264445	6.024021E-02			CCC (30)	
1,3-Dichloropropane	1.206854	4.478186	9.864444	5.689311E-02			15	
2,2-Dichloropropane	0.4180605	6.279281	6.368889	9.224848E-02			15	
1,1-Dichloropropene	0.4547803	5.222407	7.303333	0.0669568			15	
cis-1,3-Dichloropropene	0.5108413	8.085308	9.021111	3.059341E-02			15	
trans-1,3-Dichloropropene	1.183659	8.332284	9.5	0			15	
Diisopropyl Ether	1.339463	7.492893	5.921111	5.893923E-02			15	
1,4-Dioxane	2.502623E-03	9.370959	8.428889	9.106473E-02			15	
Ethylbenzene	3.227407	5.434909	11.03333	4.687283E-02			CCC (30)	
Ethyl tert-Butyl Ether	1.036397	6.605746	6.392222	7.217166E-02			15	
Ethyl Methacrylate	0.8561662	10.22258	9.69	2.020717E-02			15	
Hexachlorobutadiene	0.3962034	11.43852	15.59333	3.578777E-02			15	
Hexane	0.3406296	6.592183	5.763333	8.461428E-02			15	
2-Hexanone	0.4886131	8.71433	9.802222	4.160926E-02			15	
Iodomethane	0.3801252	27.63955	4.197778	0.1031084		0.9995961	0.99	
Isobutyl alcohol	6.284305E-03	8.061206	6.617778	9.989747E-02			15	
Isopropylbenzene	2.665986	7.118672	11.93333	0.0384972			15	
p-Isopropyltoluene	2.719715	2.817358	13.23333	0.0341619			15	
Methacrylonitrile	0.2326284	6.718955	6.17	0.1623271			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Methylene chloride	0.4307136	25.55388	4.493333	0.1098972		0.9997837	0.99	
Methyl Acetate	0.271139	6.744298	4.357778	0.1531507			15	
Methylcyclohexane	0.3971323	3.092442	8.596667	5.767279E-02			15	
Naphthalene	2.134688	12.3022	15.46	1.455339E-02			15	
Methyl Methacrylate	0.3002953	6.87862	8.407778	4.944537E-02			15	
4-Methyl-2-pentanone	0.3075311	8.333029	8.947778	4.517247E-02			15	
Methyl t-Butyl Ether	0.7901197	5.869231	5.162222	8.640945E-02			15	
n-Propylbenzene	3.980533	6.139347	12.34111	2.718462E-02			15	
Propionitrile	4.595909E-02	4.90682	5.722222	0.1178779			15	
Styrene	1.93708	10.11026	11.50667	4.163682E-02			15	
1,1,2,2-Tetrachloroethane	0.9280386	5.543597	11.85667	4.416491E-02			SPCC (0.3)	
1,1,1,2-Tetrachloroethane	0.6864766	4.928588	10.93	1.332678E-02			15	
tert-Butyl alcohol	1.644547E-02	12.03875	4.147143	0.1816137			15	
Tetrachloroethene	0.7064185	2.403689	10.23	1.616981E-02			15	
Toluene	1.723723	4.146077	9.495555	5.604512E-02			CCC (30)	
1,2,3-Trichlorobenzene	0.8678374	3.851171	15.74778	2.733087E-02			15	
1,2,4-Trichlorobenzene	0.9664658	4.033897	15.31	3.613786E-02			15	
1,1,2-Trichloroethane	0.6026965	3.633231	9.651111	0.0301437			15	
1,1,1-Trichloroethane	0.4353407	5.133061	7.081111	4.893599E-02			15	
Tetrahydrofuran	0.0294187	12.17561	6.73	0.1375823			15	
Trichloroethene	0.331441	5.837026	8.22	8.649674E-02			15	
Trichlorofluoromethane	0.4557045	6.561598	3.258889	0.1839159			15	
1,2,3-Trichloropropane	0.210121	5.833335	11.98444	4.503246E-02			15	
1,3,5-Trimethylbenzene	2.678696	6.021887	12.52	6.137777E-03			15	
1,2,4-Trimethylbenzene	2.777591	6.752684	12.89222	3.821114E-02			15	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.2976538	5.104869	4.085556	0.178067			15	
Vinyl chloride	0.3518702	5.20344	2.253333	0.2215242			CCC (30)	
m,p-Xylene	2.447725	6.898186	11.14444	4.944093E-02			15	
o-Xylene	2.563491	5.272041	11.53667	4.203864E-02			15	
Vinyl acetate	0.7978398	11.68048	5.625556	9.334956E-02			15	
Xylenes (total)	2.486314	5.825802	11.53667	4.203864E-02			15	
Dibromofluoromethane	0.3056235	5.233191	6.694444	7.642584E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008		
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)		
Calibration:	4069001	Instrument:	MS-VOA4		
Matrix:	Water	Calibration Dates:	3/6/14 15:44	3/6/14 19:27	

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
1,2-Dichloroethane-d4	5.998084E-02	5.184054	7.193333	7.039985E-02			15	
Toluene-d8	2.275363	3.338808	9.42	0.0194423			15	
tert-Amyl alcohol	1.271227E-02	19.21454	6.89375	7.579471E-02		0.998464	0.99	
tert-Amyl ethyl ether	0.7712148	9.158393	8.542222	5.440364E-02			15	
1,3,5-Trichlorobenzene	1.066683	2.296636	14.75556	3.499834E-02			15	
Diethyl ether	0.2838666	4.839752	3.66	1.611891E-02			15	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0306ICV2.D	Calibration Date:	03/06/14 03:44
Sequence:	4C06901	Injection Date:	03/06/14
Lab Sample ID:	4C06901-ICV2	Injection Time:	20:51

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Acetone	A	200.0	169.6	9.693208E-02	8.219556E-02		-15.2	20
Benzene	A	100.0	97.45	1.302684	1.269433		-2.6	20
Bromobenzene	A	100.0	99.45	0.8948361	0.889899		-0.6	20
Bromochloromethane	A	100.0	96.72	0.1793688	0.1734912		-3.3	20
Bromodichloromethane	A	100.0	97.88	0.4412152	0.4318615		-2.1	20
Bromoform	A	100.0	108.4	0.5053899	0.5479223	0.1	8.4	20
Bromomethane	A	100.0	104.0	0.2599127	0.2703789		4.0	20
n-Butylbenzene	A	100.0	98.93	2.575141	2.547713		-1.1	20
2-Butanone	A	200.0	177.0	0.1660597	0.1470043		-11.5	20
sec-Butylbenzene	A	100.0	100.7	3.209345	3.231187		0.7	20
tert-Butylbenzene	A	100.0	99.32	2.436127	2.419594		-0.7	20
Carbon disulfide	A	100.0	96.55	1.181905	1.141184		-3.4	20
Carbon tetrachloride	A	100.0	100.5	0.3484475	0.3500825		0.5	20
Chlorobenzene	A	100.0	97.79	1.959272	1.916024	0.3	-2.2	20
Chloroethane	A	100.0	96.87	0.2544659	0.2465032		-3.1	20
Chloroform	A	100.0	93.27	0.5933461	0.5534033		-6.7	20
Chloromethane	A	100.0	91.65	0.4947446	0.4534332	0.1	-8.4	20
2-Chlorotoluene	A	100.0	96.43	2.512339	2.422606		-3.6	20
4-Chlorotoluene	A	100.0	97.56	2.880025	2.809804		-2.4	20
Dibromochloromethane	A	100.0	103.4	0.8222048	0.8498523		3.4	20
1,2-Dibromo-3-chloropropane	A	100.0	101.2	0.1562258	0.1581516		1.2	20
1,2-Dibromoethane (EDB)	A	100.0	101.6	0.7529259	0.7649421		1.6	20
Dibromomethane	A	100.0	95.25	0.2257197	0.2150009		-4.7	20
1,2-Dichlorobenzene	A	100.0	99.21	1.539885	1.527675		-0.8	20
1,3-Dichlorobenzene	A	100.0	99.97	1.620325	1.619866		-0.03	20
1,4-Dichlorobenzene	A	100.0	97.63	1.663697	1.624272		-2.4	20
Dichlorodifluoromethane	A	100.0	102.2	0.3786201	0.3870338		2.2	20
1,1-Dichloroethane	A	100.0	96.66	0.6559393	0.634026	0.1	-3.3	20
1,2-Dichloroethane	A	100.0	90.31	0.4797593	0.4332676		-9.7	20

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0306ICV2.D	Calibration Date:	03/06/14 03:44
Sequence:	4C06901	Injection Date:	03/06/14
Lab Sample ID:	4C06901-ICV2	Injection Time:	20:51

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
1,1-Dichloroethene	A	100.0	101.3	0.2935421	0.2972992		1.3	20
cis-1,2-Dichloroethene	A	100.0	97.95	0.344395	0.3373219		-2.1	20
trans-1,2-Dichloroethene	A	100.0	99.42	0.321752	0.319877		-0.6	20
1,2-Dichloroethene (total)	A	200.0	197.4	0.3330736	0.3285994		-1.3	20
1,2-Dichloropropane	A	100.0	97.88	0.3782308	0.3702094		-2.1	20
1,3-Dichloropropane	A	100.0	98.49	1.206854	1.188675		-1.5	20
2,2-Dichloropropane	A	100.0	92.39	0.4180605	0.3862427		-7.6	20
1,1-Dichloropropene	A	100.0	95.22	0.4547803	0.4330513		-4.8	20
cis-1,3-Dichloropropene	A	100.0	99.63	0.5108413	0.5089451		-0.4	20
trans-1,3-Dichloropropene	A	100.0	104.4	1.183659	1.235201		4.4	20
Ethylbenzene	A	100.0	103.9	3.227407	3.351965		3.9	20
Hexachlorobutadiene	A	100.0	90.10	0.3962034	0.3569801		-9.9	20
2-Hexanone	A	200.0	188.3	0.4886131	0.4599557		-5.9	20
Isopropylbenzene	A	100.0	107.8	2.665986	2.87378		7.8	20
p-Isopropyltoluene	A	100.0	97.00	2.719715	2.638199		-3.0	20
Methylene chloride	Q	100.0	96.25	0.4307136	0.3423915		-3.8	20
Naphthalene	A	100.0	105.3	2.134688	2.247306		5.3	20
4-Methyl-2-pentanone	A	200.0	189.5	0.3075311	0.2914022		-5.2	20
Methyl t-Butyl Ether	A	100.0	98.79	0.7901197	0.7805536		-1.2	20
n-Propylbenzene	A	100.0	101.8	3.980533	4.050543		1.8	20
Styrene	A	100.0	106.5	1.93708	2.063746		6.5	20
1,1,2,2-Tetrachloroethane	A	100.0	95.79	0.9280386	0.8889859	0.3	-4.2	20
1,1,1,2-Tetrachloroethane	A	100.0	101.7	0.6864766	0.697923		1.7	20
Tetrachloroethene	A	100.0	103.2	0.7064185	0.7290543		3.2	20
Toluene	A	100.0	106.8	1.723723	1.841052		6.8	20
1,2,3-Trichlorobenzene	A	100.0	101.0	0.8678374	0.8769537		1.1	20
1,2,4-Trichlorobenzene	A	100.0	101.4	0.9664658	0.9801552		1.4	20
1,1,2-Trichloroethane	A	100.0	98.24	0.6026965	0.5921145		-1.8	20
1,1,1-Trichloroethane	A	100.0	97.22	0.4353407	0.4232517		-2.8	20

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0306ICV2.D	Calibration Date:	03/06/14 03:44
Sequence:	4C06901	Injection Date:	03/06/14
Lab Sample ID:	4C06901-ICV2	Injection Time:	20:51

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Trichloroethene	A	100.0	99.19	0.331441	0.3287533		-0.8	20
Trichlorofluoromethane	A	100.0	100.5	0.4557045	0.4578403		0.5	20
1,2,3-Trichloropropane	A	100.0	96.94	0.210121	0.2037018		-3.1	20
1,3,5-Trimethylbenzene	A	100.0	98.74	2.678696	2.644973		-1.3	20
1,2,4-Trimethylbenzene	A	100.0	99.98	2.777591	2.77702		-0.02	20
Vinyl chloride	A	100.0	96.98	0.3518702	0.3412608		-3.0	20
m,p-Xylene	A	200.0	209.8	2.447725	2.568287		4.9	20
o-Xylene	A	100.0	99.92	2.563491	2.56136		-0.08	20
Xylenes (total)	A	300.0	309.8	2.486314	2.565979		3.2	20
Bromofluorobenzene	A	30.00	30.53	0.9152505	0.9312787		1.8	20
Dibromofluoromethane	A	30.00	27.91	0.3056235	0.2843707		-7.0	20
1,2-Dichloroethane-d4	A	30.00	28.17	5.998084E-02	0.0563232		-6.1	20
Toluene-d8	A	30.00	30.15	2.275363	2.28662		0.5	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0407CCV1.D	Calibration Date:	03/06/14 03:44
Sequence:	4D09805	Injection Date:	04/07/14
Lab Sample ID:	4D09805-CCV1	Injection Time:	07:03

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Benzene	A	100.0	91.32	1.302684	1.189548		-8.7	20
Bromobenzene	A	100.0	98.69	0.8948361	0.8831143		-1.3	20
Bromochloromethane	A	100.0	94.18	0.1793688	0.1689372		-5.8	20
Bromodichloromethane	A	100.0	91.88	0.4412152	0.4053704		-8.1	20
Bromoform	A	100.0	110.0	0.5053899	0.5561648	0.1	10.0	20
Bromomethane	A	100.0	87.92	0.2599127	0.2285039		-12.1	20
n-Butylbenzene	A	100.0	99.81	2.575141	2.570364		-0.2	20
2-Butanone	A	200.0	199.3	0.1660597	0.1654843		-0.3	20
sec-Butylbenzene	A	100.0	97.95	3.209345	3.143597		-2.0	20
tert-Butylbenzene	A	100.0	96.99	2.436127	2.362829		-3.0	20
Carbon disulfide	A	100.0	89.05	1.181905	1.052527		-10.9	20
Carbon tetrachloride	A	100.0	98.98	0.3484475	0.3449033		-1.0	20
Chlorobenzene	A	100.0	98.04	1.959272	1.92089	0.3	-2.0	20
Chloroethane	A	100.0	88.93	0.2544659	0.2262851		-11.1	20
Chloroform	A	100.0	90.21	0.5933461	0.5352357		-9.8	20
Chloromethane	A	100.0	83.77	0.4947446	0.4144236	0.1	-16.2	20
2-Chlorotoluene	A	100.0	94.83	2.512339	2.382518		-5.2	20
4-Chlorotoluene	A	100.0	96.21	2.880025	2.770892		-3.8	20
Dibromochloromethane	A	100.0	96.95	0.8222048	0.7971555		-3.0	20
1,2-Dibromo-3-chloropropane	A	100.0	100.4	0.1562258	0.1568957		0.4	20
1,2-Dibromoethane (EDB)	A	100.0	97.37	0.7529259	0.7331483		-2.6	20
Dibromomethane	A	100.0	90.94	0.2257197	0.2052618		-9.1	20
1,2-Dichlorobenzene	A	100.0	98.28	1.539885	1.51346		-1.7	20
1,3-Dichlorobenzene	A	100.0	97.55	1.620325	1.580582		-2.5	20
1,4-Dichlorobenzene	A	100.0	93.46	1.663697	1.554975		-6.5	20
Dichlorodifluoromethane	A	100.0	89.56	0.3786201	0.3391109		-10.4	20
1,1-Dichloroethane	A	100.0	90.10	0.6559393	0.5909762	0.1	-9.9	20
1,2-Dichloroethane	A	100.0	90.03	0.4797593	0.4319127		-10.0	20
1,1-Dichloroethene	A	100.0	94.04	0.2935421	0.2760522		-6.0	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0407CCV1.D	Calibration Date:	03/06/14 03:44
Sequence:	4D09805	Injection Date:	04/07/14
Lab Sample ID:	4D09805-CCV1	Injection Time:	07:03

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
cis-1,2-Dichloroethene	A	100.0	89.63	0.344395	0.3086748		-10.4	20
trans-1,2-Dichloroethene	A	100.0	93.95	0.321752	0.3022875		-6.0	20
1,2-Dichloroethene (total)	A	200.0	183.6	0.3330736	0.3054812		-8.3	20
1,2-Dichloropropane	A	100.0	87.86	0.3782308	0.3323079		-12.1	20
1,3-Dichloropropane	A	100.0	93.40	1.206854	1.127252		-6.6	20
2,2-Dichloropropane	A	100.0	97.16	0.4180605	0.4061908		-2.8	20
1,1-Dichloropropene	A	100.0	91.18	0.4547803	0.4146588		-8.8	20
cis-1,3-Dichloropropene	A	100.0	95.65	0.5108413	0.4886183		-4.4	20
trans-1,3-Dichloropropene	A	100.0	97.50	1.183659	1.154104		-2.5	20
Ethylbenzene	A	100.0	96.21	3.227407	3.105227		-3.8	20
Hexachlorobutadiene	A	100.0	92.49	0.3962034	0.3664555		-7.5	20
2-Hexanone	A	200.0	211.8	0.4886131	0.517497		5.9	20
Isopropylbenzene	A	100.0	103.9	2.665986	2.770334		3.9	20
p-Isopropyltoluene	A	100.0	98.24	2.719715	2.671929		-1.8	20
Methylene chloride	Q	100.0	91.88	0.4307136	0.3275806		-8.1	20
Naphthalene	A	100.0	106.0	2.134688	2.263717		6.0	20
4-Methyl-2-pentanone	A	200.0	193.8	0.3075311	0.2980042		-3.1	20
Methyl t-Butyl Ether	A	100.0	96.60	0.7901197	0.7632933		-3.4	20
n-Propylbenzene	A	100.0	99.30	3.980533	3.952603		-0.7	20
Styrene	A	100.0	106.9	1.93708	2.071585		6.9	20
1,1,2,2-Tetrachloroethane	A	100.0	98.52	0.9280386	0.9142946	0.3	-1.5	20
1,1,1,2-Tetrachloroethane	A	100.0	96.56	0.6864766	0.6628466		-3.4	20
Tetrachloroethene	A	100.0	101.4	0.7064185	0.7165436		1.4	20
Toluene	A	100.0	100.5	1.723723	1.732712		0.5	20
1,2,3-Trichlorobenzene	A	100.0	96.97	0.8678374	0.8415003		-3.0	20
1,2,4-Trichlorobenzene	A	100.0	100.2	0.9664658	0.9682711		0.2	20
1,1,2-Trichloroethane	A	100.0	92.75	0.6026965	0.5590238		-7.2	20
1,1,1-Trichloroethane	A	100.0	90.91	0.4353407	0.3957867		-9.1	20
Trichloroethene	A	100.0	87.36	0.331441	0.2895579		-12.6	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0407CCV1.D	Calibration Date:	03/06/14 03:44
Sequence:	4D09805	Injection Date:	04/07/14
Lab Sample ID:	4D09805-CCV1	Injection Time:	07:03

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Trichlorofluoromethane	A	100.0	92.71	0.4557045	0.4224932		-7.3	20
1,2,3-Trichloropropane	A	100.0	99.27	0.210121	0.2085863		-0.7	20
1,3,5-Trimethylbenzene	A	100.0	99.71	2.678696	2.67091		-0.3	20
1,2,4-Trimethylbenzene	A	100.0	98.03	2.777591	2.723001		-2.0	20
Vinyl chloride	A	100.0	94.82	0.3518702	0.3336259		-5.2	20
m,p-Xylene	A	200.0	206.4	2.447725	2.52606		3.2	20
o-Xylene	A	100.0	102.1	2.563491	2.61698		2.1	20
Xylenes (total)	A	300.0	308.5	2.486314	2.556367		2.8	20
Bromofluorobenzene	A	30.00	29.58	0.9152505	0.902341		-1.4	20
Dibromofluoromethane	A	30.00	28.82	0.3056235	0.2936085		-3.9	20
1,2-Dichloroethane-d4	A	30.00	28.73	5.998084E-02	5.743896E-02		-4.2	20
Toluene-d8	A	30.00	31.65	2.275363	2.400521		5.5	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0407CCV2.D	Calibration Date:	03/06/14 03:44
Sequence:	4D09805	Injection Date:	04/07/14
Lab Sample ID:	4D09805-CCV2	Injection Time:	07:31

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acetone	A	200.0	190.9	9.693208E-02	0.0925438		-4.5	20
Bromofluorobenzene	A	30.00	29.66	0.9152505	0.905004		-1.1	20
Dibromofluoromethane	A	30.00	29.14	0.3056235	0.296847		-2.9	20
1,2-Dichloroethane-d4	A	30.00	28.40	5.998084E-02	5.677432E-02		-5.3	20
Toluene-d8	A	30.00	30.71	2.275363	2.329514		2.4	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0410CCV1.D	Calibration Date:	03/06/14 03:44
Sequence:	4D10104	Injection Date:	04/10/14
Lab Sample ID:	4D10104-CCV1	Injection Time:	09:04

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acetone	A	200.0	273.4	9.693208E-02	0.132489		36.7	20 *
Benzene	A	100.0	93.37	1.302684	1.21631		-6.6	20
Bromobenzene	A	100.0	99.40	0.8948361	0.8894942		-0.6	20
Bromochloromethane	A	100.0	95.34	0.1793688	0.1710191		-4.7	20
Bromodichloromethane	A	100.0	93.30	0.4412152	0.4116508		-6.7	20
Bromoform	A	100.0	110.0	0.5053899	0.5561778	0.1	10.0	20
Bromomethane	A	100.0	89.23	0.2599127	0.2319305		-10.8	20
n-Butylbenzene	A	100.0	98.45	2.575141	2.5352		-1.6	20
2-Butanone	A	200.0	207.6	0.1660597	0.1723939		3.8	20
sec-Butylbenzene	A	100.0	99.93	3.209345	3.207213		-0.07	20
tert-Butylbenzene	A	100.0	98.27	2.436127	2.393944		-1.7	20
Carbon disulfide	A	100.0	88.98	1.181905	1.051615		-11.0	20
Carbon tetrachloride	A	100.0	98.45	0.3484475	0.3430461		-1.6	20
Chlorobenzene	A	100.0	99.31	1.959272	1.945736	0.3	-0.7	20
Chloroethane	A	100.0	83.24	0.2544659	0.2118091		-16.8	20
Chloroform	A	100.0	88.21	0.5933461	0.5234124		-11.8	20
Chloromethane	A	100.0	81.93	0.4947446	0.4053477	0.1	-18.1	20
2-Chlorotoluene	A	100.0	96.41	2.512339	2.422191		-3.6	20
4-Chlorotoluene	A	100.0	95.61	2.880025	2.753501		-4.4	20
Dibromochloromethane	A	100.0	96.68	0.8222048	0.7948915		-3.3	20
1,2-Dibromo-3-chloropropane	A	100.0	105.1	0.1562258	0.1642538		5.1	20
1,2-Dibromoethane (EDB)	A	100.0	99.19	0.7529259	0.7468279		-0.8	20
Dibromomethane	A	100.0	91.76	0.2257197	0.2071309		-8.2	20
1,2-Dichlorobenzene	A	100.0	99.25	1.539885	1.528386		-0.7	20
1,3-Dichlorobenzene	A	100.0	98.86	1.620325	1.601897		-1.1	20
1,4-Dichlorobenzene	A	100.0	97.22	1.663697	1.617521		-2.8	20
Dichlorodifluoromethane	A	100.0	92.22	0.3786201	0.3491645		-7.8	20
1,1-Dichloroethane	A	100.0	88.31	0.6559393	0.5792402	0.1	-11.7	20
1,2-Dichloroethane	A	100.0	87.58	0.4797593	0.4201937		-12.4	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0410CCV1.D	Calibration Date:	03/06/14 03:44
Sequence:	4D10104	Injection Date:	04/10/14
Lab Sample ID:	4D10104-CCV1	Injection Time:	09:04

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,1-Dichloroethene	A	100.0	95.17	0.2935421	0.279369		-4.8	20
cis-1,2-Dichloroethene	A	100.0	93.77	0.344395	0.3229321		-6.2	20
trans-1,2-Dichloroethene	A	100.0	94.95	0.321752	0.3055131		-5.0	20
1,2-Dichloroethene (total)	A	200.0	188.7	0.3330736	0.3142226		-5.7	20
1,2-Dichloropropane	A	100.0	87.85	0.3782308	0.3322868		-12.1	20
1,3-Dichloropropane	A	100.0	92.41	1.206854	1.115255		-7.6	20
2,2-Dichloropropane	A	100.0	96.14	0.4180605	0.4019178		-3.9	20
1,1-Dichloropropene	A	100.0	88.60	0.4547803	0.4029322		-11.4	20
cis-1,3-Dichloropropene	A	100.0	94.20	0.5108413	0.4812321		-5.8	20
trans-1,3-Dichloropropene	A	100.0	96.22	1.183659	1.138967		-3.8	20
Ethylbenzene	A	100.0	99.07	3.227407	3.19728		-0.9	20
Hexachlorobutadiene	A	100.0	95.10	0.3962034	0.3767811		-4.9	20
2-Hexanone	A	200.0	223.0	0.4886131	0.5447397		11.5	20
Isopropylbenzene	A	100.0	103.2	2.665986	2.750483		3.2	20
p-Isopropyltoluene	A	100.0	98.05	2.719715	2.666636		-2.0	20
Methylene chloride	Q	100.0	91.35	0.4307136	0.3257543		-8.7	20
Naphthalene	A	100.0	106.1	2.134688	2.265762		6.1	20
4-Methyl-2-pentanone	A	200.0	198.6	0.3075311	0.3053426		-0.7	20
Methyl t-Butyl Ether	A	100.0	94.76	0.7901197	0.7486778		-5.2	20
n-Propylbenzene	A	100.0	101.7	3.980533	4.046968		1.7	20
Styrene	A	100.0	107.9	1.93708	2.089831		7.9	20
1,1,2,2-Tetrachloroethane	A	100.0	101.8	0.9280386	0.9447291	0.3	1.8	20
1,1,1,2-Tetrachloroethane	A	100.0	98.97	0.6864766	0.6794218		-1.0	20
Tetrachloroethene	A	100.0	101.2	0.7064185	0.714973		1.2	20
Toluene	A	100.0	99.84	1.723723	1.721049		-0.2	20
1,2,3-Trichlorobenzene	A	100.0	98.49	0.8678374	0.8547726		-1.5	20
1,2,4-Trichlorobenzene	A	100.0	99.38	0.9664658	0.960442		-0.6	20
1,1,2-Trichloroethane	A	100.0	94.75	0.6026965	0.5710334		-5.3	20
1,1,1-Trichloroethane	A	100.0	90.59	0.4353407	0.3943777		-9.4	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0410CCV1.D	Calibration Date:	03/06/14 03:44
Sequence:	4D10104	Injection Date:	04/10/14
Lab Sample ID:	4D10104-CCV1	Injection Time:	09:04

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Trichloroethene	A	100.0	90.20	0.331441	0.298967		-9.8	20
Trichlorofluoromethane	A	100.0	91.62	0.4557045	0.417508		-8.4	20
1,2,3-Trichloropropane	A	100.0	101.2	0.210121	0.2126068		1.2	20
1,3,5-Trimethylbenzene	A	100.0	100.5	2.678696	2.693143		0.5	20
1,2,4-Trimethylbenzene	A	100.0	101.5	2.777591	2.820089		1.5	20
Vinyl chloride	A	100.0	89.37	0.3518702	0.3144575		-10.6	20
m,p-Xylene	A	200.0	202.9	2.447725	2.483762		1.5	20
o-Xylene	A	100.0	95.64	2.563491	2.451744		-4.4	20
Xylenes (total)	A	300.0	298.6	2.486314	2.473091		-0.5	20
Bromofluorobenzene	A	30.00	29.77	0.9152505	0.9082927		-0.8	20
Dibromofluoromethane	A	30.00	28.92	0.3056235	0.2946671		-3.6	20
1,2-Dichloroethane-d4	A	30.00	30.00	5.998084E-02	5.998571E-02		0.008	20
Toluene-d8	A	30.00	31.03	2.275363	2.353843		3.4	20

HOLDING TIME SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LF001-30001	03/31/14 16:26	04/02/14 08:45	04/10/14 14:16	N/A	14.00	04/10/14 14:16	9.87	14.00	
LF001-30002	03/31/14 12:23	04/02/14 08:45	04/10/14 14:43	N/A	14.00	04/10/14 14:43	10.06	14.00	
LF001-30003	03/31/14 16:50	04/02/14 08:45	04/10/14 15:11	N/A	14.00	04/10/14 15:11	9.89	14.00	
LF001-30004	03/31/14 12:36	04/02/14 08:45	04/10/14 15:39	N/A	14.00	04/10/14 15:39	10.09	14.00	
LF001-80001	04/01/14 07:45	04/02/14 08:45	04/10/14 16:07	N/A	14.00	04/10/14 16:07	9.31	14.00	
LF001-80003	03/31/14 08:00	04/02/14 08:45	04/10/14 16:35	N/A	14.00	04/10/14 16:35	10.32	14.00	
LF002-30001	04/03/14 10:49	04/04/14 08:50	04/10/14 17:30	N/A	14.00	04/10/14 17:30	7.24	14.00	
LF002-30002	04/03/14 10:49	04/04/14 08:50	04/07/14 13:06	N/A	14.00	04/07/14 13:06	4.05	14.00	
LF002-30004	04/03/14 15:16	04/04/14 08:50	04/10/14 17:58	N/A	14.00	04/10/14 17:58	7.07	14.00	
LF002-30005	04/02/14 14:21	04/04/14 08:50	04/10/14 18:26	N/A	14.00	04/10/14 18:26	8.13	14.00	
LF002-80001	04/03/14 07:50	04/04/14 08:50	04/10/14 18:54	N/A	14.00	04/10/14 18:54	7.42	14.00	
LF002-80003	04/02/14 08:00	04/04/14 08:50	04/10/14 19:22	N/A	14.00	04/10/14 19:22	8.43	14.00	

PREPARATION BENCH SHEET

4D07017

Empirical Laboratories, LLC

Instrument: VOA4

Printed: 4/11/2014 1:01:43PM

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1403226-01	A	VOC_8260B_REG	04/07/2014	5	5				1	2	select version
1403226-07	B	VOC_8260B_REG	04/07/2014	5	5				1	2	select version
1403226-08	B	VOC_8260B_REG	04/07/2014	5	5				1	2	select version
1403226-09	B	VOC_8260B_REG	04/07/2014	5	5				1	2	MS/MSD
1403230-01RE1	C	VOC_8260B_REG	04/07/2014	5	5				1	2	RR 5x OLR carbon tet
1403231-02RE1	C	VOC_8260B_REG	04/07/2014	5	5				1	2	RR 10x OLR Carbon tet
1404018-01RE1	C	VOC_8260B_REG	04/07/2014	5	5				1	7	RR 200x OLR Acetone, 2-Butanone
1404018-04RE1	C	VOC_8260B_REG	04/07/2014	5	5				1	7	RR 200x OLR Acetone, 2-Butanone
1404027-01	A	VOC_8260B_REG	04/07/2014	5	5				1	2	Water: 7day HT Good CCVs! IStoICAL
1404027-02	B	VOC_8260B_REG	04/07/2014	5	5				1	2	Water: 7day HT Good CCVs! IStoICAL 2x-F
1404027-03	B	VOC_8260B_REG	04/07/2014	5	5				1	7	Water: 7day HT Good CCVs! IStoICAL 2x-F
1404031-01	B	VOC_8260B_REG	04/07/2014	5	5				1	2	TAT Critical / NO exceedences! 1122/VC/TCE/PCE/c12DCE/t12DCE 100x-T
1404031-02	B	VOC_8260B_REG	04/07/2014	5	5				1	2	TAT Critical / NO exceedences! 1122/VC/TCE/PCE/c12DCE/t12DCE 1000x-T
1404031-03	A	VOC_8260B_REG	04/07/2014	5	5				1	2	TAT Critical / NO exceedences! 1122/VC/TCE/PCE/c12DCE/t12DCE
1404041-01	B	VOC_8260B_REG	04/07/2014	5	5				1	2	see versions 2x-T
1404041-03	B	VOC_8260B_REG	04/07/2014	5	5				1	2	see versions
4D07017-BLK1		QC	04/07/2014	5	5				1	NA	
4D07017-BS1		QC	04/07/2014	5	5	14D0002		2.5	1	NA	
4D07017-MS1		QC	04/07/2014	5	5	14D0002	1403226-09	2.5	1	NA	
4D07017-MSD1		QC	04/07/2014	5	5	14D0002	1403226-09	2.5	1	NA	

PREPARATION BENCH SHEET

4D07017

Empirical Laboratories, LLC

Instrument: VOA4

Printed: 4/11/2014 1:01:43PM

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description
12A0699	Anti-foam-JT Baker_AFB

PREPARATION BENCH SHEET

4D10015

Empirical Laboratories, LLC

Instrument: VOA4

Printed: 4/23/2014 4:40:35PM

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404017-01	B	VOC_8260B_REG	04/10/2014	5	5				1	2	see versions
1404017-03	B	VOC_8260B_REG	04/10/2014	5	5				1	2	see versions
1404017-05	B	VOC_8260B_REG	04/10/2014	5	5				1	2	see versions
1404017-07	B	VOC_8260B_REG	04/10/2014	5	5				1	2	see versions
1404017-09	B	VOC_8260B_REG	04/10/2014	5	5				1	2	see versions 2x-F
1404017-11	B	VOC_8260B_REG	04/10/2014	5	5				1	2	see versions
1404028-02	B	VOC_8260B_REG	04/10/2014	5	5				1	2	unpres vials. IS eval back to ICAL midpt 2x-F
1404028-03	A	VOC_8260B_REG	04/10/2014	5	5				1	2	unpres vials. IS eval back to ICAL midpt
1404037-54	A	VOC_8260B_REG	04/10/2014	5	5				1	2	Only 1 vial
1404037-55	A	VOC_8260B_REG	04/10/2014	5	5				1	2	
1404037-56	A	VOC_8260B_REG	04/10/2014	5	5				1	2	
1404041-01RE1	C	VOC_8260B_REG	04/10/2014	5	5				1	2	RR 1x lower
1404041-05	B	VOC_8260B_REG	04/10/2014	5	5				1	2	see versions
1404041-07	B	VOC_8260B_REG	04/10/2014	5	5				1	2	see versions
1404041-09	B	VOC_8260B_REG	04/10/2014	5	5				1	2	see versions 2x-F
1404041-11	B	VOC_8260B_REG	04/10/2014	5	5				1	2	see versions
4D10015-BLK1		QC	04/10/2014	5	5				1	NA	
4D10015-BS1		QC	04/10/2014	5	5	14D0251		2.5	1	NA	
4D10015-BSD1		QC	04/10/2014	5	5	14D0251		2.5	1	NA	

Reagents Used:

Standard	Description
12A0699	Anti-foam-JT Baker_AFB

PREPARATION BENCH SHEET

4D10015

Empirical Laboratories, LLC

Printed: 4/23/2014 4:40:35PM

Instrument: VOA4

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Data for SW6010C / SW7470A Forms

Sample Extraction Data

Prep Method: MET_3005A_LOW-SW6010C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404041-02 [LF002-30001]	4D07013	100.00/25.00	100	25.0	1.00			04/07/14
1404041-04 [LF002-30002]	4D07013	100.00/25.00	100	25.0	1.00			04/07/14
1404041-06 [LF002-30004]	4D07013	100.00/25.00	100	25.0	1.00			04/07/14
1404041-08 [LF002-30005]	4D07013	100.00/25.00	100	25.0	1.00			04/07/14
1404041-10 [LF002-80001]	4D07013	100.00/25.00	100	25.0	1.00			04/07/14

Sample Extraction Data

Prep Method: pMercury-W SW 7470A-SW7470A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404017-07 [LF001-30004]	4D08006	30.00/30.00	30.0	30.0	1.00			04/08/14
1404017-09 [LF001-80001]	4D08006	30.00/30.00	30.0	30.0	1.00			04/08/14

Sample Extraction Data

Prep Method: MET_3005A_LOW-SW6010C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404017-02 [LF001-30001]	4D10009	100.00/25.00	100	25.0	1.00			04/10/14
1404017-04 [LF001-30002]	4D10009	100.00/25.00	100	25.0	1.00			04/10/14
1404017-06 [LF001-30003]	4D10009	100.00/25.00	100	25.0	1.00			04/10/14
1404017-08 [LF001-30004]	4D10009	100.00/25.00	100	25.0	1.00			04/10/14
1404017-10 [LF001-80001]	4D10009	100.00/25.00	100	25.0	1.00			04/10/14

Sample Extraction Data

Prep Method: pMercury-W SW 7470A-SW7470A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404017-01 [LF001-30001]	4D15006	30.00/30.00	30.0	30.0	1.00			04/15/14
1404017-03 [LF001-30002]	4D15006	30.00/30.00	30.0	30.0	1.00			04/15/14
1404017-05 [LF001-30003]	4D15006	30.00/30.00	30.0	30.0	1.00			04/15/14

Sample Extraction Data

Prep Method: pMercury-W SW 7470A-SW7470A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404041-01 [LF002-30001]	4D15008	30.00/30.00	30.0	30.0	1.00			04/15/14
1404041-03 [LF002-30002]	4D15008	30.00/30.00	30.0	30.0	1.00			04/15/14
1404041-05 [LF002-30004]	4D15008	30.00/30.00	30.0	30.0	1.00			04/15/14
1404041-07 [LF002-30005]	4D15008	30.00/30.00	30.0	30.0	1.00			04/15/14
1404041-09 [LF002-80001]	4D15008	30.00/30.00	30.0	30.0	1.00			04/15/14

ANALYSIS DATA SHEET

LF001-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-01
Sampled:	03/31/14 16:26	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15006	04/15/14 11:34

ANALYSIS DATA SHEET

LF001-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-02
Sampled:	03/31/14 16:26	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)	**1.33**	**0.750**	1.50	2.50	1	J	SW6010C	4D10009	04/17/14 15:34
7440-39-3	Barium (dissolved)	**86.1**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 15:34
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 15:34
7440-47-3	Chromium (dissolved)	**2.48**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 15:34
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 15:34
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 15:34
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D10009	04/17/14 15:34
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4D10009	04/17/14 15:34
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 15:34

ANALYSIS DATA SHEET

LF001-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-03
Sampled:	03/31/14 12:23	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15006	04/15/14 11:35

ANALYSIS DATA SHEET

LF001-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-04
Sampled:	03/31/14 12:23	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)	**0.997**	**0.750**	1.50	2.50	1	J	SW6010C	4D10009	04/17/14 15:38
7440-39-3	Barium (dissolved)	**101**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 15:38
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 15:38
7440-47-3	Chromium (dissolved)	**2.06**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 15:38
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 15:38
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 15:38
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D10009	04/17/14 15:38
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4D10009	04/17/14 15:38
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 15:38

ANALYSIS DATA SHEET

LF001-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-05
Sampled:	03/31/14 16:50	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15006	04/15/14 11:36

ANALYSIS DATA SHEET

LF001-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-06
Sampled:	03/31/14 16:50	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)	**1.32**	**0.750**	1.50	2.50	1	J	SW6010C	4D10009	04/17/14 15:43
7440-39-3	Barium (dissolved)	**102**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 15:43
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 15:43
7440-47-3	Chromium (dissolved)	**2.19**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 15:43
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 15:43
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 15:43
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D10009	04/17/14 15:43
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4D10009	04/17/14 15:43
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 15:43

ANALYSIS DATA SHEET

LF001-30004

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-07
Sampled:	03/31/14 12:36	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D08006	04/08/14 18:49

ANALYSIS DATA SHEET

LF001-30004

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-08
Sampled:	03/31/14 12:36	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)	**1.19**	**0.750**	1.50	2.50	1	J	SW6010C	4D10009	04/17/14 16:00
7440-39-3	Barium (dissolved)	**107**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 16:00
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 16:00
7440-47-3	Chromium (dissolved)	**2.64**	**0.500**	1.00	2.50	1		SW6010C	4D10009	04/17/14 16:00
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 16:00
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 16:00
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D10009	04/17/14 16:00
7782-49-2	Selenium (dissolved)	**0.956**	**0.750**	1.25	2.50	1	J	SW6010C	4D10009	04/17/14 16:00
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 16:00

ANALYSIS DATA SHEET

LF001-80001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-09
Sampled:	04/01/14 07:45	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D08006	04/08/14 18:50

ANALYSIS DATA SHEET

LF001-80001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-10
Sampled:	04/01/14 07:45	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D10009	04/17/14 16:05
7440-39-3	Barium (dissolved)		1.25	2.50	10.0	1	U	SW6010C	4D10009	04/17/14 16:05
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 16:05
7440-47-3	Chromium (dissolved)	**2.91**	**0.500**	1.00	2.50	1		SW6010C	4D10009	04/17/14 16:05
7439-89-6	Iron (dissolved)	**23.9**	**7.50**	15.0	25.0	1	J	SW6010C	4D10009	04/17/14 16:05
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 16:05
7439-96-5	Manganese (dissolved)	**3.82**	**0.750**	1.50	3.75	1		SW6010C	4D10009	04/17/14 16:05
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4D10009	04/17/14 16:05
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 16:05

ANALYSIS DATA SHEET

LF002-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-01
Sampled:	04/03/14 10:49	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 11:57

ANALYSIS DATA SHEET

LF002-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-02
Sampled:	04/03/14 10:49	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D07013	04/17/14 13:24
7440-39-3	Barium (dissolved)	**56.2**	**1.25**	2.50	10.0	1		SW6010C	4D07013	04/17/14 13:24
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D07013	04/17/14 13:24
7440-47-3	Chromium (dissolved)	**0.732**	**0.500**	1.00	2.50	1	J	SW6010C	4D07013	04/17/14 13:24
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D07013	04/17/14 13:24
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D07013	04/17/14 13:24
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D07013	04/17/14 13:24
7782-49-2	Selenium (dissolved)	**1.76**	**0.750**	1.25	2.50	1	J	SW6010C	4D07013	04/17/14 13:24
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D07013	04/17/14 13:24

ANALYSIS DATA SHEET

LF002-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-03
Sampled:	04/03/14 10:49	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 11:58

ANALYSIS DATA SHEET

LF002-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-04
Sampled:	04/03/14 10:49	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D07013	04/17/14 13:29
7440-39-3	Barium (dissolved)	**56.4**	**1.25**	2.50	10.0	1		SW6010C	4D07013	04/17/14 13:29
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D07013	04/17/14 13:29
7440-47-3	Chromium (dissolved)	**0.716**	**0.500**	1.00	2.50	1	J	SW6010C	4D07013	04/17/14 13:29
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D07013	04/17/14 13:29
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D07013	04/17/14 13:29
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D07013	04/17/14 13:29
7782-49-2	Selenium (dissolved)	**1.83**	**0.750**	1.25	2.50	1	J	SW6010C	4D07013	04/17/14 13:29
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D07013	04/17/14 13:29

ANALYSIS DATA SHEET

LF002-30004

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-05
Sampled:	04/03/14 15:16	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 11:58

ANALYSIS DATA SHEET

LF002-30004

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-06
Sampled:	04/03/14 15:16	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D07013	04/17/14 13:33
7440-39-3	Barium (dissolved)	**45.6**	**1.25**	2.50	10.0	1		SW6010C	4D07013	04/17/14 13:33
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D07013	04/17/14 13:33
7440-47-3	Chromium (dissolved)	**0.818**	**0.500**	1.00	2.50	1	J	SW6010C	4D07013	04/17/14 13:33
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D07013	04/17/14 13:33
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D07013	04/17/14 13:33
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D07013	04/17/14 13:33
7782-49-2	Selenium (dissolved)	**1.70**	**0.750**	1.25	2.50	1	J	SW6010C	4D07013	04/17/14 13:33
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D07013	04/17/14 13:33

ANALYSIS DATA SHEET

LF002-30005

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-07
Sampled:	04/02/14 14:21	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 11:59

ANALYSIS DATA SHEET

LF002-30005

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-08
Sampled:	04/02/14 14:21	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D07013	04/17/14 13:38
7440-39-3	Barium (dissolved)	**41.5**	**1.25**	2.50	10.0	1		SW6010C	4D07013	04/17/14 13:38
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D07013	04/17/14 13:38
7440-47-3	Chromium (dissolved)	**0.650**	**0.500**	1.00	2.50	1	J	SW6010C	4D07013	04/17/14 13:38
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D07013	04/17/14 13:38
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D07013	04/17/14 13:38
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D07013	04/17/14 13:38
7782-49-2	Selenium (dissolved)	**1.95**	**0.750**	1.25	2.50	1	J	SW6010C	4D07013	04/17/14 13:38
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D07013	04/17/14 13:38

ANALYSIS DATA SHEET

LF002-80001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-09
Sampled:	04/03/14 07:50	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 12:00

ANALYSIS DATA SHEET

LF002-80001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-10
Sampled:	04/03/14 07:50	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D07013	04/17/14 13:43
7440-39-3	Barium (dissolved)		1.25	2.50	10.0	1	U	SW6010C	4D07013	04/17/14 13:43
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D07013	04/17/14 13:43
7440-47-3	Chromium (dissolved)		0.500	1.00	2.50	1	U	SW6010C	4D07013	04/17/14 13:43
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D07013	04/17/14 13:43
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D07013	04/17/14 13:43
7439-96-5	Manganese (dissolved)	**1.23**	**0.750**	1.50	3.75	1	J	SW6010C	4D07013	04/17/14 13:43
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4D07013	04/17/14 13:43
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D07013	04/17/14 13:43

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D07013-BLK1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4D07013	04/17/14 11:40
7440-39-3	Barium (dissolved)	ND	1.25	2.50	10.0	1	U	SW6010C	4D07013	04/17/14 11:40
7440-43-9	Cadmium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4D07013	04/17/14 11:40
7440-47-3	Chromium (dissolved)	ND	0.500	1.00	2.50	1	U	SW6010C	4D07013	04/17/14 11:40
7439-89-6	Iron (dissolved)	ND	7.50	15.0	25.0	1	U	SW6010C	4D07013	04/17/14 11:40
7439-92-1	Lead (dissolved)	ND	0.375	0.750	0.750	1	U	SW6010C	4D07013	04/17/14 11:40
7439-96-5	Manganese (dissolved)	ND	0.750	1.50	3.75	1	U	SW6010C	4D07013	04/17/14 11:40
7782-49-2	Selenium (dissolved)	ND	0.750	1.25	2.50	1	U	SW6010C	4D07013	04/17/14 11:40
7440-22-4	Silver (dissolved)	ND	0.250	0.500	2.50	1	U	SW6010C	4D07013	04/17/14 11:40

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D07013-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)	**4.252**	**0.750**	1.50	2.50	1		SW6010C	4D07013	04/17/14 11:44
7440-39-3	Barium (dissolved)	**34.28**	**1.25**	2.50	10.0	1		SW6010C	4D07013	04/17/14 11:44
7440-43-9	Cadmium (dissolved)	**2.229**	**0.250**	0.500	1.25	1		SW6010C	4D07013	04/17/14 11:44
7440-47-3	Chromium (dissolved)	**3.737**	**0.500**	1.00	2.50	1		SW6010C	4D07013	04/17/14 11:44
7439-89-6	Iron (dissolved)	**20.12**	**7.50**	15.0	25.0	1	J	SW6010C	4D07013	04/17/14 11:44
7439-92-1	Lead (dissolved)	**4.672**	**0.375**	0.750	0.750	1		SW6010C	4D07013	04/17/14 11:44
7439-96-5	Manganese (dissolved)	**9.981**	**0.750**	1.50	3.75	1		SW6010C	4D07013	04/17/14 11:44
7782-49-2	Selenium (dissolved)	**4.644**	**0.750**	1.25	2.50	1		SW6010C	4D07013	04/17/14 11:44
7440-22-4	Silver (dissolved)	**4.830**	**0.250**	0.500	2.50	1		SW6010C	4D07013	04/17/14 11:44

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D08006-BLK1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	ND	0.0800	0.160	0.200	1	U	SW7470A	4D08006	04/08/14 18:22

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D08006-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	**1.691**	**0.0800**	0.160	0.200	1		SW7470A	4D08006	04/08/14 18:25

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D10009-BLK1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4D10009	04/17/14 14:35
7440-39-3	Barium (dissolved)	ND	1.25	2.50	10.0	1	U	SW6010C	4D10009	04/17/14 14:35
7440-43-9	Cadmium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 14:35
7440-47-3	Chromium (dissolved)	ND	0.500	1.00	2.50	1	U	SW6010C	4D10009	04/17/14 14:35
7439-89-6	Iron (dissolved)	ND	7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 14:35
7439-92-1	Lead (dissolved)	ND	0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 14:35
7439-96-5	Manganese (dissolved)	ND	0.750	1.50	3.75	1	U	SW6010C	4D10009	04/17/14 14:35
7782-49-2	Selenium (dissolved)	ND	0.750	1.25	2.50	1	U	SW6010C	4D10009	04/17/14 14:35
7440-22-4	Silver (dissolved)	ND	0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 14:35

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D10009-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)	**4.686**	**0.750**	1.50	2.50	1		SW6010C	4D10009	04/17/14 14:40
7440-39-3	Barium (dissolved)	**35.05**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 14:40
7440-43-9	Cadmium (dissolved)	**2.318**	**0.250**	0.500	1.25	1		SW6010C	4D10009	04/17/14 14:40
7440-47-3	Chromium (dissolved)	**3.743**	**0.500**	1.00	2.50	1		SW6010C	4D10009	04/17/14 14:40
7439-89-6	Iron (dissolved)	**18.07**	**7.50**	15.0	25.0	1	J	SW6010C	4D10009	04/17/14 14:40
7439-92-1	Lead (dissolved)	**4.697**	**0.375**	0.750	0.750	1		SW6010C	4D10009	04/17/14 14:40
7439-96-5	Manganese (dissolved)	**9.632**	**0.750**	1.50	3.75	1		SW6010C	4D10009	04/17/14 14:40
7782-49-2	Selenium (dissolved)	**4.446**	**0.750**	1.25	2.50	1		SW6010C	4D10009	04/17/14 14:40
7440-22-4	Silver (dissolved)	**4.830**	**0.250**	0.500	2.50	1		SW6010C	4D10009	04/17/14 14:40

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D15006-BLK1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	ND	0.0800	0.160	0.200	1	U	SW7470A	4D15006	04/15/14 11:28

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D15006-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	**1.748**	**0.0800**	0.160	0.200	1		SW7470A	4D15006	04/15/14 11:29

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D15008-BLK1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	ND	0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 11:55

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D15008-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	**1.919**	**0.0800**	0.160	0.200	1		SW7470A	4D15008	04/15/14 11:56

INITIAL AND CONTINUING CALIBRATION CHECK

SW7470A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Calibration: 4098005
Sequence: 4D09817

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D09817-ICV1	Mercury	4.000	4.045	101	ug/L	+/- 20.00%
4D09817-CCV4	Mercury	4.000	4.102	103	ug/L	+/- 20.00%
4D09817-CCV5	Mercury	2.000	2.138	107	ug/L	+/- 20.00%
4D09817-CCV6	Mercury	2.000	2.048	102	ug/L	+/- 20.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW7470A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Calibration: 4106004
Sequence: 4D10611

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D10611-ICV1	Mercury	4.000	4.015	100	ug/L	+/- 20.00%
4D10611-CCV1	Mercury	2.000	2.019	101	ug/L	+/- 20.00%
4D10611-CCV2	Mercury	2.000	2.040	102	ug/L	+/- 20.00%
4D10611-CCV3	Mercury	4.000	3.796	94.9	ug/L	+/- 20.00%
4D10611-CCV4	Mercury	4.000	3.825	95.6	ug/L	+/- 20.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Calibration: 4107004
Sequence: 4D10710

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D10710-ICV1	Arsenic (dissolved)	1000	1043	104	ug/L	+/- 10.00%
	Barium (dissolved)	1000	965.0	96.5	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	1017	102	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	974.5	97.4	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10380	104	ug/L	+/- 10.00%
	Lead (dissolved)	1000	963.8	96.4	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1016	102	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1050	105	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	480.7	96.1	ug/L	+/- 10.00%
4D10710-CCV1	Arsenic (dissolved)	1000	1035	104	ug/L	+/- 10.00%
	Barium (dissolved)	1000	962.0	96.2	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	1018	102	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	989.2	98.9	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10390	104	ug/L	+/- 10.00%
	Lead (dissolved)	1000	970.4	97.0	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1029	103	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1065	107	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	476.5	95.3	ug/L	+/- 10.00%
4D10710-CCV2	Arsenic (dissolved)	1000	1040	104	ug/L	+/- 10.00%
	Barium (dissolved)	1000	963.5	96.4	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	1016	102	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	990.3	99.0	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10380	104	ug/L	+/- 10.00%
	Lead (dissolved)	1000	968.7	96.9	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1011	101	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1062	106	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	478.5	95.7	ug/L	+/- 10.00%
4D10710-CCV3	Arsenic (dissolved)	1000	1064	106	ug/L	+/- 10.00%
	Barium (dissolved)	1000	969.8	97.0	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	1038	104	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	1002	100	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10130	101	ug/L	+/- 10.00%
	Lead (dissolved)	1000	966.0	96.6	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1011	101	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1054	105	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	491.6	98.3	ug/L	+/- 10.00%
4D10710-CCV4	Arsenic (dissolved)	1000	1079	108	ug/L	+/- 10.00%
	Barium (dissolved)	1000	975.2	97.5	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Calibration: 4107004
Sequence: 4D10710

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D10710-CCV4	Cadmium (dissolved)	1000	1052	105	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	989.1	98.9	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10030	100	ug/L	+/- 10.00%
	Lead (dissolved)	1000	967.1	96.7	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1002	100	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1057	106	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	488.8	97.8	ug/L	+/- 10.00%
4D10710-CCV5	Arsenic (dissolved)	1000	1082	108	ug/L	+/- 10.00%
	Barium (dissolved)	1000	979.6	98.0	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	1052	105	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	1000	100	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10050	100	ug/L	+/- 10.00%
	Lead (dissolved)	1000	972.4	97.2	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1007	101	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1066	107	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	496.0	99.2	ug/L	+/- 10.00%
4D10710-CCV6	Arsenic (dissolved)	1000	1065	107	ug/L	+/- 10.00%
	Barium (dissolved)	1000	968.6	96.9	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	1039	104	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	991.7	99.2	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10120	101	ug/L	+/- 10.00%
	Lead (dissolved)	1000	964.2	96.4	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	997.4	99.7	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1054	105	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	484.9	97.0	ug/L	+/- 10.00%

CRDL STANDARD

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4107004
Sequence: 4D10710

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4D10710-CRL1	Barium (dissolved)	10.00	8.659	86.6	ug/L	80 - 120
	Cadmium (dissolved)	2.000	1.685	84.2	ug/L	80 - 120
	Chromium (dissolved)	4.000	3.583	89.6	ug/L	80 - 120
	Iron (dissolved)	60.00	58.65	97.8	ug/L	80 - 120
	Lead (dissolved)	3.000	3.120	104	ug/L	80 - 120
	Manganese (dissolved)	6.000	5.963	99.4	ug/L	80 - 120
	Silver (dissolved)	2.000	1.885	94.2	ug/L	80 - 120
4D10710-CRL3	Arsenic (dissolved)	5.000	5.522	110	ug/L	80 - 120
	Selenium (dissolved)	5.000	4.317	86.3	ug/L	80 - 120

BLANKS
SW7470A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS
Project: Kirtland AFB (ECOS)
Sequence: 4D09817
Calibration: 4098005

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D09817-ICB1	Mercury	-0.07672	0.0800	0.200	ug/L	U	SW7470A
4D09817-CCB4	Mercury	-0.0893	0.0800	0.200	ug/L	J	SW7470A
4D08006-BLK1	Mercury	-0.0847	0.0800	0.200	ug/L	J	SW7470A
4D09817-CCB5	Mercury	-0.0854	0.0800	0.200	ug/L	J	SW7470A
4D09817-CCB6	Mercury	-0.0815	0.0800	0.200	ug/L	J	SW7470A

BLANKS
SW7470A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS
Project: Kirtland AFB (ECOS)
Sequence: 4D10611
Calibration: 4106004

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D10611-ICB1	Mercury	-0.04740	0.0800	0.200	ug/L	U	SW7470A
4D10611-CCB1	Mercury	-0.0294	0.0800	0.200	ug/L	U	SW7470A
4D15006-BLK1	Mercury	-0.0460	0.0800	0.200	ug/L	U	SW7470A
4D10611-CCB2	Mercury	-0.0564	0.0800	0.200	ug/L	U	SW7470A
4D10611-CCB3	Mercury	-0.0389	0.0800	0.200	ug/L	U	SW7470A
4D15008-BLK1	Mercury	-0.0445	0.0800	0.200	ug/L	U	SW7470A
4D10611-CCB4	Mercury	-0.0466	0.0800	0.200	ug/L	U	SW7470A

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4D10710
Calibration: 4107004

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D10710-ICB1	Arsenic (dissolved)	0.6473	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	-0.06812	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.06587	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	0.06047	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	7.058	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.4791	1.50	3.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.02819	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.7272	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.1235	1.00	10.0	ug/L	U	SW6010C
4D10710-CCB1	Arsenic (dissolved)	0.0552	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	-0.0363	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	0.00121	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	0.0662	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	9.32	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.405	1.50	3.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.299	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.511	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.00987	1.00	10.0	ug/L	U	SW6010C
4D07013-BLK1	Arsenic (dissolved)	-0.0433	0.750	2.50	ug/L	U	SW6010C
	Barium (dissolved)	-0.00894	1.25	10.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.00517	0.250	1.25	ug/L	U	SW6010C
	Chromium (dissolved)	0.0347	0.500	2.50	ug/L	U	SW6010C
	Iron (dissolved)	2.08	7.50	25.0	ug/L	U	SW6010C
	Lead (dissolved)	0.0171	0.375	0.750	ug/L	U	SW6010C
	Manganese (dissolved)	0.138	0.750	3.75	ug/L	U	SW6010C
	Selenium (dissolved)	-0.212	0.750	2.50	ug/L	U	SW6010C
	Silver (dissolved)	-0.0703	0.250	2.50	ug/L	U	SW6010C
4D10710-CCB2	Arsenic (dissolved)	-0.152	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	0.0569	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.0237	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	0.0929	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	-0.991	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.522	1.50	3.00	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4D10710
Calibration: 4107004

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D10710-CCB2	Manganese (dissolved)	0.0797	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.396	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.375	1.00	10.0	ug/L	U	SW6010C
4D10710-CCB3	Arsenic (dissolved)	-0.132	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	-0.0397	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.0125	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	0.0996	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	-3.15	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.645	1.50	3.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.0490	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.213	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.0749	1.00	10.0	ug/L	U	SW6010C
4D10710-CCB4	Arsenic (dissolved)	0.367	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	-0.0619	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.0771	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	-0.0135	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	-4.17	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.712	1.50	3.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.000410	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.0859	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.212	1.00	10.0	ug/L	U	SW6010C
4D10009-BLK1	Arsenic (dissolved)	0.0722	0.750	2.50	ug/L	U	SW6010C
	Barium (dissolved)	-0.0189	1.25	10.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.0212	0.250	1.25	ug/L	U	SW6010C
	Chromium (dissolved)	0.0133	0.500	2.50	ug/L	U	SW6010C
	Iron (dissolved)	-0.398	7.50	25.0	ug/L	U	SW6010C
	Lead (dissolved)	0.00348	0.375	0.750	ug/L	U	SW6010C
	Manganese (dissolved)	0.0266	0.750	3.75	ug/L	U	SW6010C
	Selenium (dissolved)	-0.229	0.750	2.50	ug/L	U	SW6010C
	Silver (dissolved)	-0.0354	0.250	2.50	ug/L	U	SW6010C
4D10710-CCB5	Arsenic (dissolved)	0.145	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	0.0263	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.0131	1.00	5.00	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4D10710
Calibration: 4107004

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D10710-CCB5	Chromium (dissolved)	-0.103	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	-3.35	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.442	1.50	3.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.0325	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.636	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.250	1.00	10.0	ug/L	U	SW6010C
4D10710-CCB6	Arsenic (dissolved)	1.07	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	0.0260	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.0152	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	0.0694	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	-2.92	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.0195	1.50	3.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.0342	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.0568	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.0206	1.00	10.0	ug/L	U	SW6010C

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4107004
Sequence: 4D10710

Lab Sample ID	Analyte	True	Found	%R	Units
4D10710-IFA1	Arsenic (dissolved)		0.40		ug/L
	Barium (dissolved)		1.02		ug/L
	Cadmium (dissolved)		1.29		ug/L
	Chromium (dissolved)		-1.25		ug/L
	Iron (dissolved)	200000	198,930.00	99.5	ug/L
	Lead (dissolved)		-2.10		ug/L
	Manganese (dissolved)		-1.22		ug/L
	Selenium (dissolved)		-1.67		ug/L
	Silver (dissolved)		-0.79		ug/L
4D10710-IFB1	Arsenic (dissolved)	100.0	110.78	111	ug/L
	Barium (dissolved)	500.0	516.45	103	ug/L
	Cadmium (dissolved)	1000	1,053.50	105	ug/L
	Chromium (dissolved)	500.0	476.87	95.4	ug/L
	Iron (dissolved)	200000	199,570.00	99.8	ug/L
	Lead (dissolved)	50.00	45.00	90.0	ug/L
	Manganese (dissolved)	500.0	501.85	100	ug/L
	Selenium (dissolved)	50.00	55.31	111	ug/L
	Silver (dissolved)	200.0	192.24	96.1	ug/L

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D07013	Laboratory ID:	4D07013-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Arsenic (dissolved)	5.000	4.252	85.0	80 - 120
Barium (dissolved)	40.00	34.28	85.7	80 - 120
Cadmium (dissolved)	2.500	2.229	89.2	80 - 120
Chromium (dissolved)	4.000	3.737	93.4	80 - 120
Iron (dissolved)	20.00	20.12	101	80 - 120
Lead (dissolved)	5.000	4.672	93.4	80 - 120
Manganese (dissolved)	10.00	9.981	99.8	80 - 120
Selenium (dissolved)	5.000	4.644	92.9	80 - 120
Silver (dissolved)	5.000	4.830	96.6	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D08006	Laboratory ID:	4D08006-BS1
Preparation:	pMercury-W SW 7470A	Initial/Final:	30 mL / 30 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Mercury	2.000	1.691	84.5	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D10009	Laboratory ID:	4D10009-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Arsenic (dissolved)	5.000	4.686	93.7	80 - 120
Barium (dissolved)	40.00	35.05	87.6	80 - 120
Cadmium (dissolved)	2.500	2.318	92.7	80 - 120
Chromium (dissolved)	4.000	3.743	93.6	80 - 120
Iron (dissolved)	20.00	18.07	90.4	80 - 120
Lead (dissolved)	5.000	4.697	93.9	80 - 120
Manganese (dissolved)	10.00	9.632	96.3	80 - 120
Selenium (dissolved)	5.000	4.446	88.9	80 - 120
Silver (dissolved)	5.000	4.830	96.6	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D15006	Laboratory ID:	4D15006-BS1
Preparation:	pMercury-W SW 7470A	Initial/Final:	30 mL / 30 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Mercury	2.000	1.748	87.4	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D15008	Laboratory ID:	4D15008-BS1
Preparation:	pMercury-W SW 7470A	Initial/Final:	30 mL / 30 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Mercury	2.000	1.919	95.9	80 - 120

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10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_008

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Al	Ca	Fe	Mg	Ag
Arsenic	189.042	-0.000011	0.000000	-0.00004	0.000000	0.000000
Arsenic	189.042	-0.000011	0.000000	-0.00004	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000005	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000005	0.000000	0.000000
Cadmium	214.438	0.000008	0.003803	0.000029	0.000000	0.000000
Cadmium	214.438	0.000008	0.003803	0.000029	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000003	0.005608	0.000000
Chromium	267.716	0.000000	0.000000	0.000003	0.005608	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	-0.000132	0.000000	0.000026	0.000000	0.000000
Lead	220.3	-0.000132	0.000000	0.000026	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000025	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000025	0.000000	0.000000
Selenium	196.09	0.000015	-0.007295	0.000025	0.000000	0.000000
Selenium	196.09	0.000015	-0.007295	0.000025	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000004	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000004	0.000000	0.000000

Comments:

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10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_008

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: As	B	Ba	Be	Cd
Arsenic	189.042	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000313	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000313	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000043
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000043
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.000000

Comments:

FORM XA-IN

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10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_008

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Co	Cr	Cu	K	Mn
Arsenic	189.042	0.000000	0.000195	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000195	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	-0.000301	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	-0.000301	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000088
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000088
Iron	261.187	0.000000	-0.000701	0.000000	0.000000	-0.000794
Iron	261.187	0.000000	-0.000701	0.000000	0.000000	-0.000794
Lead	220.3	-0.000003	0.000000	0.001073	0.000000	0.000116
Lead	220.3	-0.000003	0.000000	0.001073	0.000000	0.000116
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.00061
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.00061
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.00014
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.00014

Comments:

FORM XA-IN

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10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_008

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Mo	Na	Ni	Pb	Sb
Arsenic	189.042	0.000577	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000577	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000105	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000105	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	-0.000317	0.000000	0.000224	0.000000	0.000000
Lead	220.3	-0.000317	0.000000	0.000224	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.09	0.000166	0.000000	0.000039	0.000000	0.000000
Selenium	196.09	0.000166	0.000000	0.000039	0.000000	0.000000
Silver	328.068	-0.000046	0.000000	0.000000	0.000000	0.000000
Silver	328.068	-0.000046	0.000000	0.000000	0.000000	0.000000

Comments:

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10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_008

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Se	Sn	Ti	Tl	V
Arsenic	189.042	0.000000	0.000000	0.000075	0.000000	0.000084
Arsenic	189.042	0.000000	0.000000	0.000075	0.000000	0.000084
Barium	233.527	0.000000	0.000000	0.000000	0.000000	-0.002594
Barium	233.527	0.000000	0.000000	0.000000	0.000000	-0.002594
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000	0.00003
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000	0.00003
Chromium	267.716	0.000000	0.000000	0.000123	0.000000	-0.000018
Chromium	267.716	0.000000	0.000000	0.000123	0.000000	-0.000018
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	0.000000	0.000000	-0.000006	0.000000	-0.00007
Lead	220.3	0.000000	0.000000	-0.000006	0.000000	-0.00007
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.09	0.000000	0.000000	0.000022	0.000000	0.000180
Selenium	196.09	0.000000	0.000000	0.000022	0.000000	0.000180
Silver	328.068	0.000000	0.000000	0.000000	0.000000	-0.002831
Silver	328.068	0.000000	0.000000	0.000000	0.000000	-0.002831

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_008

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: Zn				
Arsenic	189.042	-0.000011				
Arsenic	189.042	-0.000011				
Barium	233.527	0.000000				
Barium	233.527	0.000000				
Cadmium	214.438	0.000000				
Cadmium	214.438	0.000000				
Chromium	267.716	0.000000				
Chromium	267.716	0.000000				
Iron	261.187	0.000000				
Iron	261.187	0.000000				
Lead	220.3	0.000000				
Lead	220.3	0.000000				
Manganese	257.61	0.000000				
Manganese	257.61	0.000000				
Selenium	196.09	0.000000				
Selenium	196.09	0.000000				
Silver	328.068	0.000000				
Silver	328.068	0.000000				

Comments:

FORM XA-IN

ICP-AES AND ICP-MS LINEAR RANGES

Lab Name: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc. SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

ICP Instrument ID: ME-ICP Date: 12/27/2013

Analyte	Integ. Time (Sec.)	Concentration ug/L	M
Arsenic	15	10000	P
Arsenic	15	10000	P
Barium	15	5000	P
Barium	15	5000	P
Cadmium	15	10000	P
Cadmium	15	10000	P
Chromium	15	10000	P
Chromium	15	10000	P
Iron	15	500000	P
Iron	15	500000	P
Lead	15	25000	P
Lead	15	25000	P
Manganese	15	15000	P
Manganese	15	15000	P
Selenium	15	10000	P
Selenium	15	10000	P
Silver	15	2000	P
Silver	15	2000	P

PREPARATION BATCH SUMMARY

SW6010C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D07013 Batch Matrix: Water Preparation: MET_3005A_LOW

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30001	1404041-02	04/07/14 08:28	100.00	25.00
LF002-30002	1404041-04	04/07/14 08:28	100.00	25.00
LF002-30004	1404041-06	04/07/14 08:28	100.00	25.00
LF002-30005	1404041-08	04/07/14 08:28	100.00	25.00
LF002-80001	1404041-10	04/07/14 08:28	100.00	25.00
Blank	4D07013-BLK1	04/07/14 08:28	100.00	25.00
LCS	4D07013-BS1	04/07/14 08:28	100.00	25.00

PREPARATION BATCH SUMMARY

SW7470A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D08006 Batch Matrix: Water Preparation: pMercury-W SW 7470A

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF001-30004	1404017-07	04/08/14 08:32	30.00	30.00
LF001-80001	1404017-09	04/08/14 08:32	30.00	30.00
Blank	4D08006-BLK1	04/08/14 08:32	30.00	30.00
LCS	4D08006-BS1	04/08/14 08:32	30.00	30.00

PREPARATION BATCH SUMMARY

SW6010C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D10009 Batch Matrix: Water Preparation: MET_3005A_LOW

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF001-30001	1404017-02	04/10/14 08:55	100.00	25.00
LF001-30002	1404017-04	04/10/14 08:55	100.00	25.00
LF001-30003	1404017-06	04/10/14 08:55	100.00	25.00
LF001-30004	1404017-08	04/10/14 08:55	100.00	25.00
LF001-80001	1404017-10	04/10/14 08:55	100.00	25.00
Blank	4D10009-BLK1	04/10/14 08:55	100.00	25.00
LCS	4D10009-BS1	04/10/14 08:55	100.00	25.00

PREPARATION BATCH SUMMARY

SW7470A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D15006 Batch Matrix: Water Preparation: pMercury-W SW 7470A

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF001-30001	1404017-01	04/15/14 10:04	30.00	30.00
LF001-30002	1404017-03	04/15/14 10:04	30.00	30.00
LF001-30003	1404017-05	04/15/14 10:04	30.00	30.00
Blank	4D15006-BLK1	04/15/14 10:04	30.00	30.00
LCS	4D15006-BS1	04/15/14 10:04	30.00	30.00

PREPARATION BATCH SUMMARY

SW7470A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D15008 Batch Matrix: Water Preparation: pMercury-W SW 7470A

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30001	1404041-01	04/15/14 10:08	30.00	30.00
LF002-30002	1404041-03	04/15/14 10:08	30.00	30.00
LF002-30004	1404041-05	04/15/14 10:08	30.00	30.00
LF002-30005	1404041-07	04/15/14 10:08	30.00	30.00
LF002-80001	1404041-09	04/15/14 10:08	30.00	30.00
Blank	4D15008-BLK1	04/15/14 10:08	30.00	30.00
LCS	4D15008-BS1	04/15/14 10:08	30.00	30.00

ANALYSIS SEQUENCE SUMMARY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D09817	Instrument:	ME-FIMS
Calibration:	4098005		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4D09817-CAL1	040814w-001	04/08/14 17:19
Cal Standard	4D09817-CAL2	040814w-002	04/08/14 17:20
Cal Standard	4D09817-CAL3	040814w-003	04/08/14 17:21
Cal Standard	4D09817-CAL4	040814w-004	04/08/14 17:22
Cal Standard	4D09817-CAL5	040814w-005	04/08/14 17:23
Cal Standard	4D09817-CAL6	040814w-006	04/08/14 17:24
Cal Standard	4D09817-CAL7	040814w-007	04/08/14 17:26
Cal Standard	4D09817-CAL8	040814w-008	04/08/14 17:27
Initial Cal Check	4D09817-ICV1	040814w-009	04/08/14 17:28
Initial Cal Blank	4D09817-ICB1	040814w-010	04/08/14 17:30
Calibration Check	4D09817-CCV4	040814w-054	04/08/14 18:20
Calibration Blank	4D09817-CCB4	040814w-055	04/08/14 18:21
Blank	4D08006-BLK1	040814w-056	04/08/14 18:22
LCS	4D08006-BS1	040814w-057	04/08/14 18:25
Calibration Check	4D09817-CCV5	040814w-070	04/08/14 18:43
Calibration Blank	4D09817-CCB5	040814w-071	04/08/14 18:44
LF001-30004	1404017-07	040814w-077	04/08/14 18:49
LF001-80001	1404017-09	040814w-078	04/08/14 18:50
Calibration Check	4D09817-CCV6	040814w-083	04/08/14 18:55
Calibration Blank	4D09817-CCB6	040814w-084	04/08/14 18:56

ANALYSIS SEQUENCE SUMMARY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10611	Instrument:	ME-FIMS
Calibration:	4106004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4D10611-CAL1	041614W-001	04/15/14 11:04
Cal Standard	4D10611-CAL2	041614W-002	04/15/14 11:05
Cal Standard	4D10611-CAL3	041614W-003	04/15/14 11:06
Cal Standard	4D10611-CAL4	041614W-004	04/15/14 11:07
Cal Standard	4D10611-CAL5	041614W-005	04/15/14 11:08
Cal Standard	4D10611-CAL6	041614W-006	04/15/14 11:10
Cal Standard	4D10611-CAL7	041614W-007	04/15/14 11:11
Initial Cal Check	4D10611-ICV1	041614W-008	04/15/14 11:14
Initial Cal Blank	4D10611-ICB1	041614W-009	04/15/14 11:15
Calibration Check	4D10611-CCV1	041614W-017	04/15/14 11:26
Calibration Blank	4D10611-CCB1	041614W-018	04/15/14 11:27
Blank	4D15006-BLK1	041614W-019	04/15/14 11:28
LCS	4D15006-BS1	041614W-020	04/15/14 11:29
LF001-30001	1404017-01	041614W-025	04/15/14 11:34
LF001-30002	1404017-03	041614W-026	04/15/14 11:35
LF001-30003	1404017-05	041614W-027	04/15/14 11:36
Calibration Check	4D10611-CCV2	041614W-033	04/15/14 11:41
Calibration Blank	4D10611-CCB2	041614W-034	04/15/14 11:42
Calibration Check	4D10611-CCV3	041614W-045	04/15/14 11:53
Calibration Blank	4D10611-CCB3	041614W-046	04/15/14 11:54
Blank	4D15008-BLK1	041614W-047	04/15/14 11:55
LCS	4D15008-BS1	041614W-048	04/15/14 11:56
LF002-30001	1404041-01	041614W-049	04/15/14 11:57
LF002-30002	1404041-03	041614W-050	04/15/14 11:58
LF002-30004	1404041-05	041614W-051	04/15/14 11:58
LF002-30005	1404041-07	041614W-052	04/15/14 11:59
LF002-80001	1404041-09	041614W-053	04/15/14 12:00
Calibration Check	4D10611-CCV4	041614W-059	04/15/14 12:05
Calibration Blank	4D10611-CCB4	041614W-060	04/15/14 12:07

ANALYSIS SEQUENCE SUMMARY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10710	Instrument:	ME-ICP
Calibration:	4107004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4D10710-CAL1	4-17-14A-001	04/17/14 09:22
Cal Standard	4D10710-CAL2	4-17-14A-002	04/17/14 09:25
Cal Standard	4D10710-CAL3	4-17-14A-003	04/17/14 09:29
Cal Standard	4D10710-CAL4	4-17-14A-004	04/17/14 09:33
Cal Standard	4D10710-CAL5	4-17-14A-005	04/17/14 09:38
Cal Standard	4D10710-CAL6	4-17-14A-006	04/17/14 09:42
Initial Cal Check	4D10710-ICV1	4-17-14B-001	04/17/14 10:40
Initial Cal Blank	4D10710-ICB1	4-17-14B-002	04/17/14 10:47
Instrument RL Check	4D10710-CRL1	4-17-14B-004	04/17/14 10:57
Instrument RL Check	4D10710-CRL3	4-17-14B-006	04/17/14 11:09
Interference Check A	4D10710-IFA1	4-17-14B-007	04/17/14 11:14
Interference Check B	4D10710-IFB1	4-17-14B-008	04/17/14 11:20
Calibration Check	4D10710-CCV1	4-17-14B-010	04/17/14 11:28
Calibration Blank	4D10710-CCB1	4-17-14B-011	04/17/14 11:36
Blank	4D07013-BLK1	4-17-14B-012	04/17/14 11:40
LCS	4D07013-BS1	4-17-14B-013	04/17/14 11:44
Calibration Check	4D10710-CCV2	4-17-14B-024	04/17/14 12:35
Calibration Blank	4D10710-CCB2	4-17-14B-025	04/17/14 12:43
LF002-30001	1404041-02	4-17-14B-034	04/17/14 13:24
LF002-30002	1404041-04	4-17-14B-035	04/17/14 13:29
LF002-30004	1404041-06	4-17-14B-036	04/17/14 13:33
LF002-30005	1404041-08	4-17-14B-037	04/17/14 13:38
LF002-80001	1404041-10	4-17-14B-038	04/17/14 13:43
Calibration Check	4D10710-CCV3	4-17-14B-039	04/17/14 13:48
Calibration Blank	4D10710-CCB3	4-17-14B-040	04/17/14 13:55
Calibration Check	4D10710-CCV4	4-17-14B-044	04/17/14 14:22
Calibration Blank	4D10710-CCB4	4-17-14B-045	04/17/14 14:30
Blank	4D10009-BLK1	4-17-14C-001	04/17/14 14:35
LCS	4D10009-BS1	4-17-14C-002	04/17/14 14:40
LF001-30001	1404017-02	4-17-14C-014	04/17/14 15:34
LF001-30002	1404017-04	4-17-14C-015	04/17/14 15:38
LF001-30003	1404017-06	4-17-14C-016	04/17/14 15:43

ANALYSIS SEQUENCE SUMMARY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10710	Instrument:	ME-ICP
Calibration:	4107004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4D10710-CCV5	4-17-14C-017	04/17/14 15:48
Calibration Blank	4D10710-CCB5	4-17-14C-018	04/17/14 15:56
LF001-30004	1404017-08	4-17-14C-019	04/17/14 16:00
LF001-80001	1404017-10	4-17-14C-020	04/17/14 16:05
Calibration Check	4D10710-CCV6	4-17-14C-031	04/17/14 16:55
Calibration Blank	4D10710-CCB6	4-17-14C-032	04/17/14 17:03

INITIAL CALIBRATION DATA

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4098005	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/8/14 17:19	4/8/14 17:27

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	0	0	0.2	0.00373	0.5	0.004174	1	0.003692	2	0.0039725	4	3.62125E-03

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4098005	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/8/14 17:19	4/8/14 17:27

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	6	3.840666E-03	10	0.0034866								

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4098005	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/8/14 17:19	4/8/14 17:27

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Mercury	3.314627E-03	40.91303	0	0	0.9969047		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4106004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/15/14 11:04	4/15/14 11:11

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	0	0	0.2	0.007635	0.5	0.00543	1	0.004441	2	0.004472	4	4.95375E-03

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4106004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/15/14 11:04	4/15/14 11:11

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	6	4.263167E-03										

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4106004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/15/14 11:04	4/15/14 11:11

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Mercury	4.456417E-03	51.16683	0	0	0.9914818		0.99	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4107004	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	4/17/14 9:22 4/17/14 9:59

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum	0	0	5000	2.1816E-05	10000	2.208E-05			500000	2.168E-05		
Antimony	0	0	100	0.0004051	1000	5.1618E-04					10000	5.2144E-04
Arsenic	0	0	100	0.000246	1000	2.8129E-04					10000	2.6872E-04
Barium	0	0	50	0.0086392	1000	0.008387	5000	0.0088492				
Beryllium	0	0	100	0.0024075	1000	0.0024071					10000	0.0023365
Boron	0	0	50	0.0000158	1000	0.0000152					5000	1.5378E-05
Cadmium	0	0	100	0.0143	1000	0.013864					10000	0.013373
Calcium	0	0	1100	7.456364E-05	50000	6.2632E-05					10000	
Chromium	0	0	100	0.0000517	1000	5.075E-05					10000	5.1165E-05
Cobalt	0	0	100	0.0042997	1000	0.0042544					10000	0.0044036
Copper	0	0	100	0.0000858	1000	8.032E-05					10000	8.1778E-05
Iron	0	0	5100	1.683726E-05	10000	1.6628E-05			500000	1.62724E-05	10000	
Lead	0	0	100	0.0010108	1000	0.0010056					10000	0.0010541
Magnesium	0	0	5100		50000	2.7332E-06			500000	2.7282E-06	10000	
Manganese	0	0	100	0.0003229	1000	0.0003066	10000	3.1286E-04			10000	
Molybdenum	0	0	100	0.0030251	1000	0.0032636					10000	0.0032121
Nickel	0	0	100	0.0027261	1000	0.0027401					10000	0.0027878
Potassium	0	0	1000	1.115E-05	10000	1.4198E-05						
Selenium	0	0	100	0.0004012	1000	3.9368E-04					10000	3.7577E-04
Silver	0	0	20	0.0000625	500	5.456E-05	2000	5.7705E-05				
Sodium	0	0	1000		50000	5.046E-05						
Thallium	0	0	100	0.0005528	1000	5.3699E-04					10000	5.5263E-04
Tin	0	0	50	0.0013488	1000	0.0013508					5000	0.0013744
Titanium	0	0	100	0.0001941	1000	1.8842E-04					10000	1.9225E-04
Vanadium	0	0	100	0.000055	1000	5.399E-05					10000	5.4399E-05
Zinc	0	0	100	0.0054278	1000	0.0056196					10000	0.0053319
Strontium	0	0	100	0.001544	1000	0.001515					10000	0.001522
Lithium (outside certification)	0	0	100	0.0000113	1000	1.183E-05					10000	1.1371E-05

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4107004	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	4/17/14 9:22 4/17/14 9:59

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum												
Antimony												
Arsenic												
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	6.341E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.7623E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4329E-05										
Selenium												
Silver												
Sodium	100000	4.9565E-05	500000	4.8654E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Calibration:	4107004		Instrument:	ME-ICP	
Matrix:	Water		Calibration Dates:	4/17/14 9:22	4/17/14 9:59

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Aluminum	1.6394E-05	66.67436	6.42904	190.7855	0.9999998		0.998	
Antimony	3.6068E-04	68.30572	0.7492475	64.21794	0.9999989		0.998	
Arsenic	1.990025E-04	67.06938	1.507468	115.0742	0.9999706		0.998	
Barium	6.46885E-03	66.73062	2.344623	176.854	0.9998823		0.998	
Beryllium	1.787775E-03	66.6928	1.732167	129.2902	0.9999916		0.998	
Boron	1.15945E-05	66.70198	5.294925	142.2543	0.9999927		0.998	
Cadmium	1.038425E-02	66.76632	1.291935	114.8184	0.9999885		0.998	
Calcium	5.015141E-05	67.54672	1.761512	164.6132	0.9999979		0.998	
Chromium	3.840375E-05	66.67436	25.54795	186.6303	0.9999993		0.998	
Cobalt	3.239425E-03	66.69454	0.9315175	117.7745	0.9999888		0.998	
Copper	6.19745E-05	66.77145	2.386613	87.3855	0.9999956		0.998	
Iron	1.243441E-05	66.69305	8.302335	194.1929	0.9999999		0.998	
Lead	7.67625E-04	66.7268	10.88328	193.3898	0.9999808		0.998	
Magnesium	2.055925E-06	66.67068	25.59571	197.7541	0.9999932		0.998	
Manganese	2.3559E-04	66.72755	14.12945	172.8396	0.9999953		0.998	
Molybdenum	0.0023752	66.80612	15.65115	194.7657	0.9999963		0.998	
Nickel	0.0020635	66.67895	77.02929	198.7822	0.9999974		0.998	
Potassium	9.91925E-06	68.29111	1.703935	152.2689	0.9999986		0.998	
Selenium	2.926625E-04	66.76622	3.4948	172.9708	0.9999823		0.998	
Silver	4.369125E-05	67.08412	4.036782	125.4507	0.9997719		0.998	
Sodium	3.716975E-05	66.69617	1.917163	147.2618	0.9999805		0.998	
Thallium	4.10605E-04	66.69111	6.155895	180.68	0.9999926		0.998	
Tin	0.0010185	66.67644	6.515375	188.1342	0.9999873		0.998	
Titanium	1.436925E-04	66.68699	1.672657	157.4488	0.9999951		0.998	
Vanadium	4.084725E-05	66.6744	4.239575	125.3309	0.9999992		0.998	
Zinc	4.094825E-03	66.73062	4.028435	171.7762	0.9999716		0.998	
Strontium	1.14525E-03	66.67539	5.259975	179.1433	0.9999997		0.998	
Lithium (outside certification)	8.62525E-06	66.72227	3.592175	55.18983	0.9999848		0.998	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

PREPARATION BENCH SHEET

4D07013

Empirical Laboratories, LLC

Printed: 4/18/2014 4:07:31PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1403189-01	F	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	Good CCVs!
1403189-02	F	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	Good CCVs!
1403189-03	F	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	Good CCVs!
1403193-06	B	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	TAL list
1403203-01	D	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	see versions
1403203-03	D	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	see versions
1403203-07	D	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	see versions
1403203-09	D	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	see versions
1403205-01	D	MET_ICP_LOW6010C_FULL_I	04/07/2014	100	25					NA	see versions
1404016-01	D	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	see versions
1404016-03	D	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	see versions
1404016-05	D	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	see versions
1404018-02	AH	MET_ICP_LOW6010C_FULL_I	04/07/2014	100	25					NA	Added for BatchQC in: 4D07013
1404018-02	AH	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	MS/MSD;Good CCVs!
1404018-03	O	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	Good CCVs!
1404018-03RE1	O	MET_ICP_LOW6010C_FULL	04/07/2014	100	25					NA	Good CCVs!
1404041-02	A	MET_ICP_LOW6010C_FULL_I	04/07/2014	100	25					NA	see versions
1404041-04	A	MET_ICP_LOW6010C_FULL_I	04/07/2014	100	25					NA	see versions
1404041-06	A	MET_ICP_LOW6010C_FULL_I	04/07/2014	100	25					NA	see versions
1404041-08	A	MET_ICP_LOW6010C_FULL_I	04/07/2014	100	25					NA	see versions
1404041-10	A	MET_ICP_LOW6010C_FULL_I	04/07/2014	100	25					NA	see versions
4D07013-BLK1		QC	04/07/2014	100	25					NA	

PREPARATION BENCH SHEET

4D07013

Empirical Laboratories, LLC

Printed: 4/18/2014 4:07:31PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D07013-BS1		QC	04/07/2014	100	25	14D0064		2000		NA	
4D07013-DUP1		QC	04/07/2014	100	25		1404018-02			NA	
4D07013-MS1		QC	04/07/2014	100	25	14D0066	1404018-02	25		NA	
4D07013-MSD1		QC	04/07/2014	100	25	14D0066	1404018-02	25		NA	
4D07013-PS1		QC	04/07/2014	100	25	14D0066	1404018-02	25		NA	

Reagents Used:

Standard	Description
14A0613	Nitric acid
14A0614	Hydrochloric Acid
14B0029	Metals 50mL Digestion Vessel- DigiTUBE

PREPARATION BENCH SHEET

4D08006

Empirical Laboratories, LLC

Printed: 4/24/2014 12:40:17PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1403226-03	A	MET_7470A_DIS_MERCURY	04/08/2014	30	30					NA	MS/MSD
1403226-03	A	MET_7470A_MERCURY	04/08/2014	30	30					NA	Added for BatchQC in: 4D08006
1403226-04	E	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403226-05	A	MET_7470A_DIS_MERCURY	04/08/2014	30	30					NA	
1403227-01	D	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403227-02	D	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403228-01	D	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403231-01	H	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403231-02	H	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403233-01	E	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403236-01	H	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403236-02	H	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403236-03	H	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403236-04	H	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403236-05	H	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1403236-06	H	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1404017-07	F	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1404017-09	D	MET_7470A_MERCURY	04/08/2014	30	30					NA	
1404018-02	AH	MET_7470A_DIS_MERCURY	04/08/2014	30	30					NA	Added for BatchQC in: 4D08006
1404018-02	AH	MET_7470A_MERCURY	04/08/2014	30	30					NA	MS/MSD;Good CCVs!
1404018-03	O	MET_7470A_MERCURY	04/08/2014	30	30					NA	Good CCVs!
4D08006-BLK1		QC	04/08/2014	30	30					NA	

PREPARATION BENCH SHEET

4D08006

Empirical Laboratories, LLC

Printed: 4/24/2014 12:40:17PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D08006-BS1		QC	04/08/2014	30	30	13G0744		300		NA	
4D08006-MS1		QC	04/08/2014	30	30	13G0744	1403226-03	300		NA	
4D08006-MS2		QC	04/08/2014	30	30	13G0744	1404018-02	300		NA	
4D08006-MSD1		QC	04/08/2014	30	30	13G0744	1403226-03	300		NA	
4D08006-MSD2		QC	04/08/2014	30	30	13G0744	1404018-02	300		NA	

Reagents Used:

Standard	Description
13D0424	Sulfuric Acid
13K0647	Potassuim Persulfate (K2S2O8)
14A0613	Nitric acid
14C0242	NAC L-Hydroxylamine Hydrochloride (HG Reagent)
14D0101	Mercury Digestion Flip-Top Tubes
14D0185	KMNO4 Reagent
14D0194	3% HCL Mercury Carrier
14D0239	3% HCL Mercury Carrier
14D0240	Stannous Chloride Mercury Reagent

PREPARATION BENCH SHEET

4D10009

Empirical Laboratories, LLC

Printed: 4/24/2014 4:22:18PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1403203-05	J	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	Added for BatchQC in: 4D10009
1403203-05	J	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	MS/MSD
1403217-01	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1403217-03	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1403217-05	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1403217-07	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1403217-09	A	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1403217-10	A	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1404017-02	A	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404017-04	A	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404017-06	A	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404017-08	A	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404017-10	A	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404065-01	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1404066-01	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1404066-03	J	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	Added for BatchQC in: 4D10009
1404066-03	J	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	MS/MSD
1404067-02	F	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404067-04	F	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404067-06	F	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
4D10009-BLK1		QC	04/10/2014	100	25					NA	
4D10009-BS1		QC	04/10/2014	100	25	14D0064		2000		NA	

PREPARATION BENCH SHEET

4D10009

Empirical Laboratories, LLC

Printed: 4/24/2014 4:22:18PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D10009-DUP1		QC	04/10/2014	100	25		1403203-05			NA	
4D10009-DUP2		QC	04/10/2014	100	25		1404066-03			NA	
4D10009-MS1		QC	04/10/2014	100	25	14D0066	1403203-05	25		NA	
4D10009-MS2		QC	04/10/2014	100	25	14D0066	1404066-03	25		NA	
4D10009-MSD1		QC	04/10/2014	100	25	14D0066	1403203-05	25		NA	
4D10009-MSD2		QC	04/10/2014	100	25	14D0066	1404066-03	25		NA	
4D10009-PS1		QC	04/10/2014	100	25	14D0066	1403203-05	25		NA	
4D10009-PS2		QC	04/10/2014	100	25	14D0066	1404066-03	25		NA	

Reagents Used:

Standard	Description
14A0613	Nitric acid
14A0614	Hydrochloric Acid
14B0029	Metals 50mL Digestion Vessel- DigiTUBE

PREPARATION BENCH SHEET

4D15006

Empirical Laboratories, LLC

Printed: 4/24/2014 2:51:21PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1403226-02	M	MET_7470A_MERCURY	04/15/2014	30	30					NA	MS/MSD
1404015-01	B	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404017-01	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404017-03	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404017-05	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404023-01	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-06	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-08	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-09	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-10	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-11	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404049-02	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404049-03	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404049-04	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404049-05	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404049-06	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404049-07	M	MET_7470A_MERCURY	04/15/2014	30	30					NA	MS/MSD
1404086-01	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
4D15006-BLK1		QC	04/15/2014	30	30					NA	
4D15006-BS1		QC	04/15/2014	30	30	14D0359		300		NA	
4D15006-MS1		QC	04/15/2014	30	30	14D0359	1403226-02	300		NA	
4D15006-MS2		QC	04/15/2014	30	30	14D0359	1404049-07	300		NA	

PREPARATION BENCH SHEET

4D15006

Empirical Laboratories, LLC

Printed: 4/24/2014 2:51:21PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D15006-MSD1		QC	04/15/2014	30	30	14D0359	1403226-02	300		NA	
4D15006-MSD2		QC	04/15/2014	30	30	14D0359	1404049-07	300		NA	

Reagents Used:

Standard	Description
13D0424	Sulfuric Acid
13K0647	Potassuim Persulfate (K2S2O8)
14A0613	Nitric acid
14D0101	Mercury Digestion Flip-Top Tubes
14D0372	NAC L-Hydroxylamine Hydrochloride (HG Reagent)
14D0461	KMNO4 Reagent
14D0496	3% HCL Mercury Carrier
14D0497	Stannous Chloride Mercury Reagent

PREPARATION BENCH SHEET

4D15008

Empirical Laboratories, LLC

Printed: 4/25/2014 11:05:02AM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404041-01	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404041-03	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404041-05	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404041-07	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404041-09	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404044-01	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-01	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-02	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-03	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-04	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-05	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-07	J	MET_7470A_MERCURY	04/15/2014	30	30					NA	MS/MSD
1404067-01	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404067-03	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404067-05	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404098-08	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404098-09	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404098-11	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404098-12	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404098-13	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
4D15008-BLK1		QC	04/15/2014	30	30					NA	
4D15008-BS1		QC	04/15/2014	30	30	14D0359		300		NA	

PREPARATION BENCH SHEET

4D15008

Empirical Laboratories, LLC

Printed: 4/25/2014 11:05:02AM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D15008-MS1		QC	04/15/2014	30	30	14D0359	1404045-07	300		NA	
4D15008-MSD1		QC	04/15/2014	30	30	14D0359	1404045-07	300		NA	

Reagents Used:

Standard	Description
13D0424	Sulfuric Acid
13K0647	Potassuim Persulfate (K2S2O8)
14A0613	Nitric acid
14D0101	Mercury Digestion Flip-Top Tubes
14D0372	NAC L-Hydroxylamine Hydrochloride (HG Reagent)
14D0461	KMNO4 Reagent
14D0496	3% HCL Mercury Carrier
14D0497	Stannous Chloride Mercury Reagent

Data for Wet Chemistry Forms

Sample Extraction Data

Prep Method: WC_PREP_ANIONS_W-SW9056A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404017-01 [LF001-30001]	4D03010	5.00/5.00	5.00	5.00	1.00			04/03/14
1404017-03 [LF001-30002]	4D03010	5.00/5.00	5.00	5.00	1.00			04/03/14
1404017-05 [LF001-30003]	4D03010	5.00/5.00	5.00	5.00	1.00			04/03/14
1404017-07 [LF001-30004]	4D03010	5.00/5.00	5.00	5.00	1.00			04/03/14

Sample Extraction Data

Prep Method: WC_PREP_ANIONS_W-SW9056A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404041-01 [LF002-30001]	4D08013	5.00/5.00	5.00	5.00	1.00			04/08/14
1404041-03 [LF002-30002]	4D08013	5.00/5.00	5.00	5.00	1.00			04/08/14
1404041-05 [LF002-30004]	4D08013	5.00/5.00	5.00	5.00	1.00			04/08/14
1404041-07 [LF002-30005]	4D08013	5.00/5.00	5.00	5.00	1.00			04/08/14

Sample Extraction Data

Prep Method: pNone-SM2540C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404017-01 [LF001-30001]	4D08014	100.00/100.00	100	100	1.00			04/09/14
1404017-03 [LF001-30002]	4D08014	100.00/100.00	100	100	1.00			04/09/14
1404017-05 [LF001-30003]	4D08014	100.00/100.00	100	100	1.00			04/09/14
1404017-07 [LF001-30004]	4D08014	100.00/100.00	100	100	1.00			04/09/14
1404041-01 [LF002-30001]	4D08014	100.00/100.00	100	100	1.00			04/09/14
1404041-03 [LF002-30002]	4D08014	100.00/100.00	100	100	1.00			04/09/14
1404041-05 [LF002-30004]	4D08014	100.00/100.00	100	100	1.00			04/09/14
1404041-07 [LF002-30005]	4D08014	100.00/100.00	100	100	1.00			04/09/14

Sample Extraction Data

Prep Method: pNone-E353.2

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404017-01 [LF001-30001]	4D14009	20.00/20.00	4.00	20.0	1.00			04/14/14
1404017-03 [LF001-30002]	4D14009	20.00/20.00	4.00	20.0	1.00			04/14/14
1404017-05 [LF001-30003]	4D14009	20.00/20.00	4.00	20.0	1.00			04/14/14
1404017-07 [LF001-30004]	4D14009	20.00/20.00	4.00	20.0	1.00			04/14/14

Sample Extraction Data

Prep Method: WC_PREP_ANIONS_W-SW9056A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404041-01RE1 [LF002-30001]	4D22007	5.00/5.00	5.00	5.00	1.00			04/22/14
1404041-03RE1 [LF002-30002]	4D22007	5.00/5.00	5.00	5.00	1.00			04/22/14
1404041-05RE1 [LF002-30004]	4D22007	5.00/5.00	5.00	5.00	1.00			04/22/14
1404041-07RE1 [LF002-30005]	4D22007	5.00/5.00	5.00	5.00	1.00			04/22/14

Sample Extraction Data

Prep Method: pNone-E353.2

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404041-01 [LF002-30001]	4D23024	20.00/20.00	4.00	20.0	1.00			04/23/14
1404041-03 [LF002-30002]	4D23024	20.00/20.00	4.00	20.0	1.00			04/23/14
1404041-05 [LF002-30004]	4D23024	20.00/20.00	4.00	20.0	1.00			04/23/14
1404041-07 [LF002-30005]	4D23024	20.00/20.00	4.00	20.0	1.00			04/23/14

ANALYSIS DATA SHEET

LF001-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-01
Sampled:	03/31/14 16:26	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**166**	**20.0**	20.0	20.0	1	H1	SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**7.79**	**0.170**	0.330	0.500	1		SW9056A	4D03010	04/03/14 15:18
NA	Nitrate/Nitrite as N		0.250	0.750	1.50	1	U	E353.2	4D14009	04/14/14 14:11
16984-48-8	Fluoride	**0.517**	**0.0330**	0.100	0.250	1		SW9056A	4D03010	04/03/14 15:18
14808-79-8	Sulfate as SO4	**31.0**	**0.330**	1.00	2.50	1	*	SW9056A	4D03010	04/03/14 15:18

ANALYSIS DATA SHEET

LF001-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-03
Sampled:	03/31/14 12:23	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**162**	**20.0**	20.0	20.0	1	H1	SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**7.28**	**0.170**	0.330	0.500	1		SW9056A	4D03010	04/03/14 16:28
NA	Nitrate/Nitrite as N		0.250	0.750	1.50	1	U	E353.2	4D14009	04/14/14 14:12
16984-48-8	Fluoride	**0.573**	**0.0330**	0.100	0.250	1		SW9056A	4D03010	04/03/14 16:28
14808-79-8	Sulfate as SO4	**31.3**	**0.330**	1.00	2.50	1		SW9056A	4D03010	04/03/14 16:28

ANALYSIS DATA SHEET

LF001-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-05
Sampled:	03/31/14 16:50	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**162**	**20.0**	20.0	20.0	1	H1	SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**7.88**	**0.170**	0.330	0.500	1		SW9056A	4D03010	04/03/14 16:45
NA	Nitrate/Nitrite as N	**0.670**	**0.250**	0.750	1.50	1	J	E353.2	4D14009	04/14/14 14:14
16984-48-8	Fluoride	**0.425**	**0.0330**	0.100	0.250	1		SW9056A	4D03010	04/03/14 16:45
14808-79-8	Sulfate as SO4	**28.0**	**0.330**	1.00	2.50	1		SW9056A	4D03010	04/03/14 16:45

ANALYSIS DATA SHEET

LF001-30004

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-07
Sampled:	03/31/14 12:36	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**176**	**20.0**	20.0	20.0	1	H1	SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**10.8**	**0.170**	0.330	0.500	1		SW9056A	4D03010	04/03/14 17:03
NA	Nitrate/Nitrite as N	**0.382**	**0.250**	0.750	1.50	1	J	E353.2	4D14009	04/14/14 14:15
16984-48-8	Fluoride	**0.501**	**0.0330**	0.100	0.250	1		SW9056A	4D03010	04/03/14 17:03
14808-79-8	Sulfate as SO4	**35.9**	**0.330**	1.00	2.50	1		SW9056A	4D03010	04/03/14 17:03

ANALYSIS DATA SHEET

LF002-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-01
Sampled:	04/03/14 10:49	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**333**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.0**	**0.170**	0.330	0.500	1		SW9056A	4D08013	04/08/14 16:25
NA	Nitrate/Nitrite as N	**4.27**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 13:52
16984-48-8	Fluoride	**0.324**	**0.0330**	0.100	0.250	1		SW9056A	4D22007	04/22/14 23:40
14808-79-8	Sulfate as SO4	**71.4**	**0.330**	1.00	2.50	1		SW9056A	4D08013	04/08/14 16:25

ANALYSIS DATA SHEET

LF002-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-03
Sampled:	04/03/14 10:49	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**299**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.1**	**0.170**	0.330	0.500	1		SW9056A	4D08013	04/08/14 16:42
NA	Nitrate/Nitrite as N	**4.31**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 13:57
16984-48-8	Fluoride	**0.325**	**0.0330**	0.100	0.250	1		SW9056A	4D22007	04/22/14 23:57
14808-79-8	Sulfate as SO4	**71.9**	**0.330**	1.00	2.50	1		SW9056A	4D08013	04/08/14 16:42

ANALYSIS DATA SHEET

LF002-30004

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-05
Sampled:	04/03/14 15:16	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**313**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.4**	**0.170**	0.330	0.500	1		SW9056A	4D08013	04/08/14 17:00
NA	Nitrate/Nitrite as N	**4.39**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 13:58
16984-48-8	Fluoride	**0.298**	**0.0330**	0.100	0.250	1		SW9056A	4D22007	04/23/14 00:15
14808-79-8	Sulfate as SO4	**77.1**	**0.330**	1.00	2.50	1		SW9056A	4D08013	04/08/14 17:00

ANALYSIS DATA SHEET

LF002-30005

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-07
Sampled:	04/02/14 14:21	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**328**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**15.7**	**0.170**	0.330	0.500	1		SW9056A	4D08013	04/08/14 17:17
NA	Nitrate/Nitrite as N	**3.86**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 13:59
16984-48-8	Fluoride	**0.287**	**0.0330**	0.100	0.250	1		SW9056A	4D22007	04/23/14 00:32
14808-79-8	Sulfate as SO4	**72.1**	**0.330**	1.00	2.50	1		SW9056A	4D08013	04/08/14 17:17

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D03010-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	ND	0.170	0.330	0.500	1	U	SW9056A	4D03010	04/03/14 12:59
14808-79-8	Sulfate as SO4	ND	0.330	1.00	2.50	1	U	SW9056A	4D03010	04/03/14 12:59

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D03010-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**4.250**	**0.170**	0.330	0.500	1		SW9056A	4D03010	04/03/14 13:16
14808-79-8	Sulfate as SO4	**21.02**	**0.330**	1.00	2.50	1		SW9056A	4D03010	04/03/14 13:16

ANALYSIS DATA SHEET

Duplicate

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D03010-DUP1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**7.061**	**0.170**	0.330	0.500	1		SW9056A	4D03010	04/03/14 16:10
14808-79-8	Sulfate as SO4	**27.91**	**0.330**	1.00	2.50	1		SW9056A	4D03010	04/03/14 16:10

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D03010-MS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**37.01**	**0.189**	0.367	0.556	1		SW9056A	4D03010	04/03/14 15:35
14808-79-8	Sulfate as SO4	**57.08**	**0.367**	1.11	2.78	1		SW9056A	4D03010	04/03/14 15:35

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D03010-MSD1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**35.15**	**0.189**	0.367	0.556	1		SW9056A	4D03010	04/03/14 15:53
14808-79-8	Sulfate as SO4	**54.24**	**0.367**	1.11	2.78	1		SW9056A	4D03010	04/03/14 15:53

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D08013-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	ND	0.170	0.330	0.500	1	U	SW9056A	4D08013	04/08/14 13:31
16984-48-8	Fluoride	ND	0.0330	0.100	0.250	1	U	SW9056A	4D08013	04/08/14 13:31
14808-79-8	Sulfate as SO4	ND	0.330	1.00	2.50	1	U	SW9056A	4D08013	04/08/14 13:31

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D08013-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**4.345**	**0.170**	0.330	0.500	1		SW9056A	4D08013	04/08/14 13:48
16984-48-8	Fluoride	**2.815**	**0.0330**	0.100	0.250	1		SW9056A	4D08013	04/08/14 13:48
14808-79-8	Sulfate as SO4	**21.13**	**0.330**	1.00	2.50	1		SW9056A	4D08013	04/08/14 13:48

ANALYSIS DATA SHEET

Duplicate

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D08013-DUP1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**15.83**	**0.170**	0.330	0.500	1		SW9056A	4D08013	04/08/14 18:09
16984-48-8	Fluoride	**0.3330**	**0.0330**	0.100	0.250	1		SW9056A	4D08013	04/08/14 18:09
14808-79-8	Sulfate as SO4	**72.53**	**0.330**	1.00	2.50	1		SW9056A	4D08013	04/08/14 18:09

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D08013-MS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**44.09**	**0.189**	0.367	0.556	1		SW9056A	4D08013	04/08/14 17:35
16984-48-8	Fluoride	**3.058**	**0.0367**	0.111	0.278	1		SW9056A	4D08013	04/08/14 17:35
14808-79-8	Sulfate as SO4	**99.31**	**0.367**	1.11	2.78	1		SW9056A	4D08013	04/08/14 17:35

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D08013-MSD1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**43.90**	**0.189**	0.367	0.556	1		SW9056A	4D08013	04/08/14 17:52
16984-48-8	Fluoride	**3.082**	**0.0367**	0.111	0.278	1		SW9056A	4D08013	04/08/14 17:52
14808-79-8	Sulfate as SO4	**98.96**	**0.367**	1.11	2.78	1		SW9056A	4D08013	04/08/14 17:52

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D08014-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	ND	20.0	20.0	20.0	1	U	SM2540C	4D08014	04/09/14 16:07

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D08014-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**910.0**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D14009-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	ND	0.0500	0.150	0.300	1	U	E353.2	4D14009	04/14/14 13:59

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D14009-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	**15.02**	**0.500**	1.50	3.00	1		E353.2	4D14009	04/14/14 14:01

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D22007-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16984-48-8	Fluoride	ND	0.0330	0.100	0.250	1	U	SW9056A	4D22007	04/22/14 15:15

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D22007-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16984-48-8	Fluoride	**2.709**	**0.0330**	0.100	0.250	1		SW9056A	4D22007	04/22/14 15:33

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D23024-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	ND	0.0500	0.150	0.300	1	U	E353.2	4D23024	04/23/14 13:49

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D23024-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	**15.54**	**0.500**	1.50	3.00	1		E353.2	4D23024	04/23/14 13:51

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D23024-MS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	**6.735**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 13:54

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_008

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D23024-MSD1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	**6.725**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 13:55

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Calibration: 3351002
Sequence: 3L35106

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
3L35106-ICV1	Chloride	4.200	4.193	99.8	mg/L	+/- 10.00%
	Fluoride	2.800	2.803	100	mg/L	+/- 10.00%
	Sulfate as SO4	21.00	21.05	100	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Calibration: 3351002
Sequence: 4D09812

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D09812-CCV1	Chloride	25.00	25.30	101	mg/L	+/- 10.00%
	Fluoride	2.500	2.511	100	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.34	101	mg/L	+/- 10.00%
4D09812-CCV2	Chloride	25.00	25.17	101	mg/L	+/- 10.00%
	Fluoride	2.500	2.535	101	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	24.92	99.7	mg/L	+/- 10.00%
4D09812-CCV3	Chloride	25.00	25.55	102	mg/L	+/- 10.00%
	Fluoride	2.500	2.552	102	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.17	101	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

E353.2

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-Lachat

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Calibration: 4104001
Sequence: 4D10410

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D10410-ICV1	Nitrate/Nitrite as N	1.200	1.246	104	mg/L	+/- 10.00%
4D10410-CCV1	Nitrate/Nitrite as N	1.200	1.230	102	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Calibration: 3351002
Sequence: 4D10606

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D10606-CCV1	Chloride	25.00	25.36	101	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.64	103	mg/L	+/- 10.00%
4D10606-CCV2	Chloride	25.00	25.61	102	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	26.33	105	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

E353.2

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-Lachat

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Calibration: 4113002
Sequence: 4D11305

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D11305-ICV1	Nitrate/Nitrite as N	1.200	1.255	105	mg/L	+/- 10.00%
4D11305-CCV1	Nitrate/Nitrite as N	1.200	1.243	104	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Calibration: 3351002
Sequence: 4D11401

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D11401-CCV1	Fluoride	2.500	2.465	98.6	mg/L	+/- 10.00%
4D11401-CCV2	Fluoride	2.500	2.505	100	mg/L	+/- 10.00%
4D11401-CCV3	Fluoride	2.500	2.440	97.6	mg/L	+/- 10.00%
4D11401-CCV4	Fluoride	2.500	2.430	97.2	mg/L	+/- 10.00%

CRDL STANDARD

SW9056A

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: WC-IC

Calibration: 3351002

Sequence: 4D09812

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4D09812-CRL1	Chloride	0.5000	0.4860	97.2	mg/L	75 - 125
	Fluoride	0.05000	0.04800	96.0	mg/L	75 - 125
	Sulfate as SO4	0.5000	0.5230	105	mg/L	75 - 125

CRDL STANDARD

SW9056A

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: WC-IC

Calibration: 3351002

Sequence: 4D10606

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4D10606-CRL1	Chloride	0.5000	0.5120	102	mg/L	75 - 125
4D10606-CRL3	Sulfate as SO4	2.500	3.079	123	mg/L	75 - 125

CRDL STANDARD

SW9056A

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: WC-IC

Calibration: 3351002

Sequence: 4D11401

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4D11401-CRL2	Fluoride	0.1000	0.08000	80.0	mg/L	50 - 150

METHOD BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D03010

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D03010-BLK1	Chloride	0.0490	0.170	0.500	mg/L	U	SW9056A
	Sulfate as SO4	0.0500	0.330	2.50	mg/L	U	SW9056A

METHOD BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D08013

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D08013-BLK1	Chloride	0.0590	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.0170	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A

METHOD BLANKS
SM2540C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D08014

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D08014-BLK1	Total Dissolved Solids	-4.00	20.0	20.0	mg/L	U	SM2540C

METHOD BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D14009

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D14009-BLK1	Nitrate/Nitrite as N	-0.0226	0.0500	0.300	mg/L	U	E353.2

METHOD BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D22007

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D22007-BLK1	Fluoride	0.0210	0.0330	0.250	mg/L	U	SW9056A

METHOD BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D23024

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D23024-BLK1	Nitrate/Nitrite as N	-0.0336	0.0500	0.300	mg/L	U	E353.2

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 3L35106
Calibration: 3351002
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
3L35106-ICB1	Chloride	0.000	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.000	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.000	0.330	2.50	mg/L	U	SW9056A

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4D09812
Calibration: 3351002
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D09812-CCB1	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.0310	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.0410	0.330	2.50	mg/L	U	SW9056A
4D09812-CCB2	Chloride	0.176	0.170	0.500	mg/L	J	SW9056A
	Fluoride	0.148	0.0330	0.250	mg/L	J	SW9056A
	Sulfate as SO4	0.0400	0.330	2.50	mg/L	U	SW9056A
4D09812-CCB3	Chloride	0.0200	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00900	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A

BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4D10410
Calibration: 4104001
Instrument ID: WC-Lachat

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D10410-ICB1	Nitrate/Nitrite as N	-0.02809	0.0500	0.300	mg/L	U	E353.2
4D10410-CCB1	Nitrate/Nitrite as N	-0.0199	0.0500	0.300	mg/L	U	E353.2

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4D10606
Calibration: 3351002
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D10606-CCB1	Chloride	0.0590	0.170	0.500	mg/L	U	SW9056A
	Sulfate as SO4	0.0450	0.330	2.50	mg/L	U	SW9056A
4D10606-CCB2	Chloride	0.0950	0.170	0.500	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A

BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4D11305
Calibration: 4113002
Instrument ID: WC-Lachat

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D11305-ICB1	Nitrate/Nitrite as N	-0.01640	0.0500	0.300	mg/L	U	E353.2
4D11305-CCB1	Nitrate/Nitrite as N	-0.0264	0.0500	0.300	mg/L	U	E353.2

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4D11401
Calibration: 3351002
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D11401-CCB1	Fluoride	0.0210	0.0330	0.250	mg/L	U	SW9056A
4D11401-CCB2	Fluoride	0.0170	0.0330	0.250	mg/L	U	SW9056A
4D11401-CCB3	Fluoride	0.0180	0.0330	0.250	mg/L	U	SW9056A
4D11401-CCB4	Fluoride	0.0430	0.0330	0.250	mg/L	J	SW9056A

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW9056A

LF001-30001

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4D03010

% Solids:

Source Sample Name: **1404017-01**

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	Q	QC LIMITS REC.
Chloride	27.78	7.789	37.01	105		80 - 120
Sulfate as SO4	27.78	30.96	57.08	94.0		80 - 120

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Chloride	27.78	35.15	98.5	5.17		15	80 - 120
Sulfate as SO4	27.78	54.24	83.8	5.10		15	80 - 120

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW9056A

LF002-30005

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4D08013

% Solids:

Source Sample Name: **1404041-07**

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	Q	QC LIMITS REC.
Chloride	27.78	15.73	44.09	102		80 - 120
Fluoride	2.778	0.3320	3.058	98.1		80 - 120
Sulfate as SO4	27.78	72.13	99.31	97.8		80 - 120

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Chloride	27.78	43.90	101	0.429		15	80 - 120
Fluoride	2.778	3.082	99.0	0.796		15	80 - 120
Sulfate as SO4	27.78	98.96	96.6	0.356		15	80 - 120

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

E353.2

LF002-30001

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4D23024

% Solids:

Source Sample Name: **1404041-01**

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	Q	QC LIMITS REC.
Nitrate/Nitrite as N	2.500	4.270	6.735	98.6		90 - 110

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Nitrate/Nitrite as N	2.500	6.725	98.2	0.149		20	90 - 110

LF001-30001

DUPLICATES

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Batch: 4D03010
Preparation: WC_PREP_ANIONS_W
Source Sample Name: LF001-30001

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D03010-DUP1
Lab Source ID: 1404017-01
Initial/Final: 5 mL / 5 mL
% Solids:

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	METHOD
Chloride	10	7.79	7.061	9.80		SW9056A
Sulfate as SO4	10	31.0	27.91	10.4	*	SW9056A

LF002-30005

DUPLICATES

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Batch: 4D08013
Preparation: WC_PREP_ANIONS_W
Source Sample Name: LF002-30005

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D08013-DUP1
Lab Source ID: 1404041-07
Initial/Final: 5 mL / 5 mL
% Solids:

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	METHOD
Chloride	10	15.7	15.83	0.602		SW9056A
Fluoride	10		0.3330	0.301		SW9056A
Sulfate as SO4	10	72.1	72.53	0.553		SW9056A

LCS / LCS DUPLICATE RECOVERY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D03010	Laboratory ID:	4D03010-BS1
Preparation:	WC_PREP_ANIONS_W	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Chloride	4.200	4.250	101	80 - 120
Sulfate as SO4	21.00	21.02	100	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D08013	Laboratory ID:	4D08013-BS1
Preparation:	WC_PREP_ANIONS_W	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Chloride	4.200	4.345	103	80 - 120
Fluoride	2.800	2.815	101	80 - 120
Sulfate as SO4	21.00	21.13	101	80 - 120

LCS / LCS DUPLICATE RECOVERY

SM2540C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D08014	Laboratory ID:	4D08014-BS1
Preparation:	pNone	Initial/Final:	20 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Total Dissolved Solids	973.0	910.0	93.5	80 - 120

LCS / LCS DUPLICATE RECOVERY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D14009	Laboratory ID:	4D14009-BS1
Preparation:	pNone	Initial/Final:	2 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Nitrate/Nitrite as N	14.80	15.02	101	90 - 110

LCS / LCS DUPLICATE RECOVERY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D22007	Laboratory ID:	4D22007-BS1
Preparation:	WC_PREP_ANIONS_W	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Fluoride	2.800	2.709	96.8	80 - 120

LCS / LCS DUPLICATE RECOVERY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D23024	Laboratory ID:	4D23024-BS1
Preparation:	pNone	Initial/Final:	2 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Nitrate/Nitrite as N	14.80	15.54	105	90 - 110

PREPARATION BATCH SUMMARY

SW9056A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D03010 Batch Matrix: Water Preparation: WC_PREP_ANIONS_W

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF001-30001	1404017-01	04/03/14 09:03	5.00	5.00
LF001-30002	1404017-03	04/03/14 09:03	5.00	5.00
LF001-30003	1404017-05	04/03/14 09:03	5.00	5.00
LF001-30004	1404017-07	04/03/14 09:03	5.00	5.00
Blank	4D03010-BLK1	04/03/14 09:03	5.00	5.00
LCS	4D03010-BS1	04/03/14 09:03	5.00	5.00
LF001-30001	4D03010-DUP1	04/03/14 09:03	5.00	5.00
LF001-30001	4D03010-MS1	04/03/14 09:03	22.50	25.00
LF001-30001	4D03010-MSD1	04/03/14 09:03	22.50	25.00

PREPARATION BATCH SUMMARY

SW9056A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D08013 Batch Matrix: Water Preparation: WC_PREP_ANIONS_W

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30001	1404041-01	04/08/14 10:20	5.00	5.00
LF002-30002	1404041-03	04/08/14 10:20	5.00	5.00
LF002-30004	1404041-05	04/08/14 10:20	5.00	5.00
LF002-30005	1404041-07	04/08/14 10:20	5.00	5.00
Blank	4D08013-BLK1	04/08/14 10:20	5.00	5.00
LCS	4D08013-BS1	04/08/14 10:20	5.00	5.00
LF002-30005	4D08013-DUP1	04/08/14 10:20	5.00	5.00
LF002-30005	4D08013-MS1	04/08/14 10:20	22.50	25.00
LF002-30005	4D08013-MSD1	04/08/14 10:20	22.50	25.00

PREPARATION BATCH SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D08014 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF001-30001	1404017-01	04/09/14 10:42	100.00	100.00
LF001-30002	1404017-03	04/09/14 10:42	100.00	100.00
LF001-30003	1404017-05	04/09/14 10:42	100.00	100.00
LF001-30004	1404017-07	04/09/14 10:42	100.00	100.00
LF002-30001	1404041-01	04/09/14 10:42	100.00	100.00
LF002-30002	1404041-03	04/09/14 10:42	100.00	100.00
LF002-30004	1404041-05	04/09/14 10:42	100.00	100.00
LF002-30005	1404041-07	04/09/14 10:42	100.00	100.00
Blank	4D08014-BLK1	04/09/14 10:42	100.00	100.00
LCS	4D08014-BS1	04/09/14 10:42	20.00	20.00

PREPARATION BATCH SUMMARY

E353.2

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D14009 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF001-30001	1404017-01	04/14/14 11:49	4.00	20.00
LF001-30002	1404017-03	04/14/14 11:49	4.00	20.00
LF001-30003	1404017-05	04/14/14 11:49	4.00	20.00
LF001-30004	1404017-07	04/14/14 11:49	4.00	20.00
Blank	4D14009-BLK1	04/14/14 11:49	20.00	20.00
LCS	4D14009-BS1	04/14/14 11:49	2.00	20.00

PREPARATION BATCH SUMMARY

SW9056A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D22007 Batch Matrix: Water Preparation: WC_PREP_ANIONS_W

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30001	1404041-01RE1	04/22/14 10:07	5.00	5.00
LF002-30002	1404041-03RE1	04/22/14 10:07	5.00	5.00
LF002-30004	1404041-05RE1	04/22/14 10:07	5.00	5.00
LF002-30005	1404041-07RE1	04/22/14 10:07	5.00	5.00
Blank	4D22007-BLK1	04/22/14 10:07	5.00	5.00
LCS	4D22007-BS1	04/22/14 10:07	5.00	5.00

PREPARATION BATCH SUMMARY

E353.2

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D23024 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30001	1404041-01	04/23/14 12:13	4.00	20.00
LF002-30002	1404041-03	04/23/14 12:13	4.00	20.00
LF002-30004	1404041-05	04/23/14 12:13	4.00	20.00
LF002-30005	1404041-07	04/23/14 12:13	4.00	20.00
Blank	4D23024-BLK1	04/23/14 12:13	20.00	20.00
LCS	4D23024-BS1	04/23/14 12:13	2.00	20.00
LF002-30001	4D23024-MS1	04/23/14 12:13	4.00	20.00
LF002-30001	4D23024-MSD1	04/23/14 12:13	4.00	20.00

ANALYSIS SEQUENCE SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Sequence:

Instrument:

Calibration:

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
LCS	4D08014-BS1	040914-002	04/09/14 16:07
Blank	4D08014-BLK1	040914-001	04/09/14 16:07

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	3L35106	Instrument:	WC-IC
Calibration:	3351002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	3L35106-CAL1	121013-007	12/10/13 16:44
Cal Standard	3L35106-CAL2	121013-008	12/10/13 17:02
Cal Standard	3L35106-CAL3	121013-009	12/10/13 17:19
Cal Standard	3L35106-CAL4	121013-010	12/10/13 17:37
Cal Standard	3L35106-CAL5	121013-011	12/10/13 17:54
Cal Standard	3L35106-CAL6	121013-012	12/10/13 18:11
Cal Standard	3L35106-CAL7	121013-013	12/10/13 18:29
Cal Standard	3L35106-CAL8	121013-014	12/10/13 18:46
Initial Cal Check	3L35106-ICV1	121013-015	12/10/13 19:04
Initial Cal Blank	3L35106-ICB1	121013-016	12/10/13 19:21

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D09812	Instrument:	WC-IC
Calibration:	3351002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4D09812-CCV1	040814-003	04/08/14 12:04
Calibration Blank	4D09812-CCB1	040814-004	04/08/14 12:21
Instrument RL Check	4D09812-CRL1	040814-005	04/08/14 12:39
Blank	4D08013-BLK1	040814-008	04/08/14 13:31
LCS	4D08013-BS1	040814-009	04/08/14 13:48
Calibration Check	4D09812-CCV2	040814-016	04/08/14 15:50
Calibration Blank	4D09812-CCB2	040814-017	04/08/14 16:08
LF002-30001	1404041-01	040814-018	04/08/14 16:25
LF002-30002	1404041-03	040814-019	04/08/14 16:42
LF002-30004	1404041-05	040814-020	04/08/14 17:00
LF002-30005	1404041-07	040814-021	04/08/14 17:17
LF002-30005	4D08013-MS1	040814-022	04/08/14 17:35
LF002-30005	4D08013-MSD1	040814-023	04/08/14 17:52
LF002-30005	4D08013-DUP1	040814-024	04/08/14 18:09
Calibration Check	4D09812-CCV3	040814-025	04/08/14 18:27
Calibration Blank	4D09812-CCB3	040814-026	04/08/14 18:44

ANALYSIS SEQUENCE SUMMARY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10410	Instrument:	WC-Lachat
Calibration:	4104001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4D10410-CAL1	M_4-14-2014_01-41-36PM-00	04/14/14 13:43
Cal Standard	4D10410-CAL2	M_4-14-2014_01-41-36PM-00	04/14/14 13:45
Cal Standard	4D10410-CAL3	M_4-14-2014_01-41-36PM-00	04/14/14 13:46
Cal Standard	4D10410-CAL4	M_4-14-2014_01-41-36PM-00	04/14/14 13:48
Cal Standard	4D10410-CAL5	M_4-14-2014_01-41-36PM-00	04/14/14 13:49
Cal Standard	4D10410-CAL6	M_4-14-2014_01-41-36PM-00	04/14/14 13:50
Cal Standard	4D10410-CAL7	M_4-14-2014_01-41-36PM-00	04/14/14 13:52
Cal Standard	4D10410-CAL8	M_4-14-2014_01-41-36PM-00	04/14/14 13:53
Initial Cal Check	4D10410-ICV1	M_4-14-2014_01-41-36PM-00	04/14/14 13:55
Initial Cal Blank	4D10410-ICB1	M_4-14-2014_01-41-36PM-01	04/14/14 13:56
Blank	4D14009-BLK1	M_4-14-2014_01-41-36PM-01	04/14/14 13:59
LCS	4D14009-BS1	M_4-14-2014_01-41-36PM-01	04/14/14 14:01
LF001-30001	1404017-01	M_4-14-2014_01-41-36PM-02	04/14/14 14:11
LF001-30002	1404017-03	M_4-14-2014_01-41-36PM-02	04/14/14 14:12
LF001-30003	1404017-05	M_4-14-2014_01-41-36PM-02	04/14/14 14:14
LF001-30004	1404017-07	M_4-14-2014_01-41-36PM-02	04/14/14 14:15
Calibration Check	4D10410-CCV1	M_4-14-2014_01-41-36PM-02	04/14/14 14:17
Calibration Blank	4D10410-CCB1	M_4-14-2014_01-41-36PM-02	04/14/14 14:18

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10606	Instrument:	WC-IC
Calibration:	3351002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4D10606-CCV1	040314-002	04/03/14 11:32
Calibration Blank	4D10606-CCB1	040314-003	04/03/14 11:49
Instrument RL Check	4D10606-CRL1	040314-004	04/03/14 12:06
Instrument RL Check	4D10606-CRL3	040314-006	04/03/14 12:41
Blank	4D03010-BLK1	040314-007	04/03/14 12:59
LCS	4D03010-BS1	040314-008	04/03/14 13:16
LF001-30001	1404017-01	040314-015	04/03/14 15:18
LF001-30001	4D03010-MS1	040314-016	04/03/14 15:35
LF001-30001	4D03010-MSD1	040314-017	04/03/14 15:53
LF001-30001	4D03010-DUP1	040314-018	04/03/14 16:10
LF001-30002	1404017-03	040314-019	04/03/14 16:28
LF001-30003	1404017-05	040314-020	04/03/14 16:45
LF001-30004	1404017-07	040314-021	04/03/14 17:03
Calibration Check	4D10606-CCV2	040314-026	04/03/14 18:30
Calibration Blank	4D10606-CCB2	040314-027	04/03/14 18:47

ANALYSIS SEQUENCE SUMMARY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D11305	Instrument:	WC-Lachat
Calibration:	4113002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4D11305-CAL1	M_4-23-2014_01-31-45PM-00	04/23/14 13:33
Cal Standard	4D11305-CAL2	M_4-23-2014_01-31-45PM-00	04/23/14 13:35
Cal Standard	4D11305-CAL3	M_4-23-2014_01-31-45PM-00	04/23/14 13:36
Cal Standard	4D11305-CAL4	M_4-23-2014_01-31-45PM-00	04/23/14 13:38
Cal Standard	4D11305-CAL5	M_4-23-2014_01-31-45PM-00	04/23/14 13:39
Cal Standard	4D11305-CAL6	M_4-23-2014_01-31-45PM-00	04/23/14 13:41
Cal Standard	4D11305-CAL7	M_4-23-2014_01-31-45PM-00	04/23/14 13:42
Cal Standard	4D11305-CAL8	M_4-23-2014_01-31-45PM-00	04/23/14 13:43
Initial Cal Check	4D11305-ICV1	M_4-23-2014_01-31-45PM-00	04/23/14 13:45
Initial Cal Blank	4D11305-ICB1	M_4-23-2014_01-31-45PM-01	04/23/14 13:46
Blank	4D23024-BLK1	M_4-23-2014_01-31-45PM-01	04/23/14 13:49
LCS	4D23024-BS1	M_4-23-2014_01-31-45PM-01	04/23/14 13:51
LF002-30001	1404041-01	M_4-23-2014_01-31-45PM-01	04/23/14 13:52
LF002-30001	4D23024-MS1	M_4-23-2014_01-31-45PM-01	04/23/14 13:54
LF002-30001	4D23024-MSD1	M_4-23-2014_01-31-45PM-01	04/23/14 13:55
LF002-30002	1404041-03	M_4-23-2014_01-31-45PM-01	04/23/14 13:57
LF002-30004	1404041-05	M_4-23-2014_01-31-45PM-01	04/23/14 13:58
LF002-30005	1404041-07	M_4-23-2014_01-31-45PM-01	04/23/14 13:59
Calibration Check	4D11305-CCV1	M_4-23-2014_01-31-45PM-02	04/23/14 14:07
Calibration Blank	4D11305-CCB1	M_4-23-2014_01-31-45PM-02	04/23/14 14:08

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D11401	Instrument:	WC-IC
Calibration:	3351002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4D11401-CCV1	042214-003	04/22/14 12:21
Calibration Blank	4D11401-CCB1	042214-004	04/22/14 12:39
Instrument RL Check	4D11401-CRL2	042214-006	04/22/14 13:13
Blank	4D22007-BLK1	042214-013	04/22/14 15:15
LCS	4D22007-BS1	042214-014	04/22/14 15:33
Calibration Check	4D11401-CCV2	042214-024	04/22/14 18:27
Calibration Blank	4D11401-CCB2	042214-025	04/22/14 18:44
Calibration Check	4D11401-CCV3	042214-039	04/22/14 22:48
Calibration Blank	4D11401-CCB3	042214-040	04/22/14 23:05
LF002-30001	1404041-01RE1	042214-042	04/22/14 23:40
LF002-30002	1404041-03RE1	042214-043	04/22/14 23:57
LF002-30004	1404041-05RE1	042214-044	04/23/14 00:15
LF002-30005	1404041-07RE1	042214-045	04/23/14 00:32
Calibration Check	4D11401-CCV4	042214-053	04/23/14 02:52
Calibration Blank	4D11401-CCB4	042214-054	04/23/14 03:09

INITIAL CALIBRATION DATA

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	3351002	Instrument:	WC-IC
Matrix:	Water	Calibration Dates:	12/10/13 16:44 12/10/13 18:46

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate as N	0.05	813540	0.1	853290	0.25	905720	0.5	956456	2.5	1018020	5	1028788
Nitrite as N	0.05	965740	0.1	944100	0.25	912864	0.5	952380	2.5	889644.8	5	849190.4
Bromide	0.126	134238.1	0.252	137654.8	0.63	145555.6	1.26	160582.5	6.3	175999.5	12.6	179760.6
Chloride	0.5	386028	1	399602	2.5	397485.6	5	405301.8	25	410491.2	50	411932.8
Fluoride	0.05	638320	0.1	659420	0.25	670580	0.5	671448	2.5	665322.8	5	630216.2
Sulfate as SO4	0.5	365110	1	353321	2.5	332900	5	313738.2	25	308262.3	50	308796.8

INITIAL CALIBRATION DATA (Continued)

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	3351002	Instrument:	WC-IC	
Matrix:	Water	Calibration Dates:	12/10/13 16:44	12/10/13 18:46

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate as N	12.5	1017034	25	1032948								
Nitrite as N	12.5	743872.1	25	627085.2								
Bromide	31.5	178666.7	63	182048.9								
Chloride	125	404190.3	250	404326.4								
Fluoride	12.5	~~559804.6~~	25	~~506008.4~~								
Sulfate as SO4	125	300572.3	250	300597.6								

INITIAL CALIBRATION DATA (Continued)

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	3351002	Instrument:	WC-IC
Matrix:	Water	Calibration Dates:	12/10/13 16:44 12/10/13 18:46

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Nitrate as N	953224.6	9.050688	9.2925	2.89029				*
Nitrite as N	860609.6	13.77032	5.41	1.226206				*
Bromide	161813.3	12.41877	7.8425	1.187843	0.9998959		0.995	
Chloride	402419.8	2.039875	4.46125	0.5546317	0.9999818		0.995	
Fluoride	655884.5	2.664565	3.07	2.432736E-02	0.9991903		0.995	
Sulfate as SO4	322912.3	7.675524	5.99	2.923035	0.9999575		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4104001	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	4/14/14 13:43	4/14/14 13:53

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	2	3.566	1.6	3.68	1.2	3.76	0.8	3.84375	0.4	4.105	0.2	4.1815

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4104001	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	4/14/14 13:43	4/14/14 13:53

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	0.1	4.189	0	0								

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4104001	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	4/14/14 13:43	4/14/14 13:53

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Nitrate/Nitrite as N	3.415656	40.98892	32.73	4.469332	0.9987609		0.99	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4113002	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	4/23/14 13:33	4/23/14 13:43

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	2	3.7135	1.6	3.823125	1.2	3.83	0.8	3.86875	0.4	4.05	0.2	4.0395

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4113002	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	4/23/14 13:33	4/23/14 13:43

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	0.1	4.095	0	0								

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4113002	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	4/23/14 13:33	4/23/14 13:43

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Nitrate/Nitrite as N	3.427484	40.59302	32.21375	3.585318	0.9994725		0.99	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

PREPARATION BENCH SHEET

4D03010

Empirical Laboratories, LLC

Printed: 4/22/2014 2:00:56PM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404016-01	A	WC_ANIONS_9056A (Regular)	04/03/2014	5	5					NA	see versions
1404016-03	A	WC_ANIONS_9056A (Regular)	04/03/2014	5	5					NA	see versions
1404016-05	A	WC_ANIONS_9056A (Regular)	04/03/2014	5	5					NA	see versions
1404017-01	D	WC_ANIONS_300.0 (Regular)	04/03/2014	5	5					NA	Added for BatchQC in: 4D03010
1404017-01	D	WC_ANIONS_300.0 (Short Hol	04/03/2014	5	5					NA	Added for BatchQC in: 4D03010
1404017-01	D	WC_ANIONS_9056A (Regular)	04/03/2014	5	5					NA	see versions
1404017-03	D	WC_ANIONS_9056A (Regular)	04/03/2014	5	5					NA	see versions
1404017-05	D	WC_ANIONS_9056A (Regular)	04/03/2014	5	5					NA	see versions
1404017-07	D	WC_ANIONS_9056A (Regular)	04/03/2014	5	5					NA	see versions
1404019-01	A	WC_ANIONS_300.0 (Regular)	04/03/2014	5	5					NA	F- only
1404019-02	A	WC_ANIONS_300.0 (Regular)	04/03/2014	5	5					NA	F- only
1404019-03	A	WC_ANIONS_300.0 (Regular)	04/03/2014	5	5					NA	F- only
1404019-04	A	WC_ANIONS_300.0 (Regular)	04/03/2014	5	5					NA	F- only
1404019-05	A	WC_ANIONS_300.0 (Regular)	04/03/2014	5	5					NA	F- only
1404019-06	A	WC_ANIONS_300.0 (Regular)	04/03/2014	5	5					NA	F- only
1404019-07	A	WC_ANIONS_300.0 (Short Hol	04/03/2014	5	5					NA	Added for BatchQC in: 4D03010
1404019-07	A	WC_ANIONS_9056A (Regular)	04/03/2014	5	5					NA	Added for BatchQC in: 4D03010
1404019-07	A	WC_ANIONS_300.0 (Regular)	04/03/2014	5	5					NA	F- only
1404019-08	A	WC_ANIONS_300.0 (Regular)	04/03/2014	5	5					NA	F- only
1404019-09	A	WC_ANIONS_300.0 (Regular)	04/03/2014	5	5					NA	F- only
1404019-10	A	WC_ANIONS_300.0 (Regular)	04/03/2014	5	5					NA	F- only
1404021-03	-	WC_ANIONS_300.0 (Short Hol	04/03/2014	5	5					NA	see versions

PREPARATION BENCH SHEET

4D03010

Empirical Laboratories, LLC

Printed: 4/22/2014 2:00:56PM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404021-07	-	WC_ANIONS_300.0 (Short Hol	04/03/2014	5	5					NA	see versions
1404021-08	-	WC_ANIONS_300.0 (Short Hol	04/03/2014	5	5					NA	see versions
4D03010-BLK1		QC	04/03/2014	5	5					NA	
4D03010-BS1		QC	04/03/2014	5	5	14C0301		5000		NA	
4D03010-DUP1		QC	04/03/2014	5	5		1404017-01			NA	
4D03010-DUP2		QC	04/03/2014	5	5		1404019-07			NA	
4D03010-MS1		QC	04/03/2014	22.5	25	14C0398	1404017-01	2500		NA	
4D03010-MS2		QC	04/03/2014	22.5	25	14C0398	1404019-07	2500		NA	
4D03010-MSD1		QC	04/03/2014	22.5	25	14C0398	1404017-01	2500		NA	
4D03010-MSD2		QC	04/03/2014	22.5	25	14C0398	1404019-07	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4D08013

Empirical Laboratories, LLC

Printed: 4/9/2014 10:35:14AM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1403081-02RE1	F	WC_ANIONS_300.0 (Regular)	04/08/2014	5	5					NA	RR at 5X for Cl
1403081-07RE1	F	WC_ANIONS_300.0 (Regular)	04/08/2014	5	5					NA	RR at 20X for SO4
1403157-01RE1	D	WC_ANIONS_9056A (Regular)	04/08/2014	5	5					NA	RR at 2X for SO4
1403160-03RE1	A	WC_ANIONS_9056A (Regular)	04/08/2014	5	5					NA	RR at 2X for SO4
1404041-01	D	WC_ANIONS_9056A (Regular)	04/08/2014	5	5					NA	see versions
1404041-03	D	WC_ANIONS_9056A (Regular)	04/08/2014	5	5					NA	see versions
1404041-05	D	WC_ANIONS_9056A (Regular)	04/08/2014	5	5					NA	see versions
1404041-07	D	WC_ANIONS_300.0 (Short Hol	04/08/2014	5	5					NA	Added for BatchQC in: 4D08013
1404041-07	D	WC_ANIONS_9056A (Regular)	04/08/2014	5	5					NA	see versions
1404041-07	D	WC_ANIONS_300.0 (Regular)	04/08/2014	5	5					NA	Added for BatchQC in: 4D08013
1404054-04	B	WC_ANIONS_300.0 (Short Hol	04/08/2014	5	5					NA	see versions
4D08013-BLK1		QC	04/08/2014	5	5					NA	
4D08013-BS1		QC	04/08/2014	5	5	14C0301		5000		NA	
4D08013-DUP1		QC	04/08/2014	5	5		1404041-07			NA	
4D08013-MS1		QC	04/08/2014	22.5	25	14C0398	1404041-07	2500		NA	
4D08013-MSD1		QC	04/08/2014	22.5	25	14C0398	1404041-07	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4D08014

Empirical Laboratories, LLC

Printed: 4/25/2014 11:09:46AM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404017-01	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404017-03	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404017-05	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404017-07	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404041-01	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404041-03	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404041-05	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404041-07	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404065-01	A	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404066-01	A	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404066-03	A	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	MS/MSD
1404067-01	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404067-03	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404067-05	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
4D08014-BLK1		QC	04/09/2014	100	100					NA	
4D08014-BS1		QC	04/09/2014	20	20	14B0390		20000		NA	
4D08014-DUP1		QC	04/09/2014	100	100		1404066-03			NA	

Reagents Used:

Standard	Description
13L0250	Syringe Filters - Glass Fiber, 25mm, 1.5um, 200pk

PREPARATION BENCH SHEET

4D14009

Empirical Laboratories, LLC

Printed: 4/24/2014 4:40:04PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404016-01	C	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404016-01RE1	C	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	Added 4/14/2014 by RGB
1404016-03	C	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404016-05	C	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404017-01	E	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404017-03	E	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404017-05	E	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404017-07	E	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404021-01	A	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404021-03	A	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404021-03RE1	A	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	Added 4/14/2014 by RGB
1404024-01	A	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404055-01	A	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404056-01	A	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
1404075-01	A	WC_NO3NO2_N_353.2	04/14/2014	4	20					NA	
4D14009-BLK1		QC	04/14/2014	20	20					NA	
4D14009-BS1		QC	04/14/2014	2	20	14A0409		2000		NA	
4D14009-MS1		QC	04/14/2014	4	20	14B0358	1404017-01	500		NA	
4D14009-MSD1		QC	04/14/2014	4	20	14B0358	1404017-01	500		NA	

PREPARATION BENCH SHEET

4D14009

Empirical Laboratories, LLC

Printed: 4/24/2014 4:40:04PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description
14A0570	NO3/NO2 Carrier (Acid DI)
14B0522	NO2/NO3 Sulfanilimide Color Reagent
14C0133	NO2/NO3 Buffer

PREPARATION BENCH SHEET

4D22007

Empirical Laboratories, LLC

Printed: 4/25/2014 11:10:15AM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404001-02	A	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	Covers 9056A water AND soil, also. MKM 20140402
1404001-02	A	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	Covers 9056A water AND soil, also. MKM 20140402
1404041-01RE1	D	WC_ANIONS_9056A (Regular)	04/22/2014	5	5					NA	RR for F
1404041-03RE1	D	WC_ANIONS_9056A (Regular)	04/22/2014	5	5					NA	RR for F
1404041-05RE1	D	WC_ANIONS_9056A (Regular)	04/22/2014	5	5					NA	RR for F
1404041-07RE1	D	WC_ANIONS_9056A (Regular)	04/22/2014	5	5					NA	RR for F
1404139-04	B	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	see versions
1404140-01	B	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	see version
1404140-02	B	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	see version
1404141-01	P	WC_ANIONS_9056A (Regular)	04/22/2014	5	5					NA	Added for BatchQC in: 4D22007
1404141-01	P	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	MS/MSD
1404141-01	P	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	MS/MSD
1404141-02	F	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	
1404141-02	F	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	
1404141-03	F	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	
1404141-03	F	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	
1404141-04	F	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	
1404141-04	F	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	
1404141-05	F	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	
1404141-05	F	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	
1404141-06	F	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	
1404141-06	F	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	

PREPARATION BENCH SHEET

4D22007

Empirical Laboratories, LLC

Printed: 4/25/2014 11:10:15AM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404141-07	F	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	
1404141-07	F	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	
1404141-08	F	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	
1404141-08	F	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	
1404141-09	F	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	
1404141-09	F	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	
1404141-10	F	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	
1404141-10	F	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	
1404142-01	P	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	MS/MSD
1404142-01	P	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	MS/MSD
1404142-01	P	WC_ANIONS_9056A (Regular)	04/22/2014	5	5					NA	Added for BatchQC in: 4D22007
1404142-02	F	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	
1404142-02	F	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	
1404142-03	F	WC_ANIONS_300.0 (Short Hol	04/22/2014	5	5					NA	
1404142-03	F	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	
4D22007-BLK1		QC	04/22/2014	5	5					NA	
4D22007-BS1		QC	04/22/2014	5	5	14D0348		5000		NA	
4D22007-DUP1		QC	04/22/2014	5	5		1404141-01			NA	
4D22007-DUP2		QC	04/22/2014	5	5		1404142-01			NA	
4D22007-MRL1		QC	04/22/2014	5	5	14D0666		3300		NA	
4D22007-MRL2		QC	04/22/2014	5	5	14D0666		5000		NA	
4D22007-MRL3		QC	04/22/2014	5	5	14D0667		5000		NA	

PREPARATION BENCH SHEET

4D22007

Empirical Laboratories, LLC

Printed: 4/25/2014 11:10:15AM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D22007-MRL4		QC	04/22/2014	5	5	14D0668		5000		NA	
4D22007-MRL5		QC	04/22/2014	5	5	14D0669		750		NA	
4D22007-MS1		QC	04/22/2014	22.5	25	14C0398	1404141-01	2500		NA	
4D22007-MS2		QC	04/22/2014	22.5	25	14C0398	1404142-01	2500		NA	
4D22007-MSD1		QC	04/22/2014	22.5	25	14C0398	1404141-01	2500		NA	
4D22007-MSD2		QC	04/22/2014	22.5	25	14C0398	1404142-01	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4D23024

Empirical Laboratories, LLC

Printed: 4/25/2014 11:10:41AM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404041-01	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404041-03	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404041-05	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404041-07	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404067-01	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404067-03	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404067-05	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404101-01	C	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404114-01	A	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404114-01RE1	A	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	Added 4/23/2014 by RGB
1404114-03	A	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404114-03RE1	A	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	Added 4/23/2014 by RGB
1404115-01	A	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
4D23024-BLK1		QC	04/23/2014	20	20					NA	
4D23024-BS1		QC	04/23/2014	2	20	14A0409		2000		NA	
4D23024-MS1		QC	04/23/2014	4	20	14B0358	1404041-01	500		NA	
4D23024-MSD1		QC	04/23/2014	4	20	14B0358	1404041-01	500		NA	

Reagents Used:

Standard	Description
14A0570	NO3/NO2 Carrier (Acid DI)
14C0133	NO2/NO3 Buffer
14D0740	NO2/NO3 Sulfanilimide Color Reagent

PREPARATION BENCH SHEET

4D23024

Empirical Laboratories, LLC

Printed: 4/25/2014 11:10:41AM

Instrument:

Matrix: Water

Prepared using: WC - pNone

(No Surrogate)

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Subcontractor Data Package

April 24, 2014

Ms. Maryanne Walker
Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228

Re:	ALS Workorder:	14-04-027
	Project Name:	Kirtland AFB
	Project Number:	150577

Dear Ms. Walker:

Four water samples were received from Empirical Laboratories, LLC on April 02, 2014. The samples were scheduled for the following analyses:

Radium-226	pages 1-19
Radium-228	pages 1-21
Gross Alpha/Beta	pages 1-21

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
For Julie Ellingson
Project Manager

JME/mlc
Enclosure (s): CD

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 FAX +1 970 490 1522
ALS GROUP USA, CORP. Part of the ALS Laboratory Group An ALS Limited Company

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404027
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF001-30001	1404027-1		WATER	31-Mar-14	16:26
LF001-30002	1404027-2		WATER	31-Mar-14	12:23
LF001-30003	1404027-3		WATER	31-Mar-14	16:50
LF001-30004	1404027-4		WATER	31-Mar-14	12:36

RAP

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-120

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 01 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370783

Bill To: 1404027

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) [signature] / Shaw — Date: 4/1/14 Time: 1600
2. Relinquished By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation) [signature] / ALS-Fort Collins — Date: 4/2/14 Time: 0940
2. Received By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF001-30001	KAFB0118-GW-LF001-30001-REG (1)	31 MAR 2014	16:26	1 L HDPE	4	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30002	KAFB0119-GW-LF001-30002-REG (2)	31 MAR 2014	12:23	1 L HDPE	4	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30003	KAFB0120-GW-LF001-30003-REG (3)	31 MAR 2014	16:50	1 L HDPE	4	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30004	KAFB0121-GW-LF001-30004-REG (4)	31 MAR 2014	12:36	1 L HDPE	4	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CB+I Workorder No: 1404027

Project Manager: JME Initials: JCR Date: 4/2/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	(RAD ONLY)	(YES)	NO

Cooler #:	1							
Temperature (°C):	5.6°							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information: External µR/hr reading:	11							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-2-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Rad

1404027

Temp = 5.6°C

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J121312100/0225

Ship Date: 01APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511

BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

WED - 02 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 0783

80524
CO-US
DEN

XH FTCA

Delivery Address Bar Code

512C1/C4F1 A2 cb

Gross Alpha/Beta

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404027

1. This report consists of the analytical results for four water samples received by ALS on 04/02/14.

2. The samples were prepared according to the current revision of SOP 702. Standard Operating Procedure 702 is compliant with method SW846-9010.

3. The samples were analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. The analyses were completed on 04/10/14. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. No anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Linda Arend Radiochemistry Primary Data Reviewer	4/22/14 Date
Radiochemistry Final Data Reviewer	4/23/14 Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404027
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF001-30001	1404027-1		WATER	31-Mar-14	16:26
LF001-30002	1404027-2		WATER	31-Mar-14	12:23
LF001-30003	1404027-3		WATER	31-Mar-14	16:50
LF001-30004	1404027-4		WATER	31-Mar-14	12:36

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-120

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 01 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370783

Bill To: 1404027

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) [signature] / Shaw — Date: 4/1/14 Time: 1600
2. Relinquished By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation) [signature] / ALS-Fort Collins — Date: 4/2/14 Time: 0940
2. Received By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF001-30001	KAFB0118-GW-LF001-30001-REG (1)	31 MAR 2014	16:26	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30002	KAFB0119-GW-LF001-30002-REG (2)	31 MAR 2014	12:23	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30003	KAFB0120-GW-LF001-30003-REG (3)	31 MAR 2014	16:50	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30004	KAFB0121-GW-LF001-30004-REG (4)	31 MAR 2014	12:36	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CB+I Workorder No: 1404027

Project Manager: JME Initials: JCR Date: 4/2/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	(RAD ONLY)	(YES)	NO

Cooler #:	1
Temperature (°C):	5.6°
No. of custody seals on cooler:	2
DOT Survey/ Acceptance Information — External µR/hr reading:	11
Background µR/hr reading:	10

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-2-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

Rad

1404027

Temp = 5.6°C

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J12131210091225

Ship Date: 01APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

11
-2

WED - 02 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 0783

80524
CO-US
DEN

XH FTCA

5120/C4FI A2 00

Section 2

❷

SAMPLE RESULTS SUMMARY

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404027

Reported on: Tuesday, April 22, 2014
9:44:00 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404027-1	LF001-30001	Sample	GROSS ALPHA	0.47 +/- 0.90	1.95	pCi/l	WATER	AB140403-1	4/7/2014	U
1404027-1	LF001-30001	Sample	GROSS BETA	1.8 +/- 1.4	2.7	pCi/l	WATER	AB140403-1	4/7/2014	U
1404027-2	LF001-30002	Sample	GROSS ALPHA	1.19 +/- 0.98	1.81	pCi/l	WATER	AB140403-1	4/7/2014	U
1404027-2	LF001-30002	Sample	GROSS BETA	1.5 +/- 1.3	2.8	pCi/l	WATER	AB140403-1	4/7/2014	U
1404027-3	LF001-30003	Sample	GROSS ALPHA	0.2 +/- 1.1	2.5	pCi/l	WATER	AB140403-1	4/7/2014	U
1404027-3	LF001-30003	Sample	GROSS BETA	1.5 +/- 1.6	3.4	pCi/l	WATER	AB140403-1	4/7/2014	U
1404027-4	LF001-30004	Sample	GROSS ALPHA	1.6 +/- 1.1	1.9	pCi/l	WATER	AB140403-1	4/7/2014	U
1404027-4	LF001-30004	Sample	GROSS BETA	1.2 +/- 1.6	3.4	pCi/l	WATER	AB140403-1	4/7/2014	U

Comments:

Data Package ID: *AB1404027-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140403-1MB

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 03-Apr-14
Date Prepared: 03-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 1000 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABA0410A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	-0.04 +/- 0.35	0.61	3	U
12587-47-2	GROSS BETA	0.70 +/- 0.61	0.99	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *AB1404027-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140403-1LCS

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 03-Apr-14
Date Prepared: 03-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 30 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABC0410A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
12587-46-1	GROSS ALPHA	239 +/- 44	7	206.8	116	70 - 130	P,M3
12587-47-2	GROSS BETA	222 +/- 38	12	216.6	102	70 - 130	P,M3

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *AB1404027-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30004
Lab ID: 1404027-4DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 31-Mar-14
Date Prepared: 03-Apr-14
Date Analyzed: 07-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0407B

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
12587-46-1	GROSS ALPHA	1.6 +/- 1.1	1.9	U	1.2 +/- 1.2	2.2	U	0.269	2.13
12587-47-2	GROSS BETA	1.2 +/- 1.6	3.4	U	2.8 +/- 1.7	3.4	U	0.659	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *AB1404027-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30001
Lab ID: 1404027-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 31-Mar-14
Date Prepared: 03-Apr-14
Date Analyzed: 07-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 180 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0407D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.47 +/- 0.90	1.95	3	U
12587-47-2	GROSS BETA	1.8 +/- 1.4	2.7	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404027-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30002
Lab ID: 1404027-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 31-Mar-14
Date Prepared: 03-Apr-14
Date Analyzed: 07-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 190 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0407D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	1.19 +/- 0.98	1.81	3	U
12587-47-2	GROSS BETA	1.5 +/- 1.3	2.8	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404027-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30003
Lab ID: 1404027-3

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 31-Mar-14
Date Prepared: 03-Apr-14
Date Analyzed: 07-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0407B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.2 +/- 1.1	2.5	3	U
12587-47-2	GROSS BETA	1.5 +/- 1.6	3.4	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404027-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30004
Lab ID: 1404027-4

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 31-Mar-14
Date Prepared: 03-Apr-14
Date Analyzed: 07-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0407B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	1.6 +/- 1.1	1.9	3	U
12587-47-2	GROSS BETA	1.2 +/- 1.6	3.4	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404027-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30004
Lab ID: 1404027-4DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 31-Mar-14
Date Prepared: 03-Apr-14
Date Analyzed: 07-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0407B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	1.2 +/- 1.2	2.2	3	U
12587-47-2	GROSS BETA	2.8 +/- 1.7	3.4	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404027-1*

Section 5

RAW DATA

5

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404027

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Friday, April 11, 2014
10:39:05 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404027-1	GROSS ALPHA	3/31/2014	AB140403-1	NA	NA	WATER	180 ml	LB4100-C	AB140403-1A	4/7/2014	0.167	22.61%	180	0.47	1.95	pCi/l	NA	
SMP	Trg. Analyte	4:26:00 PM	AB140403-1-3	NA	NA	NA	180 ml	C2	ABC0407D	1:18 PM	0.132	NA	NA	0.90	NA	Unfiltered	NA	U
1404027-1	GROSS BETA	3/31/2014	AB140403-1	NA	NA	WATER	180 ml	LB4100-C	AB140403-1A	4/7/2014	1.939	44.19%	180	1.8	2.7	pCi/l	NA	
SMP	Trg. Analyte	4:26:00 PM	AB140403-1-3	NA	NA	NA	180 ml	C2	ABC0407D	1:18 PM	1.625	NA	NA	1.4	NA	Unfiltered	NA	U
1404027-2	GROSS ALPHA	3/31/2014	AB140403-1	NA	NA	WATER	190 ml	LB4100-C	AB140403-1A	4/7/2014	0.206	21.97%	180	1.19	1.81	pCi/l	NA	
SMP	Trg. Analyte	12:23:00 PM	AB140403-1-3	NA	NA	NA	190 ml	C3	ABC0407D	1:18 PM	0.117	NA	NA	0.98	NA	Unfiltered	NA	U
1404027-2	GROSS BETA	3/31/2014	AB140403-1	NA	NA	WATER	190 ml	LB4100-C	AB140403-1A	4/7/2014	2.094	43.82%	180	1.5	2.8	pCi/l	NA	
SMP	Trg. Analyte	12:23:00 PM	AB140403-1-3	NA	NA	NA	190 ml	C3	ABC0407D	1:18 PM	1.811	NA	NA	1.3	NA	Unfiltered	NA	U
1404027-3	GROSS ALPHA	3/31/2014	AB140403-1	NA	NA	WATER	200 ml	LB4100-A	AB140403-1A	4/7/2014	0.158	21.07%	120	0.2	2.5	pCi/l	NA	
SMP	Trg. Analyte	4:50:00 PM	AB140403-1-3	NA	NA	NA	200 ml	A1	ABA0407B	2:07 PM	0.141	NA	NA	1.1	NA	Unfiltered	NA	U
1404027-3	GROSS BETA	3/31/2014	AB140403-1	NA	NA	WATER	200 ml	LB4100-A	AB140403-1A	4/7/2014	2.258	41.47%	120	1.5	3.4	pCi/l	NA	
SMP	Trg. Analyte	4:50:00 PM	AB140403-1-3	NA	NA	NA	200 ml	A1	ABA0407B	2:07 PM	1.978	NA	NA	1.6	NA	Unfiltered	NA	U
1404027-4	GROSS ALPHA	3/31/2014	AB140403-1	NA	NA	WATER	200 ml	LB4100-A	AB140403-1A	4/7/2014	0.217	22.81%	120	1.6	1.9	pCi/l	NA	
SMP	Trg. Analyte	12:36:00 PM	AB140403-1-3	NA	NA	NA	200 ml	A2	ABA0407B	2:07 PM	0.088	NA	NA	1.1	NA	Unfiltered	NA	U
1404027-4	GROSS BETA	3/31/2014	AB140403-1	NA	NA	WATER	200 ml	LB4100-A	AB140403-1A	4/7/2014	2.258	42.06%	120	1.2	3.4	pCi/l	NA	
SMP	Trg. Analyte	12:36:00 PM	AB140403-1-3	NA	NA	NA	200 ml	A2	ABA0407B	2:07 PM	1.995	NA	NA	1.6	NA	Unfiltered	NA	U
1404027-4	GROSS ALPHA	3/31/2014	AB140403-1	NA	NA	WATER	200 ml	LB4100-A	AB140403-1A	4/7/2014	0.192	21.55%	120	1.2	2.2	pCi/l	0.27	
DUP	Trg. Analyte	12:36:00 PM	AB140403-1-3	NA	NA	NA	200 ml	A3	ABA0407B	2:07 PM	0.106	NA	NA	1.2	NA	Unfiltered	NA	U
1404027-4	GROSS BETA	3/31/2014	AB140403-1	NA	NA	WATER	200 ml	LB4100-A	AB140403-1A	4/7/2014	2.650	43.49%	120	2.8	3.4	pCi/l	0.66	
DUP	Trg. Analyte	12:36:00 PM	AB140403-1-3	NA	NA	NA	200 ml	A3	ABA0407B	2:07 PM	2.100	NA	NA	1.7	NA	Unfiltered	NA	U
AB140403-1	GROSS ALPHA	4/3/2014	AB140403-1	NA	NA	WATER	200 ml	LB4100-A	AB140403-1A	4/10/2014	0.085	22.41%	1000	-0.04	0.61	pCi/l	NA	
MB	Trg. Analyte	9:33:16 AM	AB140403-1-3	NA	NA	NA	200 ml	B2	ABA0410A	3:12 PM	0.088	NA	NA	0.35	NA	Unfiltered	NA	U

Comments:

Data Package ID: *AB1404027-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

2014.21

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404027

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Friday, April 11, 2014
10:39:05 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
AB140403-1	GROSS BETA	4/3/2014	AB140403-1	NA	NA	WATER	200 ml	LB4100-A	AB140403-1A	4/10/2014	1.829	44.89%	1000	0.70	0.99	pCi/l	NA	
MB	Trg. Analyte	9:33:16 AM	AB140403-1-3	NA	NA	NA	200 ml	B2	ABA0410A	3:12 PM	1.692	NA	NA	0.61	NA	Unfiltered	NA	U
AB140403-1	GROSS ALPHA	4/3/2014	AB140403-1	NA	NA	WATER	200 ml	LB4100-C	AB140403-1A	4/10/2014	17.167	21.48%	30	239	7	pCi/l	NA	116
LCS	Trg. Analyte	9:33:16 AM	AB140403-1-3	NA	NA	NA	200 ml	B3	ABC0410A	8:24 AM	0.104	NA	NA	44	NA	Unfiltered	NA	P,M3
AB140403-1	GROSS BETA	4/3/2014	AB140403-1	NA	NA	WATER	200 ml	LB4100-C	AB140403-1A	4/10/2014	46.333	43.01%	30	222	12	pCi/l	NA	102
LCS	Trg. Analyte	9:33:16 AM	AB140403-1-3	NA	NA	NA	200 ml	B3	ABC0410A	8:24 AM	1.725	NA	NA	38	NA	Unfiltered	NA	P,M3

Comments:

Data Package ID: *AB1404027-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
+ - Duplicate RPD not within limits.
LT - Result is less than Request MDC, greater than sample specific MDC
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits
NC - Not Calculated for duplicate results less than 5 times MDC
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).
2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte
TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
DER - Duplicate Error Ratio
BDL - Below Detection Limit

Radium-226

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404027

1. This report consists of the analytical results for four water samples received by ALS on 04/02/14.

2. These samples were prepared according to the current revision of SOP 712. Standard Operating Procedure 712 is compliant with method SW846-9315.

3. These samples were analyzed for the presence of ^{226}Ra according to the current revision of SOP 724. The analyses were completed on 04/22/14.

4. This test is a screen for ^{226}Ra and could show high bias in sample results if other alpha emitting isotopes of radium are contained in the samples (esp.^{224}Ra and ^{223}Ra). The potential for this interference has been reduced by allowing the interfering nuclides to decay for at least 14 days.

5. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

6. ICP-AES measurement of barium concentrations prior to chemical separation for the associated QC samples showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

7. Due to uncertainty associated with the ICP-AES determination of barium concentration in the samples, the calculated yield for samples 1404027-1 and -3 fell between 100% and 110%. To minimize the potential for low bias, results have been calculated conservatively assuming quantitative chemical yield (100%). The magnitude of the low bias is estimated to be less than 10% of the reported value and is acceptable according the ALS LQAP. These samples are identified with a “Y1” flag on the final reports.

8. ALS uses the following convention for reporting significant digits in the TPU and MDC results. The TPU value is rounded to two significant digits. The MDC value is rounded to the same decimal place as the TPU value. In practice, this could result in an MDC reported value of zero for samples with significant activity, including the batch laboratory control sample.

9. No further anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Linda Arend Radiochemistry Primary Data Reviewer	4/23/14 Date
Radiochemistry Final Data Reviewer	4/23/14 Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404027
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF001-30001	1404027-1		WATER	31-Mar-14	16:26
LF001-30002	1404027-2		WATER	31-Mar-14	12:23
LF001-30003	1404027-3		WATER	31-Mar-14	16:50
LF001-30004	1404027-4		WATER	31-Mar-14	12:36

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-120

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 01 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370783

Bill To: 1404027

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) Shaw — Date: 4/1/14 Time: 1600
2. Relinquished By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation) ALS-Fort Collins — Date: 4/2/14 Time: 0940
2. Received By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF001-30001	KAFB0118-GW-LF001-30001-REG (1)	31 MAR 2014	16:26	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30002	KAFB0119-GW-LF001-30002-REG (2)	31 MAR 2014	12:23	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30003	KAFB0120-GW-LF001-30003-REG (3)	31 MAR 2014	16:50	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30004	KAFB0121-GW-LF001-30004-REG (4)	31 MAR 2014	12:36	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CB+I Workorder No: 1404027

Project Manager: JME Initials: JCR Date: 4/2/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	(RAD ONLY)	(YES)	NO

Cooler #:	1
Temperature (°C):	5.6°
No. of custody seals on cooler:	2
DOT Survey/ Acceptance Information — External µR/hr reading:	11
Background µR/hr reading:	10

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-2-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

Rad

1404027

Temp = 5.6°C

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J121312100/1225

Ship Date: 01APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

11
-2

WED - 02 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 0783

80524
CO-US
DEN

XH FTCA

5120 1/C4FI A2 00

Section 2

❷

SAMPLE RESULTS SUMMARY

Ra-226 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404027

Reported on: Wednesday, April 23, 2014
7:42:41 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404027-1	LF001-30001	Sample	Ra-226	0.18 +/- 0.14	0.21	pCi/l	WATER	TR140405-1	4/22/2014	Y1,U
1404027-2	LF001-30002	Sample	Ra-226	0.14 +/- 0.13	0.22	pCi/l	WATER	TR140405-1	4/22/2014	U
1404027-3	LF001-30003	Sample	Ra-226	0.10 +/- 0.12	0.22	pCi/l	WATER	TR140405-1	4/22/2014	Y1,U
1404027-4	LF001-30004	Sample	Ra-226	0.08 +/- 0.10	0.19	pCi/l	WATER	TR140405-1	4/22/2014	U

Comments:

Data Package ID: *TR1404027-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140405-1MB

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 05-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0422A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.09 +/- 0.11	0.21	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15800	15330	ug	97.1	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *TR1404027-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140405-1LCS

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 05-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0422A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	51 +/- 13	0	45.30	112	75 - 125	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15800	14090	ug	89.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404027-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30001
Lab ID: 1404027-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 31-Mar-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.18 +/- 0.14	0.21	1	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15890	16380	ug	103	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404027-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30002
Lab ID: 1404027-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 31-Mar-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.14 +/- 0.13	0.22	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15890	15640	ug	98.5	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404027-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30003
Lab ID: 1404027-3

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 31-Mar-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.10 +/- 0.12	0.22	1	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15890	16110	ug	101	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404027-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30004
Lab ID: 1404027-4

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 31-Mar-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.08 +/- 0.10	0.19	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15890	15760	ug	99.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404027-1*

Section 5

RAW DATA

5

Ra-226 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404027

Prep SOP: PAI 712
Analytical SOP: PAI 724

Reported on: Tuesday, April 22, 2014
10:09:28 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404027-1	Ra-226	3/31/2014	TR140405-1	4/07/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	0.433	20.95%	30	0.18	0.21	pCi/l	NA	
SMP	Trg. Analyte	4:26:00 PM	TR140405-1-1	4:00:00 PM	NA	NA	995 ml	A4	RDC0422	8:24 AM	0.114	21.99%	103.0%	0.14	NA	Unfiltered	NA	Y1,U
1404027-2	Ra-226	3/31/2014	TR140405-1	4/07/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	0.367	20.28%	30	0.14	0.22	pCi/l	NA	
SMP	Trg. Analyte	12:23:00 PM	TR140405-1-1	4:00:00 PM	NA	NA	995 ml	B2	RDC0422	8:24 AM	0.118	21.38%	98.5%	0.13	NA	Unfiltered	NA	U
1404027-3	Ra-226	3/31/2014	TR140405-1	4/07/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	0.300	19.64%	30	0.10	0.22	pCi/l	NA	
SMP	Trg. Analyte	4:50:00 PM	TR140405-1-1	4:00:00 PM	NA	NA	995 ml	B4	RDC0422	8:24 AM	0.129	21.79%	101.0%	0.12	NA	Unfiltered	NA	Y1,U
1404027-4	Ra-226	3/31/2014	TR140405-1	4/07/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	0.233	20.20%	30	0.08	0.19	pCi/l	NA	
SMP	Trg. Analyte	12:36:00 PM	TR140405-1-1	4:00:00 PM	NA	NA	995 ml	C1	RDC0422	8:24 AM	0.088	22.08%	99.2%	0.10	NA	Unfiltered	NA	U
TR140405-1	Ra-226	4/5/2014	TR140405-1	4/08/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	0.233	20.43%	30	0.09	0.21	pCi/l	NA	
MB	Trg. Analyte	9:26:13 AM	TR140405-1-1	4:45:00 PM	NA	NA	995 ml	D2	RDC0422A	9:03 AM	0.088	21.37%	97.1%	0.11	NA	Unfiltered	NA	U
TR140405-1	Ra-226	4/5/2014	TR140405-1	4/08/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	80.700	20.63%	30	51	0	pCi/l	NA	112
LCS	Trg. Analyte	9:26:13 AM	TR140405-1-1	4:45:00 PM	NA	NA	995 ml	D3	RDC0422A	9:03 AM	0.089	21.88%	89.2%	13	NA	Unfiltered	NA	P

Comments:

Data Package ID: *TR1404027-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

Radium-228

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404027

1. This report consists of the analytical results for four water samples received by ALS on 04/02/14.

2. These samples were prepared according to the current revision of SOP 749. Standard Operating Procedure 749 is compliant with method SW-846 9320.

3. The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724. The analyses were completed on 04/21/14.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.

6. ICP-AES measurement of barium concentrations prior to chemical separation for the method blank, laboratory control sample, and laboratory control sample duplicate showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

7. No further anomalous situations were noted during the preparation and analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Emily Knodel Radiochemistry Primary Data Reviewer	4/22/14 Date
Radiochemistry Final Data Reviewer	4/23/14 Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404027
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF001-30001	1404027-1		WATER	31-Mar-14	16:26
LF001-30002	1404027-2		WATER	31-Mar-14	12:23
LF001-30003	1404027-3		WATER	31-Mar-14	16:50
LF001-30004	1404027-4		WATER	31-Mar-14	12:36

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-120

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 01 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370783

Bill To: 1404027

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) [signature] / Shaw — Date: 4/1/14 Time: 1600
2. Relinquished By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation) [signature] / ALS-Fort Collins — Date: 4/2/14 Time: 0940
2. Received By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF001-30001	KAFB0118-GW-LF001-30001-REG (1)	31 MAR 2014	16:26	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30002	KAFB0119-GW-LF001-30002-REG (2)	31 MAR 2014	12:23	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30003	KAFB0120-GW-LF001-30003-REG (3)	31 MAR 2014	16:50	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF001-30004	KAFB0121-GW-LF001-30004-REG (4)	31 MAR 2014	12:36	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CB+I Workorder No: 1404027

Project Manager: JME Initials: JCR Date: 4/2/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	(RAD ONLY)	(YES)	NO

Cooler #:	1
Temperature (°C):	5.6°
No. of custody seals on cooler:	2
DOT Survey/ Acceptance Information — External µR/hr reading:	11
Background µR/hr reading:	10

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-2-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

Rad

1404027

Temp = 5.6°C

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J12131210091225

Ship Date: 01APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

11
-2

WED - 02 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 0783

80524
CO-US
DEN

XH FTCA

5120/CAFE A2 00

Section 2

❷

SAMPLE RESULTS SUMMARY

Radium-228 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404027

Page: 1 of 1
Reported on: Tuesday, April 22, 2014
8:39:35 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404027-1	LF001-30001	Sample	Ra-228	0.11 +/- 0.21	0.46	pCi/l	WATER	RA140416-1	4/21/2014	U
1404027-2	LF001-30002	Sample	Ra-228	0.20 +/- 0.22	0.47	pCi/l	WATER	RA140416-1	4/21/2014	U
1404027-3	LF001-30003	Sample	Ra-228	0.13 +/- 0.21	0.46	pCi/l	WATER	RA140416-1	4/21/2014	U
1404027-4	LF001-30004	Sample	Ra-228	0.17 +/- 0.21	0.46	pCi/l	WATER	RA140416-1	4/21/2014	U

Comments:

Data Package ID: *RA1404027-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140416-1MB

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.08 +/- 0.23	0.50	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33900	32310	ug	95.3	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404027-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140416-1LCS

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 30 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0421A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	8.0 +/- 2.1	0.9	8.857	89.9	70 - 130	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33900	33010	ug	97.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *RA1404027-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140416-1LCSD

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 30 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0421B

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	8.7 +/- 2.2	0.9	8.856	98.2	70 - 130	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33900	32690	ug	96.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *RA1404027-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:
Lab ID: RA140416-1LCSD

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 30 minutes

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0421B

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
15262-20-1	Ra-228	8.0 +/- 2.1	0.9	P	8.7 +/- 2.2	0.9	P	0.241	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *RA1404027-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30001
Lab ID: 1404027-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 31-Mar-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.11 +/- 0.21	0.46	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34020	32860	ug	96.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404027-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30002
Lab ID: 1404027-2

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 31-Mar-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.20 +/- 0.22	0.47	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34060	33670	ug	98.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404027-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30003
Lab ID: 1404027-3

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 31-Mar-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.13 +/- 0.21	0.46	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34050	32810	ug	96.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404027-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30004
Lab ID: 1404027-4

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 31-Mar-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.17 +/- 0.21	0.46	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34100	33390	ug	97.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404027-1*

Section 5

RAW DATA

5

Radium-228 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404027

Prep SOP: SOP749
Analytical SOP: PAI 724

Reported on: Tuesday, April 22, 2014
10:31:21 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404027-1	Ra-228	3/31/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-C	RA140416-1A	4/21/2014	1.667	51.53%	120	0.11	0.46	pCi/l	NA	
SMP	Trg. Analyte	4:26:00 PM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	B2	RAC0421	10:16 AM	1.534	NA	96.6%	0.21	NA	Unfiltered	NA	U
1404027-2	Ra-228	3/31/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-C	RA140416-1A	4/21/2014	1.958	52.20%	120	0.20	0.47	pCi/l	NA	
SMP	Trg. Analyte	12:23:00 PM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	B4	RAC0421	10:16 AM	1.712	NA	98.8%	0.22	NA	Unfiltered	NA	U
1404027-3	Ra-228	3/31/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-C	RA140416-1A	4/21/2014	1.817	53.46%	120	0.13	0.46	pCi/l	NA	
SMP	Trg. Analyte	4:50:00 PM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	C1	RAC0421	10:16 AM	1.660	NA	96.4%	0.21	NA	Unfiltered	NA	U
1404027-4	Ra-228	3/31/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-C	RA140416-1A	4/21/2014	1.808	52.23%	120	0.17	0.46	pCi/l	NA	
SMP	Trg. Analyte	12:36:00 PM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	C2	RAC0421	10:16 AM	1.606	NA	97.9%	0.21	NA	Unfiltered	NA	U
RA140416-1	Ra-228	4/17/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-A	RA140416-1A	4/21/2014	2.058	53.71%	120	0.08	0.50	pCi/l	NA	
MB	Trg. Analyte	11:06:05 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	A4	RAA0421	10:16 AM	1.955	NA	95.3%	0.23	NA	Unfiltered	NA	U
RA140416-1	Ra-228	4/17/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-A	RA140416-1A	4/21/2014	12.867	53.93%	30	8.0	0.9	pCi/l	NA	89.9
LCS	Trg. Analyte	11:06:05 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	B2	RAA0421A	10:05 AM	1.692	NA	97.4%	2.1	NA	Unfiltered	NA	P
RA140416-1	Ra-228	4/17/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-A	RA140416-1A	4/21/2014	12.900	53.93%	30	8.7	0.9	pCi/l	0.24	98.2
LCSD	Trg. Analyte	11:06:05 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	B2	RAA0421B	10:45 AM	1.692	NA	96.4%	2.2	NA	Unfiltered	NA	P

Comments:

Data Package ID: *RA1404027-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

April 25, 2014

Ms. Maryanne Walker
Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228

Re:	ALS Workorder:	14-04-068
	Project Name:	Kirtland AFB
	Project Number:	150577

Dear Ms. Walker:

Four water samples were received from Empirical Laboratories, LLC on April 04, 2014. The samples were scheduled for the following analyses:

Radium-226	pages 1-21
Radium-228	pages 1-21
Gross Alpha/Beta	pages 1-22

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Julie Ellingson
Project Manager

JME/jl
Enclosure (s): CD

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522
ALS GROUP USA, CORP. Part of the ALS Laboratory Group An ALS Limited Company
Environmental
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RIGHT SOLUTIONS RIGHT PARTNER

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404068
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF002-30001	1404068-1		WATER	03-Apr-14	10:49
LF002-30002	1404068-2		WATER	03-Apr-14	10:49
LF002-30004	1404068-3		WATER	03-Apr-14	15:16
LF002-30005	1404068-4		WATER	02-Apr-14	14:21

RAD LF002

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-220
Page 1 of 1

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 03 APR 2014
Lab Destination: ALS - Fort Collins, CO
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370810

Bill To: 1404068

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification: Radiological
Non-hazard ✓ Flammable Skin Irritant Poison B Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) T Nagy / Shaw	Date: 4/3/14 Time: 1600	1. Received By (Signature/Affiliation)	Date: 4/4/14 Time: 0950
2. Relinquished By (Signature/Affiliation)	Date: Time:	2. Received By (Signature/Affiliation)	Date: Time:
3. Relinquished By (Signature/Affiliation)	Date: Time:	3. Received By (Signature/Affiliation)	Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF002-30001	KAFB0213-GW-LF002-30001-REG (1)	03 APR 2014	10:49	1 L HDPE	4 2	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30002	KAFB0213-GW-LF002-30002-FD (2)	03 APR 2014	10:49	1 L HDPE	4 2	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30004	KAFB0220-GW-LF002-30004-REG (3)	03 APR 2014	15:16	1 L HDPE	4 2	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30005	KAFB0221-GW-LF002-30005-REG (4)	02 APR 2014	14:21	1 L HDPE	4 2	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CB+I Workorder No: 1404068

Project Manager: JME Initials: JRR Date: 4/4/14

1.	Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2.	Are custody seals on shipping containers intact?	NONE	(YES)	NO
3.	Are Custody seals on sample containers intact?	(NONE)	YES	NO
4.	Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5.	Are the COC and bottle labels complete and legible?		(YES)	NO
6.	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7.	Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8.	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9.	Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10.	Is there sufficient sample for the requested analyses?		(YES)	NO
11.	Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12.	Are all samples within holding times for the requested analyses?		(YES)	NO
13.	Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15.	Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16.	Were the samples shipped on ice?		(YES)	NO
17.	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	(RAD ONLY)	(YES)	NO

Cooler #:	1							
Temperature (°C):	5.2°							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-4-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

1404068

Temp=5.2°C
(RAD only)

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J12131210070225

Ship Date: 03APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

Ref #
Invoice #
PO #
Dept #

FRI - 04 APR A2
PRIORITY OVERNIGHT

TRK# 5651 1937 0810
0201

XH FTCA

10

80524
CO-US
DEN

512C1/C4FF/C00

Gross Alpha/Beta

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404068

1. This report consists of the analytical results for four water samples received by ALS on 04/04/14.

2. The samples were prepared according to the current revision of SOP 702. Standard Operating Procedure 702 is compliant with method SW846-9310.

3. The samples were analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. The analyses were completed on 04/10/14. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. The requested MDC for gross beta for sample 1404068-2 was not achieved. This sample is identified with an “M3” qualifier on the final reports. The reported gross beta activity for samples with an “M3” qualifier exceeds the achieved MDC.

6. No further anomalous situations were encountered during the preparation or analysis of these samples. All remaining quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Emily Knodel — 4/23/14

Emily Knodel
Radiochemistry Primary Data Reviewer

Date

Radiochemistry Final Data Reviewer — 4/25/14

Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404068
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF002-30001	1404068-1		WATER	03-Apr-14	10:49
LF002-30002	1404068-2		WATER	03-Apr-14	10:49
LF002-30004	1404068-3		WATER	03-Apr-14	15:16
LF002-30005	1404068-4		WATER	02-Apr-14	14:21

RAD LF002

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-220

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 03 APR 2014
Lab Destination: ALS - Fort Collins, CO
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370810

Bill To: 1404068

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) Nagy | Shaw Date: 4/3/14 Time: 1600
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) Date: 4/4/14 Time: 0950
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF002-30001	KAFB0213-GW-LF002-30001-REG (1)	03 APR 2014	10:49	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30002	KAFB0213-GW-LF002-30002-FD (2)	03 APR 2014	10:49	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30004	KAFB0220-GW-LF002-30004-REG (3)	03 APR 2014	15:16	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30005	KAFB0221-GW-LF002-30005-REG (4)	02 APR 2014	14:21	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CB+I Workorder No: 1404068

Project Manager: JME Initials: JR Date: 4/4/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____> green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	(RAD ONLY)	(YES)	NO

Cooler #:	1							
Temperature (°C):	5.2°							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance information — External µR/hr reading:	10							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-4-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

1404068

Temp=5.2°C
(RAD only)

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J1213121006225

Ship Date: 03APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

FRI - 04 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 0810

XH FTCA

10

80524
CO-US
DEN

512C1/C4FH/CF60

Section 2

❷

SAMPLE RESULTS SUMMARY

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404068

Reported on: Wednesday, April 23, 2014
12:04:35 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404068-1	LF002-30001	Sample	GROSS ALPHA	4.3 +/- 1.8	2.5	pCi/l	WATER	AB140407-1	4/10/2014	
1404068-1	LF002-30001	Sample	GROSS BETA	2.8 +/- 1.6	3.0	pCi/l	WATER	AB140407-1	4/10/2014	U
1404068-2	LF002-30002	Sample	GROSS ALPHA	3.4 +/- 1.8	2.7	pCi/l	WATER	AB140407-1	4/10/2014	
1404068-2	LF002-30002	Sample	GROSS BETA	5.9 +/- 2.4	4.3	pCi/l	WATER	AB140407-1	4/10/2014	M3
1404068-3	LF002-30004	Sample	GROSS ALPHA	2.59 +/- 0.90	1.12	pCi/l	WATER	AB140407-1	4/10/2014	LT
1404068-3	LF002-30004	Sample	GROSS BETA	3.1 +/- 1.1	1.5	pCi/l	WATER	AB140407-1	4/10/2014	LT
1404068-4	LF002-30005	Sample	GROSS ALPHA	3.4 +/- 1.8	2.7	pCi/l	WATER	AB140407-1	4/10/2014	
1404068-4	LF002-30005	Sample	GROSS BETA	3.1 +/- 1.7	3.3	pCi/l	WATER	AB140407-1	4/10/2014	U

Comments:

Data Package ID: *AB1404068-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140407-1MB

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 07-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 1000 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABA0410B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	-0.18 +/- 0.36	0.65	3	U
12587-47-2	GROSS BETA	0.61 +/- 0.68	1.11	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *AB1404068-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140407-1LCS

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 07-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 30 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABC0410A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
12587-46-1	GROSS ALPHA	220 +/- 41	7	206.8	106	70 - 130	P,M3
12587-47-2	GROSS BETA	222 +/- 38	12	216.6	102	70 - 130	P,M3

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *AB1404068-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF002-30005
Lab ID:	1404068-4DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 02-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 160 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0410

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
12587-46-1	GROSS ALPHA	3.4 +/- 1.8	2.7		3.5 +/- 1.6	2.3		0.0526	2.13
12587-47-2	GROSS BETA	3.1 +/- 1.7	3.3	U	2.8 +/- 1.7	3.2	U	0.13	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *AB1404068-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF002-30001
Lab ID:	1404068-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 03-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 180 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0410

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	4.3 +/- 1.8	2.5	3	
12587-47-2	GROSS BETA	2.8 +/- 1.6	3.0	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404068-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF002-30002
Lab ID:	1404068-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 03-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 160 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0410

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.4 +/- 1.8	2.7	3	
12587-47-2	GROSS BETA	5.9 +/- 2.4	4.3	4	M3

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404068-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF002-30004
Lab ID:	1404068-3

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 03-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 1000 minutes
Report Basis: Unfiltered

Final Aliquot: 140 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0410I

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	2.59 +/- 0.90	1.12	3	LT
12587-47-2	GROSS BETA	3.1 +/- 1.1	1.5	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404068-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF002-30005
Lab ID:	1404068-4

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 02-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 160 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0410

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.4 +/- 1.8	2.7	3	
12587-47-2	GROSS BETA	3.1 +/- 1.7	3.3	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404068-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Duplicate Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF002-30005
Lab ID:	1404068-4DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 02-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 160 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0410

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.5 +/- 1.6	2.3	3	
12587-47-2	GROSS BETA	2.8 +/- 1.7	3.2	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404068-1*

Section 5

RAW DATA

5

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404068

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Friday, April 11, 2014
12:16:16 PM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404068-1	GROSS ALPHA	4/3/2014	AB140407-1	NA	NA	WATER	180 ml	LB4100-C	AB140407-1A	4/10/2014	0.339	21.97%	180	4.3	2.5	pCi/l	NA	
SMP	Trg. Analyte	10:49:00 AM	AB140407-1-2	NA	NA	NA	180 ml	C3	ABC0410	8:03 AM	0.112	NA	NA	1.8	NA	Unfiltered	NA	
1404068-1	GROSS BETA	4/3/2014	AB140407-1	NA	NA	WATER	180 ml	LB4100-C	AB140407-1A	4/10/2014	2.272	43.82%	180	2.8	3.0	pCi/l	NA	
SMP	Trg. Analyte	10:49:00 AM	AB140407-1-2	NA	NA	NA	180 ml	C3	ABC0410	8:03 AM	1.760	NA	NA	1.6	NA	Unfiltered	NA	U
1404068-2	GROSS ALPHA	4/3/2014	AB140407-1	NA	NA	WATER	160 ml	LB4100-C	AB140407-1A	4/10/2014	0.278	21.33%	180	3.4	2.7	pCi/l	NA	
SMP	Trg. Analyte	10:49:00 AM	AB140407-1-2	NA	NA	NA	160 ml	C4	ABC0410	8:03 AM	0.112	NA	NA	1.8	NA	Unfiltered	NA	
1404068-2	GROSS BETA	4/3/2014	AB140407-1	NA	NA	WATER	160 ml	LB4100-C	AB140407-1A	4/10/2014	3.872	43.70%	180	5.9	4.3	pCi/l	NA	
SMP	Trg. Analyte	10:49:00 AM	AB140407-1-2	NA	NA	NA	160 ml	C4	ABC0410	8:03 AM	2.980	NA	NA	2.4	NA	Unfiltered	NA	M3
1404068-3	GROSS ALPHA	4/3/2014	AB140407-1	NA	NA	WATER	140 ml	LB4100-C	AB140407-1A	4/10/2014	0.243	22.37%	1000	2.59	1.12	pCi/l	NA	
SMP	Trg. Analyte	3:16:00 PM	AB140407-1-2	NA	NA	NA	140 ml	B2	ABC0410I	4:25 PM	0.118	NA	NA	0.90	NA	Unfiltered	NA	LT
1404068-3	GROSS BETA	4/3/2014	AB140407-1	NA	NA	WATER	140 ml	LB4100-C	AB140407-1A	4/10/2014	1.958	42.65%	1000	3.1	1.5	pCi/l	NA	
SMP	Trg. Analyte	3:16:00 PM	AB140407-1-2	NA	NA	NA	140 ml	B2	ABC0410I	4:25 PM	1.534	NA	NA	1.1	NA	Unfiltered	NA	LT
1404068-4	GROSS ALPHA	4/2/2014	AB140407-1	NA	NA	WATER	160 ml	LB4100-C	AB140407-1A	4/10/2014	0.267	20.82%	180	3.4	2.7	pCi/l	NA	
SMP	Trg. Analyte	2:21:00 PM	AB140407-1-2	NA	NA	NA	160 ml	D1	ABC0410	8:03 AM	0.106	NA	NA	1.8	NA	Unfiltered	NA	
1404068-4	GROSS BETA	4/2/2014	AB140407-1	NA	NA	WATER	160 ml	LB4100-C	AB140407-1A	4/10/2014	2.078	42.67%	180	3.1	3.3	pCi/l	NA	
SMP	Trg. Analyte	2:21:00 PM	AB140407-1-2	NA	NA	NA	160 ml	D1	ABC0410	8:03 AM	1.601	NA	NA	1.7	NA	Unfiltered	NA	U
1404068-4	GROSS ALPHA	4/2/2014	AB140407-1	NA	NA	WATER	160 ml	LB4100-C	AB140407-1A	4/10/2014	0.272	22.84%	180	3.5	2.3	pCi/l	0.05	
DUP	Trg. Analyte	2:21:00 PM	AB140407-1-2	NA	NA	NA	160 ml	D2	ABC0410	8:03 AM	0.088	NA	NA	1.6	NA	Unfiltered	NA	
1404068-4	GROSS BETA	4/2/2014	AB140407-1	NA	NA	WATER	160 ml	LB4100-C	AB140407-1A	4/10/2014	2.033	42.96%	180	2.8	3.2	pCi/l	0.13	
DUP	Trg. Analyte	2:21:00 PM	AB140407-1-2	NA	NA	NA	160 ml	D2	ABC0410	8:03 AM	1.591	NA	NA	1.7	NA	Unfiltered	NA	U
AB140407-1	GROSS ALPHA	4/7/2014	AB140407-1	NA	NA	WATER	200 ml	LB4100-A	AB140407-1A	4/10/2014	0.081	21.95%	1000	-0.18	0.65	pCi/l	NA	
MB	Trg. Analyte	8:56:53 AM	AB140407-1-2	NA	NA	NA	200 ml	A4	ABA0410B	3:29 PM	0.094	NA	NA	0.36	NA	Unfiltered	NA	U

Comments:

Data Package ID: *AB1404068-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404068

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Friday, April 11, 2014
12:16:16 PM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
AB140407-1	GROSS BETA	4/7/2014	AB140407-1	NA	NA	WATER	200 ml	LB4100-A	AB140407-1A	4/10/2014	2.069	42.98%	1000	0.61	1.11	pCi/l	NA	
MB	Trg. Analyte	8:56:53 AM	AB140407-1-2	NA	NA	NA	200 ml	A4	ABA0410B	3:29 PM	1.955	NA	NA	0.68	NA	Unfiltered	NA	U
AB140407-1	GROSS ALPHA	4/7/2014	AB140407-1	NA	NA	WATER	200 ml	LB4100-C	AB140407-1A	4/10/2014	16.067	22.37%	30	220	7	pCi/l	NA	106
LCS	Trg. Analyte	8:56:53 AM	AB140407-1-2	NA	NA	NA	200 ml	B2	ABC0410A	8:24 AM	0.118	NA	NA	41	NA	Unfiltered	NA	P,M3
AB140407-1	GROSS BETA	4/7/2014	AB140407-1	NA	NA	WATER	200 ml	LB4100-C	AB140407-1A	4/10/2014	45.367	42.65%	30	222	12	pCi/l	NA	102
LCS	Trg. Analyte	8:56:53 AM	AB140407-1-2	NA	NA	NA	200 ml	B2	ABC0410A	8:24 AM	1.534	NA	NA	38	NA	Unfiltered	NA	P,M3

Comments:

Data Package ID: *AB1404068-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

Radium-226

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404068

1. This report consists of the analytical results for four water samples received by ALS on 04/04/14.

2. These samples were prepared according to the current revision of SOP 712. Standard Operating Procedure 712 is compliant with method SW846-9315.

3. These samples were analyzed for the presence of ^{226}Ra according to the current revision of SOP 724. The analyses were completed on 04/22/14.

4. This test is a screen for ^{226}Ra and could show high bias in sample results if other alpha emitting isotopes of radium are contained in the samples (esp.^{224}Ra and ^{223}Ra). The potential for this interference has been reduced by allowing the interfering nuclides to decay for at least 14 days.

5. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

6. ICP-AES measurement of barium concentrations prior to chemical separation for the associated QC samples showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

7. Due to uncertainty associated with the ICP-AES determination of barium concentration in the samples, the calculated yield for samples 1404068-3DUP fell between 100% and 110%. To minimize the potential for low bias, results have been calculated conservatively assuming quantitative chemical yield (100%). The magnitude of the low bias is estimated to be less than 10% of the reported value and is acceptable according the ALS LQAP. These samples are identified with a “Y1” flag on the final reports.

8. ALS uses the following convention for reporting significant digits in the TPU and MDC results. The TPU value is rounded to two significant digits. The MDC value is rounded to the same decimal place as the TPU value. In practice, this could result in an MDC reported value of zero for samples with significant activity, including the batch laboratory control sample.

9. No further anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Linda Arend — 4/23/14
Radiochemistry Primary Data Reviewer — Date

Radiochemistry Final Data Reviewer — 4/25/14
Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404068
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF002-30001	1404068-1		WATER	03-Apr-14	10:49
LF002-30002	1404068-2		WATER	03-Apr-14	10:49
LF002-30004	1404068-3		WATER	03-Apr-14	15:16
LF002-30005	1404068-4		WATER	02-Apr-14	14:21

RAD LF002

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-220

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 03 APR 2014
Lab Destination: ALS - Fort Collins, CO
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370810

Bill To: 1404068

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) Nagy Shaw Date: 4/3/14 Time: 1600
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) Date: 4/4/14 Time: 0950
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF002-30001	KAFB0213-GW-LF002-30001-REG (1)	03 APR 2014	10:49	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30002	KAFB0213-GW-LF002-30002-FD (2)	03 APR 2014	10:49	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30004	KAFB0220-GW-LF002-30004-REG (3)	03 APR 2014	15:16	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30005	KAFB0221-GW-LF002-30005-REG (4)	02 APR 2014	14:21	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CB+I Workorder No: 1404068

Project Manager: JME Initials: JR Date: 4/4/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____> green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	(RAD ONLY)	(YES)	NO

Cooler #:	1							
Temperature (°C):	5.2°							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance information — External µR/hr reading:	10							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-4-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

1404068

Temp=5.2°C
(RAD only)

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J1213121000225

Ship Date: 03APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

FRI - 04 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 0810

XH FTCA

10

80524
CO-US
DEN

512C1/C4FH/CF60

Section 2

SAMPLE RESULTS SUMMARY

Ra-226 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404068

Reported on: Wednesday, April 23, 2014
1:35:39 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404068-1	LF002-30001	Sample	Ra-226	0.19 +/- 0.14	0.21	pCi/l	WATER	TR140405-1	4/22/2014	U
1404068-2	LF002-30002	Sample	Ra-226	0.18 +/- 0.15	0.21	pCi/l	WATER	TR140405-1	4/22/2014	U
1404068-3	LF002-30004	Sample	Ra-226	0.09 +/- 0.11	0.21	pCi/l	WATER	TR140405-1	4/22/2014	U
1404068-4	LF002-30005	Sample	Ra-226	0.22 +/- 0.16	0.20	pCi/l	WATER	TR140405-1	4/22/2014	LT

Comments:

Data Package ID: *TR1404068-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140405-1MB

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 05-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0422A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.09 +/- 0.11	0.21	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15800	15330	ug	97.1	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *TR1404068-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140405-1LCS

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 05-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0422A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	51 +/- 13	0	45.30	112	75 - 125	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15800	14090	ug	89.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404068-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30004
Lab ID: 1404068-3DUP

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 03-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	0.09 +/- 0.11	0.21	U	0.17 +/- 0.14	0.21	Y1,U	0.456	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *TR1404068-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30001
Lab ID: 1404068-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 03-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.19 +/- 0.14	0.21	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15840	15380	ug	97.1	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404068-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30002
Lab ID: 1404068-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 03-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.18 +/- 0.15	0.21	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15840	15420	ug	97.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404068-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30004
Lab ID: 1404068-3

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 03-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.09 +/- 0.11	0.21	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15830	15500	ug	97.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404068-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30004
Lab ID: 1404068-3DUP

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 03-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.17 +/- 0.14	0.21	1	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15830	15840	ug	100	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404068-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30005
Lab ID: 1404068-4

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 02-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.22 +/- 0.16	0.20	1	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15830	15330	ug	96.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404068-1*

Section 5

RAW DATA

5

Ra-226 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404068

Prep SOP: PAI 712
Analytical SOP: PAI 724

Reported on: Tuesday, April 22, 2014
10:09:28 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404068-1	Ra-226	4/3/2014	TR140405-1	4/07/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	0.433	20.53%	30	0.19	0.21	pCi/l	NA	
SMP	Trg. Analyte	10:49:00 AM	TR140405-1-1	4:00:00 PM	NA	NA	995 ml	C2	RDC0422	8:24 AM	0.104	22.34%	97.1%	0.14	NA	Unfiltered	NA	U
1404068-2	Ra-226	4/3/2014	TR140405-1	4/07/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	0.433	20.54%	30	0.18	0.21	pCi/l	NA	
SMP	Trg. Analyte	10:49:00 AM	TR140405-1-1	4:00:00 PM	NA	NA	995 ml	C3	RDC0422	8:24 AM	0.112	21.86%	97.4%	0.15	NA	Unfiltered	NA	U
1404068-3	Ra-226	4/3/2014	TR140405-1	4/07/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	0.267	20.16%	30	0.09	0.21	pCi/l	NA	
SMP	Trg. Analyte	3:16:00 PM	TR140405-1-1	4:00:00 PM	NA	NA	995 ml	C4	RDC0422	8:24 AM	0.112	22.20%	97.9%	0.11	NA	Unfiltered	NA	U
1404068-3	Ra-226	4/3/2014	TR140405-1	4/07/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	0.400	19.72%	30	0.17	0.21	pCi/l	0.46	
DUP	Trg. Analyte	3:16:00 PM	TR140405-1-1	4:00:00 PM	NA	NA	995 ml	D1	RDC0422	8:24 AM	0.106	21.17%	100.0%	0.14	NA	Unfiltered	NA	Y1,U
1404068-4	Ra-226	4/2/2014	TR140405-1	4/07/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	0.467	20.43%	30	0.22	0.20	pCi/l	NA	
SMP	Trg. Analyte	2:21:00 PM	TR140405-1-1	4:00:00 PM	NA	NA	995 ml	D2	RDC0422	8:24 AM	0.088	21.37%	96.8%	0.16	NA	Unfiltered	NA	LT
TR140405-1	Ra-226	4/5/2014	TR140405-1	4/08/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	0.233	20.43%	30	0.09	0.21	pCi/l	NA	
MB	Trg. Analyte	9:26:13 AM	TR140405-1-1	4:45:00 PM	NA	NA	995 ml	D2	RDC0422A	9:03 AM	0.088	21.37%	97.1%	0.11	NA	Unfiltered	NA	U
TR140405-1	Ra-226	4/5/2014	TR140405-1	4/08/2014	NA	WATER	1000 ml	LB4100-C	TR140405-1A	4/22/2014	80.700	20.63%	30	51	0	pCi/l	NA	112
LCS	Trg. Analyte	9:26:13 AM	TR140405-1-1	4:45:00 PM	NA	NA	995 ml	D3	RDC0422A	9:03 AM	0.089	21.88%	89.2%	13	NA	Unfiltered	NA	P

Comments:

Data Package ID: *TR1404068-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

Radium-228

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404068

1. This report consists of the analytical results for four water samples received by ALS on 04/04/14.

2. These samples were prepared according to the current revision of SOP 749. Standard Operating Procedure 749 is compliant with method SW-846 9320.

3. The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724. The analyses were completed on 04/21/14.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.

6. ICP-AES measurement of barium concentrations prior to chemical separation for the method blank, laboratory control sample, and laboratory control sample duplicate showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

7. Due to uncertainty associated with the ICP-AES determination of barium concentration in the samples, the calculated yield for sample 1404068-3 fell between 100% and 110%. To minimize the potential for low bias, the result has been calculated conservatively assuming quantitative chemical yield (100%). The magnitude of the low bias is estimated to be less than 10% of the reported value and is acceptable according the ALS LQAP. This sample is identified with a “Y1” flag on the final reports.

8. No further anomalous situations were noted during the preparation and analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Emily Knodel — 4/22/14
Emily Knodel — Date
Radiochemistry Primary Data Reviewer

Julie Ellison — 4/25/14
Radiochemistry Final Data Reviewer — Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404068
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF002-30001	1404068-1		WATER	03-Apr-14	10:49
LF002-30002	1404068-2		WATER	03-Apr-14	10:49
LF002-30004	1404068-3		WATER	03-Apr-14	15:16
LF002-30005	1404068-4		WATER	02-Apr-14	14:21

RAD LF002

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-220

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 03 APR 2014
Lab Destination: ALS - Fort Collins, CO
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370810

Bill To: 1404068

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) Nagy | Shaw Date: 4/3/14 Time: 1600
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) Date: 4/4/14 Time: 0950
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF002-30001	KAFB0213-GW-LF002-30001-REG (1)	03 APR 2014	10:49	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30002	KAFB0213-GW-LF002-30002-FD (2)	03 APR 2014	10:49	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30004	KAFB0220-GW-LF002-30004-REG (3)	03 APR 2014	15:16	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF002-30005	KAFB0221-GW-LF002-30005-REG (4)	02 APR 2014	14:21	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CB+I Workorder No: 1404068

Project Manager: JME Initials: JR Date: 4/4/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____> green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	(RAD ONLY)	(YES)	NO

Cooler #:	1							
Temperature (°C):	5.2°							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance information — External µR/hr reading:	10							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-4-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

1404068

Temp=5.2°C
(RAD only)

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J1213121006225

Ship Date: 03APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

FRI - 04 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 0810

XH FTCA

10

80524
CO-US
DEN

512C1/C4FH/JB0

Section 2

❷

SAMPLE RESULTS SUMMARY

Radium-228 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404068

Reported on: Tuesday, April 22, 2014
8:42:17 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404068-1	LF002-30001	Sample	Ra-228	0.32 +/- 0.24	0.47	pCi/l	WATER	RA140416-1	4/21/2014	U
1404068-2	LF002-30002	Sample	Ra-228	0.10 +/- 0.27	0.60	pCi/l	WATER	RA140416-1	4/21/2014	U
1404068-3	LF002-30004	Sample	Ra-228	0.04 +/- 0.19	0.43	pCi/l	WATER	RA140416-1	4/21/2014	Y1,U
1404068-4	LF002-30005	Sample	Ra-228	0.19 +/- 0.22	0.46	pCi/l	WATER	RA140416-1	4/21/2014	U

Comments:

Data Package ID: *RA1404068-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140416-1MB

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.08 +/- 0.23	0.50	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33900	32310	ug	95.3	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404068-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140416-1LCS

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 30 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0421A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	8.0 +/- 2.1	0.9	8.857	89.9	70 - 130	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33900	33010	ug	97.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *RA1404068-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140416-1LCSD

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 30 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0421B

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	8.7 +/- 2.2	0.9	8.856	98.2	70 - 130	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33900	32690	ug	96.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *RA1404068-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:
Lab ID: RA140416-1LCSD

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 30 minutes

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0421B

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
15262-20-1	Ra-228	8.0 +/- 2.1	0.9	P	8.7 +/- 2.2	0.9	P	0.241	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *RA1404068-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30001
Lab ID: 1404068-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 03-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.32 +/- 0.24	0.47	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34030	33400	ug	98.1	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404068-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF002-30002
Lab ID:	1404068-2

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 03-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.10 +/- 0.27	0.60	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33970	33580	ug	98.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404068-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF002-30004
Lab ID:	1404068-3

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 03-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.04 +/- 0.19	0.43	1	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34030	34230	ug	101	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404068-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30005
Lab ID: 1404068-4

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 02-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.19 +/- 0.22	0.46	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34070	33050	ug	97.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404068-1*

Section 5

RAW DATA

5

Radium-228 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404068

Prep SOP: SOP749
Analytical SOP: PAI 724

Reported on: Tuesday, April 22, 2014
10:31:21 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404068-1	Ra-228	4/3/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-C	RA140416-1A	4/21/2014	2.158	53.01%	120	0.32	0.47	pCi/l	NA	
SMP	Trg. Analyte	10:49:00 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	C3	RAC0421	10:16 AM	1.760	NA	98.1%	0.24	NA	Unfiltered	NA	U
1404068-2	Ra-228	4/3/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-C	RA140416-1A	4/21/2014	3.108	52.88%	120	0.10	0.60	pCi/l	NA	
SMP	Trg. Analyte	10:49:00 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	C4	RAC0421	10:16 AM	2.980	NA	98.8%	0.27	NA	Unfiltered	NA	U
1404068-3	Ra-228	4/3/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-C	RA140416-1A	4/21/2014	1.658	54.57%	120	0.04	0.43	pCi/l	NA	
SMP	Trg. Analyte	3:16:00 PM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	D1	RAC0421	10:16 AM	1.601	NA	101.0%	0.19	NA	Unfiltered	NA	Y1,U
1404068-4	Ra-228	4/2/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-C	RA140416-1A	4/21/2014	1.825	51.80%	120	0.19	0.46	pCi/l	NA	
SMP	Trg. Analyte	2:21:00 PM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	D2	RAC0421	10:16 AM	1.591	NA	97.0%	0.22	NA	Unfiltered	NA	U
RA140416-1	Ra-228	4/17/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-A	RA140416-1A	4/21/2014	2.058	53.71%	120	0.08	0.50	pCi/l	NA	
MB	Trg. Analyte	11:06:05 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	A4	RAA0421	10:16 AM	1.955	NA	95.3%	0.23	NA	Unfiltered	NA	U
RA140416-1	Ra-228	4/17/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-A	RA140416-1A	4/21/2014	12.867	53.93%	30	8.0	0.9	pCi/l	NA	89.9
LCS	Trg. Analyte	11:06:05 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	B2	RAA0421A	10:05 AM	1.692	NA	97.4%	2.1	NA	Unfiltered	NA	P
RA140416-1	Ra-228	4/17/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-A	RA140416-1A	4/21/2014	12.900	53.93%	30	8.7	0.9	pCi/l	0.24	98.2
LCSD	Trg. Analyte	11:06:05 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	B2	RAA0421B	10:45 AM	1.692	NA	96.4%	2.2	NA	Unfiltered	NA	P

Comments:

Data Package ID: *RA1404068-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

ANALYTICAL DATA PACKAGE
SDG # KIRTLANDECOS_010

PROJECT NAME: KIRTLAND AFB (ECOS)
PROJECT LOCATION: ALBUQUERQUE, NEW MEXICO

SUBMITTAL TO:
Susan Huang
SHAW E&I, Inc.
4005 Port Chicago Highway
Concord, CA 94520

SUBMITTAL BY:
Empirical Laboratories, LLC (EL)
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Tel (615)345-1115
Fax (866)417-0548

LABORATORY CONTACT PERSON:
Project Manager: Marianne Walker
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Email: mwalker@empirlabs.com

Original Report Date: May 5, 2014
Report Revision #: 01
Revision Date: June 16, 2014
Total # of Pages: 220

THIS DOCUMENT MEETS DoD QSM 4.2 STANDARDS

The results relate to only the samples associated with the referenced SDG and the submitted data has been produced in accordance with laboratory procedures. The Laboratory's Technical Lab Director, Mr. Rick Davis, is responsible for the final data produced and reported. His signature is listed at the end of the Case Narrative within the Analytical Data Package. If applicable to this report package, details on report revisions and the information on subcontracted analysis are listed in the package Case Narrative. This report shall not be reproduced, except in full, without the written approval of Empirical Laboratories, LLC.

L-A-B Accredited - Certificate Number L2226 - Testing

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Sample Delivery Group Case Narrative

Receipt Information:
The samples were received within the preservation guidelines for the associated methods. The information associated with sample receipt and the Sample Delivery Group (SDG) are included within section 4 of this package, which also provides information on the link between the client sample ID listed on the COC and laboratory's assigned unique sample ID or WorkOrder #. The sample is tracked through the laboratory for all analysis via the assigned WorkOrder #.

All samples that were received were analyzed and none of the samples were placed on hold without analyses. Samples were subcontracted to ALS Environmental for Gross Alpha, Gross Beta, and Ra226.

Changes to the Revision:
Revision 01: The package is revised to add 1,3-Dichloropropene (total) to the SW8260B samples.

Analytical Information:
All samples were prepped (where applicable) and analyzed within the standard allowed holding times, unless noted within the exceptions listed below. The laboratory analyzed all samples within the program and method guidelines. Sample preparation and dilution information is provided within the final results report and at the beginning of each form set. The following information is provided specific to individual methods:

SW8260B:
The following batch spikes exceeded criteria:
4D11008-BS1 with a positive bias for Acetone; note – no positive results were detected in the associated samples

The following blanks have reported results:
4D11008-BLK1 for Hexachlorobutadiene; note – no positive results were detected in the associated samples

The following continuing calibration verifications exceeded criteria:
4D10404-CCV1 with a positive bias for Acetone; note – no positive results were detected in the associated samples

No additional anomalies or deviations are noted and the proper data qualifiers have been applied.

SW6010C/SW7470A:
No anomalies or deviations are noted.

Wet Chemistry:
No anomalies or deviations are noted.

Data Qualifiers:
As applicable and where required, the following general qualifiers are associated with the sample results. Additional qualifiers will be specified within the reporting sections of the data package or within the body of the Case Narrative.

Analytical Report Terms and Qualifiers

DL: The detection limit (DL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The DL is supported by the method detection limit (MDL) which is determined from analysis of a sample containing the analyte in a given matrix.

LOD: The Limit of Detection is an estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. This definition is further clarified in the DoD QSM 4.2 revisions as the smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.

LOQ: The Limit of Quantitation is the minimum level, concentration, or quantity of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. This term is further clarified within the DoD QSM 4.2 as the lowest concentration that produces a quantitative result within specified limits of precision and bias.

*****: Exceeding quality control criteria are associated with the reported result.

B: The presence of a "B" to the right of an analytical value indicates that this compound was also detected in the method blank and the data should be interpreted with caution. One should consider the possibility that the correct sample result might be less than the reported result and, perhaps, zero.

D: When a sample (or sample extract) is rerun diluted because one of the compound concentrations exceeded the highest concentration range for the standard curve, all of the values obtained in the dilution run will be flagged with a "D".

E: The concentration for any compound found which exceeds the highest concentration level on the standard curve for that compound will be flagged with an "E". Usually the sample will be rerun at a dilution to quantitate the flagged compound. For Metals, the qualifier indicates that the serial dilution was outside of the control limits and the compound should be considered estimated due to the presence of interference.

H1: The result was analyzed outside of the EPA recommended holding time.

H2: The result was extracted outside of the EPA recommended holding time.

H3: The sample for this analyte was received outside of the EPA recommended holding time.

J: The presence of a "J" to the right of an analytical result indicates that the reported result is estimated. The mass spectral data pass the identification criteria showing that the compound is present, but the calculated result is less than the LOQ. One should feel confident that the result is greater than zero and less than the LOQ.

M: Indicates that the sample matrix interfered with the quantitation of the analyte. In dual column analysis the result is reported from the column with the lower concentration. In inorganics, it indicates that the parameters DL/LOD/LOQ have been raised.

N: The MS/MSD accuracy and/or precision are outside criteria. The predigested spike recovery is not within control limits for the associated parameter.

P: The associated numerical value is an estimated quantity. There is greater than a 40% difference between the two GC columns for the detected concentrations. The higher of the two values is reported unless matrix interference is obvious or for HPLC analysis where the primary column is reported.

Q: The relative percent difference (RPD) and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

S: The associated internal standard exceeded criteria.

U: The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.

X: The parameter shows a potential positive bias on a reported concentration due to an ICV or CCV exceeding the upper control limit on the high side.

Y: The parameter shows a potential negative bias on a reported concentration due to an ICV or CCV exceeding the lower control limit on the low side.

Z: The parameter shows lack of confirmation/detection, which may be due to a negative bias in the ICV or CCV which exceeds the lower control limit.

Chromatographic Flags for Manual Integration:

The following letters are used to denote manual integrations on the laboratory's raw data in association with chromatographic integrations:

A: The peak was manually integrated as it was not integrated in the original chromatogram.

B: The peak was manually integrated due to resolution or coelution issues in the original chromatogram.

C: The peak was manually integrated to correct the baseline from the original chromatogram.

D: The peak was manually integrated to identify the correct peak as the wrong peak was identified in the original chromatogram.

E: The peak was manually integrated to include the entire peak as the original chromatogram only integrated part of the peak.

LIMS Definitions / Naming Conventions:

The following are general naming conventions that are used throughout the laboratory; however, on a method by method basis, there are additional QAQC items that are named in a consistent format.

BLK: LIMS assigns a unique identifier to the Method Blank by naming it as the letters BLK appended to the Batch ID. A Method Blank is an analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The Method Blank is used to assess for possible contamination during preparation and/or analysis steps. Method Blanks within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally.

BS: LIMS assigns a unique identifier to the Blank Spike by naming it as the letters BS appended to the Batch ID. The Blank Spike or Lab Control Sample is a controlled analyte-free matrix, which is spiked with known and verified concentrations of target analytes. Spiking concentrations can be referenced in the method SOP. The BS is used to evaluate the viability of analytes taken through the entire prep (when applicable) and analytical process. Blank Spikes within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally. A duplicate Blank Spike will be designated

as a BSD.

MS: The LIMS assigns each Client sample with a unique identifier. The Matrix Spike is designated with a MS at the end of the sample's unique identifier. The Matrix Spike sample is used to assess the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. A duplicate Matrix Spike will be designated as a MSD.

IDs: The LIMS assigns each Client sample with a unique identifier. The letter "RE" may potentially be appended to the end of the LIMS Sample ID. And "**RE"** implies that the sample was either re-prepped, re-analyzed straight, or re-analyzed at a dilution. Subsequent re-analysis for the sample will be appended with a numerical value beginning with 1 that will increase incrementally. Eg: RE1, RE2, RE3, etc.

Statement of Data Authenticity:

I certify that, based upon my inquiry of those individuals immediately responsible for obtaining the information and to the best of my knowledge, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in this Case Narrative, as verified by my signature below. During absences, the Data Quality Manager, Technical Directors or Project Managers are authorized to sign this Statement of Data Authenticity.

_____

Mr. Rick D. Davis
Laboratory Technical Director / VP Operations

ORGANIC CALCULATIONS

GC/MS Volatiles

$$\text{Final Concentration} = \frac{\text{On-column(ug/L or ug/Kg) * Expected Vol/Weight (mL or g) * Dilution}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

Note - Expected Vol/Weight value is found in "Final Vol" column of Preparation Batch Summary.

GC/MS Extractables

$$\text{Final Concentration} = \frac{\text{On-column(ng/uL) * Final Vol (ml) * Dilution *(1000uL/mL)}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

= ng/mL or ng/g

= ug/L or ug/kg

GC or LC Extractables

$$\text{Final Concentration} = \frac{\text{On-column(ng/mL) * Final Vol (mL) * Dilution}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

= ng/mL or ng/g

= ug/L or ug/kg

Empirical Laboratories, LLC
Certifications/Approvals
(Revised 03/19/2014)

DoD ELAP, Certificate Number L2226
- Aqueous
- Non-aqueous
- Expires: 11/30/2015

State of Florida, Department of Health – NELAP, Lab ID: E87646
- Clean Water Act
- RCRA/CERCLA
- Expires: 06/30/2014

State of Georgia, Environmental Protection Agency – NELAP
- Expires: 06/30/2014

State of Illinois, Environmental Protection Agency – NELAP, Certificate No.: 003300
- Groundwater
- Solid and Hazardous Waste
- Expires: 09/13/2014

State of Kansas Department of Health and Environment – NELAP, Certificate No.: E-10407
- Aqueous
- Non-aqueous
- Expires: 04/30/2014

State of Kentucky Department of Environmental Protection – NELAP, Certificate No.: 77
- Aqueous
- Non-aqueous
- Expires: 06/30/2014

State of Nevada, Department of Conservation and Natural Resources – NELAP, Certificate No.: TN000042013-1
- Aqueous
- Non-aqueous
- Expires: 07/31/2014

State of New Jersey Department of Environmental Protection – NELAP, Lab ID: TN473
- Water Pollution
- Solid and Hazardous Waste
- Expires: 06/30/2014

State of North Carolina, Department of Environment and Natural Resources - Certificate No.: 643
- Aqueous
- Non-aqueous
- Expires: 12/31/2014

State of North Dakota, Department of Health – NELAP, Certificate No.: R-204
- Aqueous
- Non-aqueous
- Expires: 06/30/2014

State of Texas, Commission on Environmental Quality – NELAP, Certificate No.: T104704307-14-10
- Aqueous
- Non-aqueous
- Expires: 12/31/2014

State of Utah, Department of Health – NELAP, Certificate No.: TN0042013-5
- Aqueous
- Non-aqueous
- Expires: 07/31/2014

Commonwealth of Virginia, Department of General Services – VELAP, Certificate No.: 2633 – Lab ID: 460243
- Aqueous
- Non-aqueous
- Expires: 12/14/2014

State of Washington, Department of Ecology – NELAP, Lab ID: C934-14
- Groundwater
- Solid and Hazardous Waste
- Expires: 03/18/2015

Sample Receipt Information

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404147
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:
Report Due Date: 4/30/2014

Client Sample Number	Lab Sample Number	Test Group	COC Number	Matrix	Date Collected	Time Collected
LF002-30003	1404147-1	1		WATER	07-Apr-14	12:51
LF002-30006	1404147-2	1		WATER	07-Apr-14	11:18
LF002-30007	1404147-3	1		WATER	07-Apr-14	14:42

***Designated QC**

Analytical Methods by Test Group

Test Group: 1

GAB
Ra226_GF
Ra228

LF002-RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404147

Reference Document No: 150577-223

Page 1 of 1

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 08 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370831

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable ☐ Skin Irritant ☐ Poison B ☐ Radiological ☐ Unknown ☐

Sample Disposal:
Return to Client ☐ Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) TT Vega/Shaw Date: 4/8/14 Time: 1500
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) C Trumble /ALS Date: 4-9-14 Time: 0930
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF002-30003	KAFB0219-GW-LF002-30003-REG	07 APR 2014	12:51	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
2	LF002-30006	KAFB0222-GW-LF002-30006-REG	07 APR 2014	11:18	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
3	LF002-30007	KAFB0223-GW-LF002-30007-REG	07 APR 2014	14:42	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Shaw Workorder No: 1404147

Project Manager: JE Initials: CDT Date: 4-9-14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	3.2							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
Background µR/hr reading:	11							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: JE 4/9/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

SUBCONTRACT ORDER

Empirical Laboratories, LLC

1404067

SENDING LABORATORY:

Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Phone: 615.345.1115
Fax: 866.417.0548
Project Manager: Marianne J. Walker

RECEIVING LABORATORY:

ALS Environmental - CO (SUB)
225 Commerce Drive
Fort Collins, CO 80524
Phone :(970) 490-1511
Fax: (970) 490-1522

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: LF002-30003				
Reference No: 1404067-01	**Water**	**Sampled:04/07/2014 12:51**		
SUB_RAD_Ra226	04/25/2014 14:00	10/04/2014 13:51		Radium 226
SUB_RAD_GrossBeta	04/25/2014 14:00	04/21/2014 13:51		
SUB_RAD_GrossAlpha	04/25/2014 14:00	04/21/2014 13:51		
Containers Supplied:				
Sample ID: LF002-30006				
Reference No: 1404067-03	**Water**	**Sampled:04/07/2014 11:18**		
SUB_RAD_Ra226	04/25/2014 14:00	10/04/2014 12:18		Radium 226
SUB_RAD_GrossBeta	04/25/2014 14:00	04/21/2014 12:18		
SUB_RAD_GrossAlpha	04/25/2014 14:00	04/21/2014 12:18		
Containers Supplied:				
Sample ID: LF002-30007				
Reference No: 1404067-05	**Water**	**Sampled:04/07/2014 14:42**		
SUB_RAD_Ra226	04/25/2014 14:00	10/04/2014 15:42		Radium 226
SUB_RAD_GrossBeta	04/25/2014 14:00	04/21/2014 15:42		
SUB_RAD_GrossAlpha	04/25/2014 14:00	04/21/2014 15:42		
Containers Supplied:				

Released By	Date	Received By	Date

Released By	Date	Received By	Date

LF002

1404067

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-219

Project Number: 150577

Project Name: Kirtland AFB

Sample Coordinator: David Aubrey

Turnaround Time:

Samples Shipment Date: 08 APR 2014

Lab Destination: Empirical Laboratories, Inc.

Lab Contact: ~~Jennifer Chandler~~ Marionne Walker

Project Contact: Susan Huang

Carrier/Waybill No.: Fed Ex/565119370820

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:

Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal: Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) [signature] Shaw — Date: 4/8/14 Time: 1500
2. Relinquished By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation) — Date: Time:
2. Received By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) [signature] — Date: 4/9/14 Time: 0845

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
01	LF002-30003	KAFB0219-GW-LF002-30003-REG	07 APR 2014	12:51	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
↓	LF002-30003	KAFB0219-GW-LF002-30003-REG	07 APR 2014	12:51	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		
02	LF002-30003	KAFB0219-GW-LF002-30003-REG	07 APR 2014	12:51	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
01	LF002-30003	KAFB0219-GW-LF002-30003-REG	07 APR 2014	12:51	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, TDS by SM 2540C			N		
↓	~~LF002-30003~~	~~KAFB0219-GW-LF002-30003-REG~~	~~07 APR 2014~~	~~12:51~~	~~250 mL HDPE~~	~~1~~	~~H2SO4<pH 2~~	~~Nitrate plus Nitrite by EPA 353.2~~			N		
~~02~~	LF002-30006	KAFB0222-GW-LF002-30006-REG	07 APR 2014	11:18	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
03 ↓	LF002-30006	KAFB0222-GW-LF002-30006-REG	07 APR 2014	11:18	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		

JTG
4/9/14

KirtlandEcos_010

1404067

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-219

	Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
03	LF002-30006	KAFB0222-GW-LF002-30006-REG	07 APR 2014	11:18	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
↓	LF002-30006	KAFB0222-GW-LF002-30006-REG	07 APR 2014	11:18	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, TDS by SM 2540C			N		
04	LF002-30006	KAFB0222-GW-LF002-30006-REG	07 APR 2014	11:18	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
06	LF002-30007	KAFB0223-GW-LF002-30007-REG	07 APR 2014	14:42	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
05	LF002-30007	KAFB0223-GW-LF002-30007-REG	07 APR 2014	14:42	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
	LF002-30007	KAFB0223-GW-LF002-30007-REG	07 APR 2014	14:42	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
↓	LF002-30007	KAFB0223-GW-LF002-30007-REG	07 APR 2014	14:42	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, TDS by SM 2540C			N		
	LF002-30007	KAFB0223-GW-LF002-30007-REG	07 APR 2014	14:42	250 mL HDPE	1	HNO3<pH 2	Total Mercury by SW846 7470A			N		
07	LF002-80004	FIELDQC-BW-LF002-80004-TB	07 APR 2014	08:00	40 mL VOA VIAL	2	HCl<pH 2	VOCs by SW846 8260B			N		

KirtlandEcos_010

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

Cooler Received/Opened On: 04/09/14 0845 Workorder# 1404067

1. Tracking # 0820 (last 4 digits, FedEx)

   Courier: FedEx

2. Temperature of rep. sample or temp blank when opened: 1.0 °C + *correction factor (+0.1)* = 1.1 °C

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO (NA)

4. Were custody seals on outside of cooler? (YES) NO NA

   If yes, how many and where: 2. front + back

5. Were the seals intact, signed, and dated correctly? (YES) NO NA

6. Were custody papers inside cooler? (YES) NO NA

I certify that I opened the cooler and answered questions 1-6 (initial) JTG

7. Were custody seals on containers: YES (NO) and Intact YES NO (NA)

   Were these signed and dated correctly? YES NO (NA)

8. Packing material used? (Bubblewrap) (Plastic bag) Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES) NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES) NO NA

12. Did all container labels and tags agree with custody papers? (YES) NO NA

13. a. Were VOA vials received? (YES) NO NA

    b. Was there any observable headspace present in any VOA vial? YES (NO) NA

14. Was there a Trip Blank in this cooler? (YES) NO NA If multiple coolers, sequence # —

I certify that I unloaded the cooler and answered questions 7-14 (initial) JTG

15. a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? (YES) NO NA

    b. Did the bottle labels indicate that the correct preservatives were used (YES) NO NA

16. Was residual chlorine present? YES NO (NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) JTG

17. Were custody papers properly filled out (ink, signed, etc)? (YES) NO NA

18. Did you sign the custody papers in the appropriate place? (YES) NO NA

19. Were correct containers used for the analysis requested? (YES) NO NA

20. Was sufficient amount of sample sent in each container? (YES) NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) JTG

I certify that I attached a label with the unique LIMS number to each container (initial) JTG

I certify that I have performed a second check of the LIMS information against the COC to confirm accuracy (initial) ☆ No Login 2nd Check JTG 4/9/14

21. Were there Non-Conformance issues at login? YES (NO) Was a NCR generated? YES (NO) #_____

Additional Details:

WORK ORDER

Printed: 4/16/2014 9:54:58AM

1404067

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Report To:
Shaw Environmental, Inc.
Susan Huang
4005 Port Chicago Highway
Concord, CA 94520
Phone: (925) 288-2099
Fax: (925) 288-0888

Invoice To:
Shaw Environmental, Inc.
Accounts Payable
PO Box 98519
Baton Rouge, LA 70884
Phone :(225) 932-2500
Fax: (225) 932-2661

Due to Client: 04/30/2014 16:00 *This is the projected due date to the client, at the time of receipt, and is for report delivery via upload, and/or email, and/or shipment to meet TAT as setup by project*

Received By: Joshua T. Gross
Date Received: 04/09/2014 08:45
Logged In By: Joshua T. Gross
Date Logged In: 04/09/2014 10:57

Samples Received at: **1.1°C**

Custody Seals	Yes	Received On Ice	Yes
Containers Intact	Yes		
COC/Labels Agree	Yes		
Preservation Confirme	Yes		

Method	Test Code	Due	TAT	Expires	Comments
1404067-01 LF002-30003 [Water] Sampled 04/07/2014 12:51 Mountain 'Client Sample'					
SW8260B	VOC_8260B_REG	04/25/2014 14:00	15	04/21/2014 13:51	see versions
SW9056A	WC_ANIONS_9056A (Regular)	04/25/2014 14:00	15	05/05/2014 13:51	see versions
E353.2	WC_NO3NO2_N_353.2	04/25/2014 14:00	15	05/05/2014 13:51	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	04/25/2014 14:00	15	04/14/2014 13:51	
SW7470A	MET_7470A_MERCURY	04/25/2014 14:00	15	05/05/2014 13:51	
1404067-02 LF002-30003 [Water] Sampled 04/07/2014 12:51 Mountain 'Client Sample'					**Field Filtered**
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/25/2014 14:00	15	10/04/2014 13:51	see versions
1404067-03 LF002-30006 [Water] Sampled 04/07/2014 11:18 Mountain 'Client Sample'					
SW9056A	WC_ANIONS_9056A (Regular)	04/25/2014 14:00	15	05/05/2014 12:18	see versions
SW7470A	MET_7470A_MERCURY	04/25/2014 14:00	15	05/05/2014 12:18	
SW8260B	VOC_8260B_REG	04/25/2014 14:00	15	04/21/2014 12:18	see versions
E353.2	WC_NO3NO2_N_353.2	04/25/2014 14:00	15	05/05/2014 12:18	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	04/25/2014 14:00	15	04/14/2014 12:18	
1404067-04 LF002-30006 [Water] Sampled 04/07/2014 11:18 Mountain 'Client Sample'					**Field Filtered**
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/25/2014 14:00	15	10/04/2014 12:18	see versions

1404067

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Method	Test Code	Due	TAT	Expires	Comments
1404067-05 LF002-30007 [Water] Sampled 04/07/2014 14:42 Mountain 'Client Sample'					
SW8260B	VOC_8260B_REG	04/25/2014 14:00	15	04/21/2014 15:42	see versions
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	04/25/2014 14:00	15	04/14/2014 15:42	
E353.2	WC_NO3NO2_N_353.2	04/25/2014 14:00	15	05/05/2014 15:42	
SW9056A	WC_ANIONS_9056A (Regular)	04/25/2014 14:00	15	05/05/2014 15:42	see versions
SW7470A	MET_7470A_MERCURY	04/25/2014 14:00	15	05/05/2014 15:42	
1404067-06 LF002-30007 [Water] Sampled 04/07/2014 14:42 Mountain 'Client Sample'					**Field Filtered**
SW6010C	MET_ICP_LOW6010C_FULL_DIS	04/25/2014 14:00	15	10/04/2014 15:42	see versions
1404067-07 LF002-80004 [Water] Sampled 04/07/2014 08:00 Mountain 'Trip Blank'					
SW8260B	VOC_8260B_REG	04/25/2014 14:00	15	04/21/2014 09:00	see versions
ALS Environmental - CO (SUB)					
1404067-01 LF002-30003 [Water] Sampled 04/07/2014 12:51 Mountain 'Client Sample'					
EPA 9315	SUB_RAD_Ra226	04/25/2014 14:00	15	10/04/2014 13:51	Radium 226
EPA 900.0	SUB_RAD_GrossBeta	04/25/2014 14:00	15	04/21/2014 13:51	
EPA 900.0	SUB_RAD_GrossAlpha	04/25/2014 14:00	15	04/21/2014 13:51	
1404067-03 LF002-30006 [Water] Sampled 04/07/2014 11:18 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossBeta	04/25/2014 14:00	15	04/21/2014 12:18	
EPA 900.0	SUB_RAD_GrossAlpha	04/25/2014 14:00	15	04/21/2014 12:18	
EPA 9315	SUB_RAD_Ra226	04/25/2014 14:00	15	10/04/2014 12:18	Radium 226
1404067-05 LF002-30007 [Water] Sampled 04/07/2014 14:42 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossBeta	04/25/2014 14:00	15	04/21/2014 15:42	
EPA 900.0	SUB_RAD_GrossAlpha	04/25/2014 14:00	15	04/21/2014 15:42	
EPA 9315	SUB_RAD_Ra226	04/25/2014 14:00	15	10/04/2014 15:42	Radium 226

Reviewed By

Date

Sample Delivery Group Assignment Form

CLIENT: Shaw Environmental, Inc.
PROJECT NAME: Kirtland AFB (ECOS)
SDG #: KirtlandECOS_010

QC LEVEL: Level III
Report Due: 4/30/2014
Client Sample Count: 6

Sample Type	Sampled	Received	Lab ID	Client ID	Report Matrix	E353.2	EPA 900.0	EPA 9315	SM2540C	SW6010C	SW7470A	SW8260B	SW9056A
Client Sample	4/7/2014	4/9/2014	1404067-01	LF002-30003	Water	X	X	X	X		X	X	X
Client Sample	4/7/2014	4/9/2014	1404067-02	LF002-30003	Water					X			
Client Sample	4/7/2014	4/9/2014	1404067-03	LF002-30006	Water	X	X	X	X		X	X	X
Client Sample	4/7/2014	4/9/2014	1404067-04	LF002-30006	Water					X			
Client Sample	4/7/2014	4/9/2014	1404067-05	LF002-30007	Water	X	X	X	X		X	X	X
Client Sample	4/7/2014	4/9/2014	1404067-06	LF002-30007	Water					X			
Trip Blank	4/7/2014	4/9/2014	1404067-07	LF002-80004	Water							X	

Data for SW8260B Forms

Sample Extraction Data

Prep Method: 5030B-SW8260B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404067-01 [LF002-30003]	4D11008	5.00/5.00	5.00	5.00	1.00			04/11/14
1404067-03 [LF002-30006]	4D11008	5.00/5.00	5.00	5.00	1.00			04/11/14
1404067-05 [LF002-30007]	4D11008	5.00/5.00	5.00	5.00	1.00			04/11/14
1404067-07 [LF002-80004]	4D11008	5.00/5.00	5.00	5.00	1.00			04/11/14

ANALYSIS DATA SHEET

LF002-30003

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404067-01 File ID: 0406701.D

Sampled: 04/07/14 12:51 Prepared: 04/11/14 18:03 Analyzed: 04/11/14 18:03

Solids: Preparation: 5030B Dilution: 1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF002-30003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-01	File ID:	0406701.D
Sampled:	04/07/14 12:51	Prepared:	04/11/14 18:03	Analyzed:	04/11/14 18:03
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene	**0.270**	0.250	0.500	1.00	J
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.13	93.8	75 - 120	
Dibromofluoromethane	30.00	30.57	102	85 - 115	
1,2-Dichloroethane-d4	30.00	28.86	96.2	70 - 120	
Toluene-d8	30.00	30.64	102	85 - 120	

ANALYSIS DATA SHEET

LF002-30006

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404067-03 File ID: 0406703.D

Sampled: 04/07/14 11:18 Prepared: 04/11/14 18:31 Analyzed: 04/11/14 18:31

Solids: Preparation: 5030B Dilution: 1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF002-30006

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-03	File ID:	0406703.D
Sampled:	04/07/14 11:18	Prepared:	04/11/14 18:31	Analyzed:	04/11/14 18:31
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene	**0.324**	0.250	0.500	1.00	J
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.42	94.7	75 - 120	
Dibromofluoromethane	30.00	29.82	99.4	85 - 115	
1,2-Dichloroethane-d4	30.00	29.20	97.3	70 - 120	
Toluene-d8	30.00	29.27	97.6	85 - 120	

ANALYSIS DATA SHEET

LF002-30007

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404067-05 File ID: 0406705.D

Sampled: 04/07/14 14:42 Prepared: 04/11/14 18:59 Analyzed: 04/11/14 18:59

Solids: Preparation: 5030B Dilution: 1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF002-30007

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-05	File ID:	0406705.D
Sampled:	04/07/14 14:42	Prepared:	04/11/14 18:59	Analyzed:	04/11/14 18:59
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.33	97.8	75 - 120	
Dibromofluoromethane	30.00	30.05	100	85 - 115	
1,2-Dichloroethane-d4	30.00	30.20	101	70 - 120	
Toluene-d8	30.00	31.19	104	85 - 120	

ANALYSIS DATA SHEET

LF002-80004

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404067-07 File ID: 0406707.D

Sampled: 04/07/14 08:00 Prepared: 04/11/14 19:27 Analyzed: 04/11/14 19:27

Solids: Preparation: 5030B Dilution: 1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF002-80004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-07	File ID:	0406707.D
Sampled:	04/07/14 08:00	Prepared:	04/11/14 19:27	Analyzed:	04/11/14 19:27
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.97	93.2	75 - 120	
Dibromofluoromethane	30.00	30.20	101	85 - 115	
1,2-Dichloroethane-d4	30.00	28.04	93.5	70 - 120	
Toluene-d8	30.00	32.02	107	85 - 120	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10404	Instrument:	MS-VOA4
		Calibration:	4069001

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
Calibration Check (4D10404-CCV1) ug/L				Lab File ID: 0411CCV1.D		Analyzed: 04/11/14 12:54		
Bromofluorobenzene	30.00	96.9	80 - 120	12.04	12.04	0.0000	+/-1.000	
Dibromofluoromethane	30.00	97.8	80 - 120	6.69	6.69	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	96.7	80 - 120	7.2	7.2	0.0000	+/-1.000	
Toluene-d8	30.00	105	80 - 120	9.42	9.42	0.0000	+/-1.000	
LCS (4D11008-BS1) ug/L				Lab File ID: 0411LCS1.D		Analyzed: 04/11/14 13:52		
Bromofluorobenzene	30.00	102	75 - 120	12.04	12.04	0.0000	+/-1.000	
Dibromofluoromethane	30.00	94.7	85 - 115	6.69	6.69	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	92.3	70 - 120	7.2	7.2	0.0000	+/-1.000	
Toluene-d8	30.00	108	85 - 120	9.43	9.42	0.0100	+/-1.000	
Blank (4D11008-BLK1) ug/L				Lab File ID: 0411BLK1.D		Analyzed: 04/11/14 15:44		
Bromofluorobenzene	30.00	99.1	75 - 120	12.06	12.04	0.0200	+/-1.000	
Dibromofluoromethane	30.00	94.3	85 - 115	6.7	6.69	0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	93.3	70 - 120	7.2	7.2	0.0000	+/-1.000	
Toluene-d8	30.00	105	85 - 120	9.43	9.42	0.0100	+/-1.000	
LF002-30003 (1404067-01) ug/L				Lab File ID: 0406701.D		Analyzed: 04/11/14 18:03		
Bromofluorobenzene	30.00	93.8	75 - 120	12.04	12.04	0.0000	+/-1.000	
Dibromofluoromethane	30.00	102	85 - 115	6.69	6.69	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	96.2	70 - 120	7.2	7.2	0.0000	+/-1.000	
Toluene-d8	30.00	102	85 - 120	9.43	9.42	0.0100	+/-1.000	
LF002-30006 (1404067-03) ug/L				Lab File ID: 0406703.D		Analyzed: 04/11/14 18:31		
Bromofluorobenzene	30.00	94.7	75 - 120	12.04	12.04	0.0000	+/-1.000	
Dibromofluoromethane	30.00	99.4	85 - 115	6.7	6.69	0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	97.3	70 - 120	7.2	7.2	0.0000	+/-1.000	
Toluene-d8	30.00	97.6	85 - 120	9.42	9.42	0.0000	+/-1.000	
LF002-30007 (1404067-05) ug/L				Lab File ID: 0406705.D		Analyzed: 04/11/14 18:59		
Bromofluorobenzene	30.00	97.8	75 - 120	12.04	12.04	0.0000	+/-1.000	
Dibromofluoromethane	30.00	100	85 - 115	6.69	6.69	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	101	70 - 120	7.2	7.2	0.0000	+/-1.000	
Toluene-d8	30.00	104	85 - 120	9.42	9.42	0.0000	+/-1.000	
LF002-80004 (1404067-07) ug/L				Lab File ID: 0406707.D		Analyzed: 04/11/14 19:27		
Bromofluorobenzene	30.00	93.2	75 - 120	12.04	12.04	0.0000	+/-1.000	
Dibromofluoromethane	30.00	101	85 - 115	6.7	6.69	0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	93.5	70 - 120	7.19	7.2	-0.0100	+/-1.000	
Toluene-d8	30.00	107	85 - 120	9.42	9.42	0.0000	+/-1.000	

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D11008	Laboratory ID:	4D11008-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Acetone	**100.0**	**151**	**151**	**40 - 140**
Benzene	50.00	43.7	87.4	80 - 120
Bromobenzene	50.00	48.7	97.3	75 - 125
Bromochloromethane	50.00	39.9	79.7	65 - 130
Bromodichloromethane	50.00	42.7	85.4	75 - 120
Bromoform	50.00	47.8	95.6	70 - 130
Bromomethane	50.00	44.4	88.7	30 - 145
n-Butylbenzene	50.00	49.0	97.9	70 - 135
2-Butanone	100.0	115	115	30 - 150
sec-Butylbenzene	50.00	51.6	103	70 - 125
tert-Butylbenzene	50.00	51.3	103	70 - 130
Carbon disulfide	50.00	35.5	71.1	35 - 160
Carbon tetrachloride	50.00	42.2	84.4	65 - 140
Chlorobenzene	50.00	51.0	102	80 - 120
Chloroethane	50.00	40.3	80.5	60 - 135
Chloroform	50.00	38.0	76.1	65 - 135
Chloromethane	50.00	41.1	82.1	40 - 125
2-Chlorotoluene	50.00	48.5	97.0	75 - 125
4-Chlorotoluene	50.00	49.2	98.5	75 - 130
Dibromochloromethane	50.00	48.6	97.3	60 - 135
1,2-Dibromo-3-chloropropane	50.00	47.8	95.5	50 - 130
1,2-Dibromoethane (EDB)	50.00	48.6	97.3	80 - 120
Dibromomethane	50.00	39.7	79.4	75 - 125
1,2-Dichlorobenzene	50.00	50.9	102	70 - 120
1,3-Dichlorobenzene	50.00	50.2	100	75 - 125
1,4-Dichlorobenzene	50.00	48.8	97.6	75 - 125
Dichlorodifluoromethane	50.00	43.7	87.4	30 - 155
1,1-Dichloroethane	50.00	38.3	76.5	70 - 135
1,2-Dichloroethane	50.00	41.7	83.4	70 - 130
1,1-Dichloroethene	50.00	41.1	82.2	70 - 130

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D11008	Laboratory ID:	4D11008-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
cis-1,2-Dichloroethene	50.00	45.2	90.3	70 - 125
trans-1,2-Dichloroethene	50.00	44.0	88.1	60 - 140
1,2-Dichloroethene (total)	100.0	89.2	89.2	75 - 125
1,2-Dichloropropane	50.00	42.4	84.8	75 - 125
1,3-Dichloropropane	50.00	49.1	98.1	75 - 125
2,2-Dichloropropane	50.00	42.2	84.3	70 - 135
1,1-Dichloropropene	50.00	43.6	87.1	75 - 130
cis-1,3-Dichloropropene	50.00	49.8	99.5	70 - 130
trans-1,3-Dichloropropene	50.00	45.6	91.2	55 - 140
Ethylbenzene	50.00	50.0	100	75 - 125
Hexachlorobutadiene	50.00	42.6	85.2	50 - 140
2-Hexanone	100.0	118	118	55 - 130
Isopropylbenzene	50.00	56.7	113	75 - 125
p-Isopropyltoluene	50.00	45.1	90.2	75 - 130
Methylene chloride	50.00	42.7	85.3	55 - 140
Naphthalene	50.00	48.5	97.0	55 - 140
4-Methyl-2-pentanone	100.0	89.5	89.5	60 - 135
Methyl t-Butyl Ether	50.00	41.1	82.2	65 - 125
n-Propylbenzene	50.00	50.1	100	70 - 130
Styrene	50.00	55.3	111	65 - 135
1,1,2,2-Tetrachloroethane	50.00	47.8	95.6	65 - 130
1,1,1,2-Tetrachloroethane	50.00	49.5	99.1	80 - 130
Tetrachloroethene	50.00	45.9	91.7	45 - 150
Toluene	50.00	49.1	98.3	75 - 120
1,2,3-Trichlorobenzene	50.00	45.0	90.0	55 - 140
1,2,4-Trichlorobenzene	50.00	47.7	95.4	65 - 135
1,1,2-Trichloroethane	50.00	47.4	94.8	75 - 125
1,1,1-Trichloroethane	50.00	39.4	78.8	65 - 130
Trichloroethene	50.00	43.7	87.3	70 - 125
Trichlorofluoromethane	50.00	45.0	90.0	60 - 145

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D11008	Laboratory ID:	4D11008-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
1,2,3-Trichloropropane	50.00	47.6	95.1	75 - 125
1,3,5-Trimethylbenzene	50.00	50.0	99.9	75 - 130
1,2,4-Trimethylbenzene	50.00	50.9	102	75 - 130
Vinyl chloride	50.00	46.3	92.7	50 - 145
m,p-Xylene	100.0	102	102	75 - 130
o-Xylene	50.00	51.2	102	80 - 120
Xylenes (total)	150.0	153	102	75 - 130

PREPARATION BATCH SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D11008 Batch Matrix: Water Preparation: 5030B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30003	1404067-01	04/11/14 18:03	5.00	5.00
LF002-30006	1404067-03	04/11/14 18:31	5.00	5.00
LF002-30007	1404067-05	04/11/14 18:59	5.00	5.00
LF002-80004	1404067-07	04/11/14 19:27	5.00	5.00
Blank	4D11008-BLK1	04/11/14 15:44	5.00	5.00
LCS	4D11008-BS1	04/11/14 13:52	5.00	5.00

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D11008-BLK1 File ID: 0411BLK1.D

Sampled: Prepared: Analyzed: 04/11/14 15:44

Solids: Preparation: 5030B Dilution:

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D11008-BLK1 File ID: 0411BLK1.D

Sampled: Prepared: Analyzed: 04/11/14 15:44

Solids: Preparation: 5030B Dilution:

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene	**0.252**	0.250	0.500	1.00	J
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.72	99.1	75 - 120	
Dibromofluoromethane	30.00	28.29	94.3	85 - 115	
1,2-Dichloroethane-d4	30.00	28.00	93.3	70 - 120	
Toluene-d8	30.00	31.64	105	85 - 120	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D11008-BS1 File ID: 0411LCS1.D

Sampled: Prepared: Analyzed: 04/11/14 13:52

Solids: Preparation: 5030B Dilution:

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**151**	2.50	5.00	10.0	X
71-43-2	Benzene	**43.7**	0.250	0.500	1.00	
108-86-1	Bromobenzene	**48.7**	0.250	0.500	1.00	
74-97-5	Bromochloromethane	**39.9**	0.250	0.500	1.00	
75-27-4	Bromodichloromethane	**42.7**	0.250	0.500	1.00	
75-25-2	Bromoform	**47.8**	0.250	0.500	1.00	
74-83-9	Bromomethane	**44.4**	0.500	1.00	2.00	
104-51-8	n-Butylbenzene	**49.0**	0.250	0.500	1.00	
78-93-3	2-Butanone	**115**	2.50	5.00	10.0	
135-98-8	sec-Butylbenzene	**51.6**	0.250	0.500	1.00	
98-06-6	tert-Butylbenzene	**51.3**	0.250	0.500	1.00	
75-15-0	Carbon disulfide	**35.5**	0.250	0.500	1.00	
56-23-5	Carbon tetrachloride	**42.2**	0.250	0.500	1.00	
108-90-7	Chlorobenzene	**51.0**	0.250	0.500	1.00	
75-00-3	Chloroethane	**40.3**	0.500	1.00	2.00	
67-66-3	Chloroform	**38.0**	0.250	0.500	1.00	
74-87-3	Chloromethane	**41.1**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene	**48.5**	0.250	0.500	1.00	
106-43-4	4-Chlorotoluene	**49.2**	0.250	0.500	1.00	
124-48-1	Dibromochloromethane	**48.6**	0.250	0.500	1.00	
96-12-8	1,2-Dibromo-3-chloropropane	**47.8**	0.500	1.00	2.00	
106-93-4	1,2-Dibromoethane (EDB)	**48.6**	0.250	0.500	1.00	
74-95-3	Dibromomethane	**39.7**	0.250	0.500	1.00	
95-50-1	1,2-Dichlorobenzene	**50.9**	0.250	0.500	1.00	
541-73-1	1,3-Dichlorobenzene	**50.2**	0.250	0.500	1.00	
106-46-7	1,4-Dichlorobenzene	**48.8**	0.250	0.500	1.00	
75-71-8	Dichlorodifluoromethane	**43.7**	0.500	1.00	2.00	
75-34-3	1,1-Dichloroethane	**38.3**	0.250	0.500	1.00	
107-06-2	1,2-Dichloroethane	**41.7**	0.250	0.500	1.00	
75-35-4	1,1-Dichloroethene	**41.1**	0.250	0.500	1.00	
156-59-2	cis-1,2-Dichloroethene	**45.2**	0.250	0.500	1.00	
156-60-5	trans-1,2-Dichloroethene	**44.0**	0.250	0.500	1.00	
540-59-0	1,2-Dichloroethene (total)	**89.2**	0.500	1.00	2.00	
78-87-5	1,2-Dichloropropane	**42.4**	0.250	0.500	1.00	
142-28-9	1,3-Dichloropropane	**49.1**	0.250	0.500	1.00	
594-20-7	2,2-Dichloropropane	**42.2**	0.250	0.500	1.00	
563-58-6	1,1-Dichloropropene	**43.6**	0.250	0.500	1.00	
10061-01-5	cis-1,3-Dichloropropene	**49.8**	0.250	0.500	1.00	
10061-02-6	trans-1,3-Dichloropropene	**45.6**	0.250	0.500	1.00	
100-41-4	Ethylbenzene	**50.0**	0.250	0.500	1.00	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D11008-BS1 File ID: 0411LCS1.D

Sampled: Prepared: Analyzed: 04/11/14 13:52

Solids: Preparation: 5030B Dilution:

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
87-68-3	Hexachlorobutadiene	**42.6**	0.250	0.500	1.00	B
591-78-6	2-Hexanone	**118**	1.25	2.50	5.00	
98-82-8	Isopropylbenzene	**56.7**	0.250	0.500	1.00	
99-87-6	p-Isopropyltoluene	**45.1**	0.250	0.500	1.00	
75-09-2	Methylene chloride	**42.7**	0.500	1.00	2.00	
91-20-3	Naphthalene	**48.5**	0.250	0.500	1.00	
108-10-1	4-Methyl-2-pentanone	**89.5**	1.25	2.50	5.00	
1634-04-4	Methyl t-Butyl Ether	**41.1**	0.250	0.500	1.00	
103-65-1	n-Propylbenzene	**50.1**	0.250	0.500	1.00	
100-42-5	Styrene	**55.3**	0.250	0.500	1.00	
79-34-5	1,1,2,2-Tetrachloroethane	**47.8**	0.250	0.500	1.00	
630-20-6	1,1,1,2-Tetrachloroethane	**49.5**	0.250	0.500	1.00	
127-18-4	Tetrachloroethene	**45.9**	0.250	0.500	1.00	
108-88-3	Toluene	**49.1**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene	**45.0**	0.250	0.500	1.00	
120-82-1	1,2,4-Trichlorobenzene	**47.7**	0.250	0.500	1.00	
79-00-5	1,1,2-Trichloroethane	**47.4**	0.250	0.500	1.00	
71-55-6	1,1,1-Trichloroethane	**39.4**	0.250	0.500	1.00	
79-01-6	Trichloroethene	**43.7**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane	**45.0**	0.500	1.00	2.00	
96-18-4	1,2,3-Trichloropropane	**47.6**	0.500	1.00	2.00	
108-67-8	1,3,5-Trimethylbenzene	**50.0**	0.250	0.500	1.00	
95-63-6	1,2,4-Trimethylbenzene	**50.9**	0.250	0.500	1.00	
75-01-4	Vinyl chloride	**46.3**	0.250	0.500	1.00	
108-38-3/106-42-	m,p-Xylene	**102**	0.500	1.00	2.00	
95-47-6	o-Xylene	**51.2**	0.250	0.500	1.00	
1330-20-7	Xylenes (total)	**153**	0.750	1.50	3.00	

Total Target Analytes Reported: 67

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.67	102	75 - 120	
Dibromofluoromethane	30.00	28.41	94.7	85 - 115	
1,2-Dichloroethane-d4	30.00	27.70	92.3	70 - 120	
Toluene-d8	30.00	32.30	108	85 - 120	

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0306TUN1.D	Injection Date:	03/06/14
Instrument ID:	MS-VOA4	Injection Time:	14:20
Sequence:	4C06901	Lab Sample ID:	4C06901-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	19.6	PASS
75	30 - 60% of 95	45.7	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.44	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	81.8	PASS
175	5 - 9% of 174	7.22	PASS
176	95 - 101% of 174	97.9	PASS
177	5 - 9% of 176	6.37	PASS

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0411TUN1.D	Injection Date:	04/11/14
Instrument ID:	MS-VOA4	Injection Time:	12:26
Sequence:	4D10404	Lab Sample ID:	4D10404-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	19.7	PASS
75	30 - 60% of 95	44.6	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.65	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	82.9	PASS
175	5 - 9% of 174	7.62	PASS
176	95 - 101% of 174	100	PASS
177	5 - 9% of 176	6.68	PASS

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4C06901	Instrument:	MS-VOA4
Calibration:	4069001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4C06901-TUN1	0306TUN1.D	03/06/14 14:20
Cal Standard	4C06901-CAL1	0306CAL1.D	03/06/14 15:44
Cal Standard	4C06901-CAL2	0306CAL2.D	03/06/14 16:12
Cal Standard	4C06901-CAL3	0306CAL3.D	03/06/14 16:40
Cal Standard	4C06901-CAL4	0306CAL4.D	03/06/14 17:08
Cal Standard	4C06901-CAL5	0306CAL5.D	03/06/14 17:36
Cal Standard	4C06901-CAL6	0306CAL6.D	03/06/14 18:04
Cal Standard	4C06901-CAL7	0306CAL7.D	03/06/14 18:31
Cal Standard	4C06901-CAL8	0306CAL8.D	03/06/14 18:59
Cal Standard	4C06901-CAL9	0306CAL9.D	03/06/14 19:27
Initial Cal Check	4C06901-ICV2	0306ICV2.D	03/06/14 20:51

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10404	Instrument:	MS-VOA4
Calibration:	4069001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4D10404-TUN1	0411TUN1.D	04/11/14 12:26
Calibration Check	4D10404-CCV1	0411CCV1.D	04/11/14 12:54
LCS	4D11008-BS1	0411LCS1.D	04/11/14 13:52
Blank	4D11008-BLK1	0411BLK1.D	04/11/14 15:44
LF002-30003	1404067-01	0406701.D	04/11/14 18:03
LF002-30006	1404067-03	0406703.D	04/11/14 18:31
LF002-30007	1404067-05	0406705.D	04/11/14 18:59
LF002-80004	1404067-07	0406707.D	04/11/14 19:27

INTERNAL STANDARD AREA AND RT SUMMARY
SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10404	Instrument:	MS-VOA4
		Calibration:	4069001

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (4D10404-CCV1)			Lab File ID: 0411CCV1.D				Analyzed: 04/11/14 12:54		
Fluorobenzene	1635262	7.72	958742	7.72	171	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	658882	10.85	396713	10.85	166	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	577242	13.24	364225	13.24	158	50 - 200	0.0000	+/-0.50	
LCS (4D11008-BS1)			Lab File ID: 0411LCS1.D				Analyzed: 04/11/14 13:52		
Fluorobenzene	1413775	7.73	958742	7.72	147	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	534442	10.85	396713	10.85	135	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	490692	13.24	364225	13.24	135	50 - 200	0.0000	+/-0.50	
Blank (4D11008-BLK1)			Lab File ID: 0411BLK1.D				Analyzed: 04/11/14 15:44		
Fluorobenzene	1350287	7.74	958742	7.72	141	50 - 200	0.0200	+/-0.50	
Chlorobenzene-d5	512408	10.86	396713	10.85	129	50 - 200	0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	459180	13.26	364225	13.24	126	50 - 200	0.0200	+/-0.50	
LF002-30003 (1404067-01)			Lab File ID: 0406701.D				Analyzed: 04/11/14 18:03		
Fluorobenzene	1183584	7.73	958742	7.72	123	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	475115	10.85	396713	10.85	120	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	405324	13.24	364225	13.24	111	50 - 200	0.0000	+/-0.50	
LF002-30006 (1404067-03)			Lab File ID: 0406703.D				Analyzed: 04/11/14 18:31		
Fluorobenzene	1223011	7.72	958742	7.72	128	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	477921	10.85	396713	10.85	120	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	421026	13.25	364225	13.24	116	50 - 200	0.0100	+/-0.50	
LF002-30007 (1404067-05)			Lab File ID: 0406705.D				Analyzed: 04/11/14 18:59		
Fluorobenzene	1183747	7.73	958742	7.72	123	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	460100	10.85	396713	10.85	116	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	406818	13.24	364225	13.24	112	50 - 200	0.0000	+/-0.50	
LF002-80004 (1404067-07)			Lab File ID: 0406707.D				Analyzed: 04/11/14 19:27		
Fluorobenzene	1164889	7.72	958742	7.72	122	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	443082	10.85	396713	10.85	112	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	398903	13.25	364225	13.24	110	50 - 200	0.0100	+/-0.50	

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone	1	~~0.1817697~~	2	0.1013565	4	0.1246573	10	9.431072E-02	20	9.428454E-02	100	0.1038752
Acetonitrile	5	~~8.636614E-02~~	10	7.230517E-02	20	6.223908E-02	50	5.467667E-02	100	5.938497E-02	500	5.413767E-02
Acrolein	2.5	3.340572E-02	5	3.648647E-02	10	3.824711E-02	25	3.557581E-02	50	3.239914E-02	250	3.860854E-02
Acrylonitrile	2.5	0.1189044	5	0.1214299	10	0.1277639	25	0.1259229	50	0.1368723	250	0.1361759
Benzene	0.5	1.260255	1	1.23223	2	1.304196	5	1.317226	10	1.344783	50	1.387101
Allyl chloride	0.5	0.1608486	1	0.1574217	2	0.1539817	5	0.1564073	10	0.1584889	50	0.1680638
Bromobenzene	0.5	0.841611	1	0.8452487	2	0.8889442	5	0.8390291	10	0.9734729	50	0.9897814
Bromochloromethane	0.5	0.1601116	1	0.1794645	2	0.1840551	5	0.1785769	10	0.1932732	50	0.1865958
Tert-Amyl Methyl Ether	0.5	0.6982203	1	0.7106855	2	0.7593249	5	0.7716136	10	0.8461616	50	0.9365341
Bromodichloromethane	0.5	0.4019798	1	0.3901845	2	0.444181	5	0.4425713	10	0.4673252	50	0.4847913
Bromoform	0.5	0.3879039	1	0.4295485	2	0.4733248	5	0.4789225	10	0.5345127	50	0.5494687
Bromomethane	0.5	0.2783243	1	0.2616379	2	0.2257215	5	0.2455686	10	0.245418	50	0.2664123
Bromofluorobenzene	30	0.9076656	35	0.8692293	40	0.932672	50	0.9130213	60	0.9163095	70	0.9352184
n-Butylbenzene	0.5	2.417552	1	2.532604	2	2.530926	5	2.558331	10	2.754252	50	2.775477
2-Butanone	1	0.175448	2	0.1740543	4	0.1563833	10	0.161847	20	0.1641524	100	0.1706297
sec-Butylbenzene	0.5	3.189438	1	3.024494	2	3.028038	5	3.135171	10	3.329131	50	3.463351
tert-Butylbenzene	0.5	2.242447	1	2.200457	2	2.463916	5	2.413864	10	2.564243	50	2.712395
Carbon disulfide	0.5	1.17504	1	1.124242	2	1.216906	5	1.141701	10	1.257788	50	1.228248
Carbon tetrachloride	0.5	0.2906275	1	0.2995712	2	0.3333963	5	0.3502923	10	0.3660728	50	0.3990341
Chlorobenzene	0.5	1.929713	1	1.861658	2	2.005789	5	1.954018	10	1.992879	50	2.057027
Chloroethane	0.5	0.2762265	1	0.2651004	2	0.233537	5	0.2521627	10	0.2818501	50	0.2604267
Chloroform	0.5	0.6394825	1	0.5796038	2	0.6028357	5	0.5699995	10	0.6143706	50	0.6244478
2-Chloroethyl vinyl ether	1	0.1561428	2	0.1780269	4	0.1943292	10	0.2027164	20	0.2282811	100	0.2412599
Chloromethane	0.5	0.5554579	1	0.5131973	2	0.4877525	5	0.4857301	10	0.5247097	50	0.4832602
1-Chlorohexane	0.5	1.063549	1	0.8944065	2	0.9151572	5	0.8906579	10	0.9020968	50	0.9277187
2-Chlorotoluene	0.5	2.474282	1	2.370764	2	2.502694	5	2.459467	10	2.711039	50	2.734163
Chloroprene	0.5	0.524218	1	0.5350237	2	0.5189331	5	0.5702996	10	0.5808781	50	0.608564
4-Chlorotoluene	0.5	2.78852	1	2.716615	2	2.887111	5	2.850225	10	3.131068	50	3.090143
Cyclohexane	0.5	0.5557414	1	0.4920511	2	0.564556	5	0.5699343	10	0.5717472	50	0.5880332
Dibromochloromethane	0.5	0.7469496	1	0.7520169	2	0.7823665	5	0.8021092	10	0.8423679	50	0.9008164
1,2-Dibromo-3-chloropropane	0.5	0.131368	1	0.14377	2	0.1494469	5	0.1466294	10	0.1645168	50	0.1725563

INITIAL CALIBRATION DATA

SW8260B

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Calibration: 4069001

Instrument: MS-VOA4

Matrix: Water

Calibration Dates: 3/6/14_15:44 3/6/14_19:27

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,2-Dibromoethane (EDB)	0.5	0.6822289	1	0.7080334	2	0.7476064	5	0.7354068	10	0.7998019	50	0.812964
Dibromomethane	0.5	0.2170918	1	0.2093907	2	0.224484	5	0.228219	10	0.2409377	50	0.2434638
1,2-Dichlorobenzene	0.5	1.447108	1	1.531015	2	1.518878	5	1.524286	10	1.579365	50	1.617541
1,3-Dichlorobenzene	0.5	1.698118	1	1.593952	2	1.650686	5	1.557979	10	1.64605	50	1.683068
trans-1,4-Dichloro-2-butene	0.5	0.2367477	1	0.2507027	2	0.3050651	5	0.2762793	10	0.3225945	50	0.3318958
cis-1,4-Dichloro-2-butene	0.5	~~0.1966558~~	1	0.2784616	2	0.3010123	5	0.2894836	10	0.343932	50	0.3670605
1,4-Dichlorobenzene	0.5	1.754373	1	1.681244	2	1.630284	5	1.614022	10	1.70343	50	1.720757
Dichlorodifluoromethane	0.5	0.3807186	1	0.2962632	2	0.3617601	5	0.3426807	10	0.4318415	50	0.4173413
1,1-Dichloroethane	0.5	0.6154998	1	0.6025431	2	0.6778971	5	0.6743711	10	0.6897616	50	0.7264121
1,2-Dichloroethane	0.5	0.4799946	1	0.4401749	2	0.4881432	5	0.4890761	10	0.5023016	50	0.5344628
1,1-Dichloroethene	0.5	0.2792881	1	0.2792597	2	0.277662	5	0.2904688	10	0.3102604	50	0.3157095
cis-1,2-Dichloroethene	0.5	0.3480046	1	0.3362679	2	0.3458848	5	0.3387868	10	0.358763	50	0.3610018
trans-1,2-Dichloroethene	0.5	0.3018534	1	0.3029719	2	0.3257599	5	0.321535	10	0.3367613	50	0.3482163
1,2-Dichloroethene (total)	1	0.324929	2	0.3196199	4	0.3358224	10	0.3301609	20	0.3477622	100	0.3546091
1,2-Dichloropropane	0.5	0.3561122	1	0.3679254	2	0.3836109	5	0.3690247	10	0.4032925	50	0.4108862
1,3-Dichloropropane	0.5	1.11426	1	1.160303	2	1.215825	5	1.222409	10	1.26392	50	1.298616
2,2-Dichloropropane	0.5	0.3795846	1	0.3893807	2	0.4226396	5	0.4288025	10	0.4365014	50	0.467324
1,1-Dichloropropene	0.5	0.4325394	1	0.4203581	2	0.4473724	5	0.4635017	10	0.4769097	50	0.4990843
cis-1,3-Dichloropropene	0.5	0.4480176	1	0.4722343	2	0.4721703	5	0.4967073	10	0.5360902	50	0.5758237
trans-1,3-Dichloropropene	0.5	1.054583	1	1.058366	2	1.106072	5	1.16894	10	1.263215	50	1.354317
Diisopropyl Ether	0.5	1.125033	1	1.272977	2	1.3287	5	1.341672	10	1.417436	50	1.484734
1,4-Dioxane	10	2.968074E-03	20	2.159448E-03	40	2.605981E-03	100	2.286103E-03	200	2.585818E-03	1000	2.525788E-03
Ethylbenzene	0.5	2.918315	1	2.949883	2	3.33292	5	3.279502	10	3.320924	50	3.434514
Ethyl tert-Butyl Ether	0.5	0.9413926	1	0.9500643	2	1.020298	5	1.031929	10	1.083101	50	1.168191
Ethyl Methacrylate	0.5	0.7133284	1	0.7459528	2	0.824683	5	0.8147775	10	0.9287054	50	0.9724326
Hexachlorobutadiene	0.5	0.4828448	1	0.4479827	2	0.4199711	5	0.383863	10	0.3786772	50	0.3832276
Hexane	0.5	0.3908673	1	0.3141942	2	0.3410815	5	0.3364713	10	0.3459363	50	0.3520244
2-Hexanone	1	0.4908686	2	0.4004565	4	0.4676676	10	0.4666259	20	0.5358621	100	0.5355248
Iodomethane	0.5	0.2169217	1	0.240739	2	0.2991221	5	0.3645046	10	0.413022	50	0.4916112
Isobutyl alcohol	10	6.576821E-03	20	6.257297E-03	40	5.662983E-03	100	5.375441E-03	200	6.242419E-03	1000	6.310299E-03
Isopropylbenzene	0.5	2.366788	1	2.367199	2	2.570936	5	2.682138	10	2.777959	50	2.85567

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
p-Isopropyltoluene	0.5	2.705325	1	2.645385	2	2.697827	5	2.689842	10	2.806242	50	2.881751
Methacrylonitrile	5	0.2259535	10	0.2271362	20	0.2444819	50	0.2378017	100	0.2490852	500	0.2572496
Methylene chloride	0.5	0.6759385	1	0.531963	2	0.4494239	5	0.3963405	10	0.4053878	50	0.3805874
Methyl Acetate	0.5	0.2835971	1	0.2785487	2	0.300099	5	0.2414138	10	0.2733967	50	0.286448
Methylcyclohexane	0.5	0.4052116	1	0.3752523	2	0.408881	5	0.4039326	10	0.3996062	50	0.4062164
Naphthalene	0.5	1.647884	1	1.874509	2	1.957547	5	2.064952	10	2.247312	50	2.330549
Methyl Methacrylate	0.5	0.2782676	1	0.2874832	2	0.2817	5	0.2942192	10	0.3241142	50	0.341161
4-Methyl-2-pentanone	1	0.2742138	2	0.2761373	4	0.2955969	10	0.298749	20	0.3264789	100	0.3533199
Methyl t-Butyl Ether	0.5	0.730991	1	0.7371801	2	0.7867768	5	0.7769359	10	0.7907305	50	0.8889218
n-Propylbenzene	0.5	3.842158	1	3.702753	2	3.935312	5	3.933719	10	4.281019	50	4.468446
Propionitrile	5	0.0435034	10	0.0460641	20	4.627103E-02	50	4.280198E-02	100	4.942294E-02	500	4.444696E-02
Styrene	0.5	1.642112	1	1.672061	2	1.812301	5	1.854045	10	2.036704	50	2.100785
1,1,2,2-Tetrachloroethane	0.5	0.8932708	1	0.8717855	2	0.9595918	5	0.8891167	10	0.968348	50	1.024842
1,1,1,2-Tetrachloroethane	0.5	0.6239523	1	0.6444762	2	0.6924233	5	0.6727441	10	0.7051256	50	0.7300177
tert-Butyl alcohol	2.5	~~7.552005E-03~~	5	~~9.868228E-03~~	10	1.450101E-02	25	1.347399E-02	50	1.731777E-02	250	1.627351E-02
Tetrachloroethene	0.5	0.7154298	1	0.7055004	2	0.7274693	5	0.6935078	10	0.6953616	50	0.7307015
Toluene	0.5	1.693665	1	1.607046	2	1.760917	5	1.683298	10	1.774894	50	1.840607
1,2,3-Trichlorobenzene	0.5	0.8347969	1	0.8119904	2	0.8506729	5	0.8599964	10	0.899581	50	0.916024
1,2,4-Trichlorobenzene	0.5	0.931461	1	0.9307076	2	0.9357355	5	0.9266381	10	0.9683833	50	1.030759
1,1,2-Trichloroethane	0.5	0.582206	1	0.5826077	2	0.6120382	5	0.6058639	10	0.6280671	50	0.6441423
1,1,1-Trichloroethane	0.5	0.4115049	1	0.4011286	2	0.4410711	5	0.4333812	10	0.4494604	50	0.4800068
Tetrahydrofuran	0.5	~~2.097779E-02~~	1	2.324846E-02	2	2.473281E-02	5	3.009438E-02	10	3.250941E-02	50	3.301613E-02
Trichloroethene	0.5	0.2985083	1	0.3256639	2	0.339437	5	0.3151952	10	0.3619768	50	0.3556502
Trichlorofluoromethane	0.5	0.4128656	1	0.4109907	2	0.4483493	5	0.4694175	10	0.4837311	50	0.5015413
1,2,3-Trichloropropane	0.5	0.1915004	1	0.1985779	2	0.2242452	5	0.2011898	10	0.2292653	50	0.2184706
1,3,5-Trimethylbenzene	0.5	2.460813	1	2.496814	2	2.603093	5	2.780765	10	2.92318	50	2.877607
1,2,4-Trimethylbenzene	0.5	2.435141	1	2.554601	2	2.789107	5	2.836861	10	3.004402	50	2.990124
1,1,2-Trichloro-1,2,2-trifluoroethar	0.5	0.3104146	1	0.2741277	2	0.3172117	5	0.3045768	10	0.2957922	50	0.310077
Vinyl chloride	0.5	0.376523	1	0.3558992	2	0.34284	5	0.3487987	10	0.3763757	50	0.3459878
m,p-Xylene	1	2.233004	2	2.290132	4	2.544692	10	2.544548	20	2.568449	100	2.668392
o-Xylene	0.5	2.330925	1	2.350005	2	2.58466	5	2.582439	10	2.736667	50	2.641937

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Vinyl acetate	1	0.6520125	2	0.6805893	4	0.7416749	10	0.794941	20	0.8206862	100	0.9485637
Xylenes (total)	1.5	2.265644	3	2.31009	6	2.558015	15	2.557178	30	2.624522	150	2.659574
Dibromofluoromethane	30	0.2890267	35	0.302116	40	0.3073462	50	0.3185641	60	0.3131544	70	0.33858
1,2-Dichloroethane-d4	30	5.721834E-02	35	5.784025E-02	40	5.932373E-02	50	6.242073E-02	60	6.077057E-02	70	6.676654E-02
Toluene-d8	30	2.194706	35	2.166095	40	2.293095	50	2.346966	60	2.314726	70	2.377644
tert-Amyl alcohol	2.5	~~9.751838E-03~~	5	9.132439E-03	10	1.021877E-02	25	0.0103628	50	1.315689E-02	250	0.0143672
tert-Amyl ethyl ether	0.5	0.664996	1	0.6804502	2	0.7396721	5	0.7329292	10	0.8106747	50	0.8763025
1,3,5-Trichlorobenzene	0.5	1.105615	1	1.037029	2	1.068741	5	1.055951	10	1.048476	50	1.095986
Diethyl ether	0.5	0.2718608	1	0.2801254	2	0.2869592	5	0.2763804	10	0.285275	50	0.3169903

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone	200	8.384159E-02	300	8.954737E-02	400	0.0835834						
Acetonitrile	1000	5.079835E-02	1500	5.266191E-02	2000	4.943161E-02						
Acrolein	500	3.382839E-02	750	3.463738E-02	1000	3.488136E-02						
Acrylonitrile	500	0.1265594	750	0.1285594	1000	0.1260418						
Benzene	100	1.296423	150	1.296849	200	1.285094						
Allyl chloride	100	0.1547885	150	0.1416814	200	0.1444228						
Bromobenzene	100	0.8806199	150	0.8759408	200	0.918877						
Bromochloromethane	100	0.1784642	150	0.1752499	200	0.1785281						
Tert-Amyl Methyl Ether	100	0.8677674	150	0.8742516	200	0.8533745						
Bromodichloromethane	100	0.4549953	150	0.446421	200	0.4384875						
Bromoform	100	0.543411	150	0.5704128	200	0.5810045						
Bromomethane	100	0.272693	150	0.272771	200	0.2706678						
Bromofluorobenzene	30	0.8979111	30	0.9280861	30	0.9371415						
n-Butylbenzene	100	2.550383	150	2.517261	200	2.539486						
2-Butanone	200	0.1600892	300	0.1717088	400	0.1602246						
sec-Butylbenzene	100	3.28804	150	3.123936	200	3.302507						
tert-Butylbenzene	100	2.443873	150	2.338504	200	2.545447						
Carbon disulfide	100	1.17807	150	1.148719	200	1.166433						
Carbon tetrachloride	100	0.3732976	150	0.3598371	200	0.3638982						
Chlorobenzene	100	1.935771	150	1.968974	200	1.927615						
Chloroethane	100	0.2365015	150	0.2454681	200	0.2389202						
Chloroform	100	0.5724542	150	0.5675821	200	0.5693384						
2-Chloroethyl vinyl ether	200	0.2185281	300	0.2211525	400	0.212967						
Chloromethane	100	0.4758267	150	0.4708828	200	0.4558844						
1-Chlorohexane	100	0.8636919	150	0.8713085	200	0.8700311						
2-Chlorotoluene	100	2.480153	150	2.371238	200	2.507249						
Chloroprene	100	0.5532375	150	0.5398555	200	0.522688						
4-Chlorotoluene	100	2.854308	150	2.749586	200	2.852652						
Cyclohexane	100	0.5650007	150	0.5287304	200	0.5436754						
Dibromochloromethane	100	0.8440727	150	0.8754988	200	0.8536455						
1,2-Dibromo-3-chloropropane	100	0.1640826	150	0.1631897	200	0.1704727						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,2-Dibromoethane (EDB)	100	0.7482959	150	0.7910397	200	0.7509562						
Dibromomethane	100	0.2232138	150	0.2233055	200	0.221371						
1,2-Dichlorobenzene	100	1.501009	150	1.524702	200	1.615058						
1,3-Dichlorobenzene	100	1.58533	150	1.556255	200	1.611489						
trans-1,4-Dichloro-2-butene	100	0.2844286	150	0.2838664	200	0.2817126						
cis-1,4-Dichloro-2-butene	100	0.3087251	150	0.2982974	200	0.3079312						
1,4-Dichlorobenzene	100	1.628634	150	1.595686	200	1.644847						
Dichlorodifluoromethane	100	0.4070606	150	0.382495	200	0.3874196						
1,1-Dichloroethane	100	0.6581747	150	0.641007	200	0.617787						
1,2-Dichloroethane	100	0.4790665	150	0.4573703	200	0.4472441						
1,1-Dichloroethene	100	0.2991195	150	0.2959372	200	0.2941732						
cis-1,2-Dichloroethene	100	0.3436688	150	0.3263553	200	0.3408223						
trans-1,2-Dichloroethene	100	0.3289539	150	0.3167339	200	0.3129828						
1,2-Dichloroethene (total)	200	0.3363113	300	0.3215446	400	0.3269026						
1,2-Dichloropropane	100	0.3821692	150	0.3600199	200	0.371036						
1,3-Dichloropropane	100	1.193854	150	1.207048	200	1.185448						
2,2-Dichloropropane	100	0.4236999	150	0.4119757	200	0.4026359						
1,1-Dichloropropene	100	0.4622557	150	0.4422191	200	0.4487826						
cis-1,3-Dichloropropene	100	0.5413722	150	0.5365898	200	0.5185666						
trans-1,3-Dichloropropene	100	1.195994	150	1.219523	200	1.231924						
Diisopropyl Ether	100	1.374923	150	1.378815	200	1.330875						
1,4-Dioxane	2000	2.314502E-03	3000	2.574526E-03	4000	2.503366E-03						
Ethylbenzene	100	3.298314	150	3.282751	200	3.229541						
Ethyl tert-Butyl Ether	100	1.060426	150	1.053539	200	1.018631						
Ethyl Methacrylate	100	0.8877198	150	0.9273883	200	0.8905075						
Hexachlorobutadiene	100	0.3538793	150	0.3455886	200	0.3697962						
Hexane	100	0.3391748	150	0.3208422	200	0.3250742						
2-Hexanone	200	0.49831	300	0.5230792	400	0.4791231						
Iodomethane	100	0.4783487	150	0.4554643	200	0.4613931						
Isobutyl alcohol	2000	6.356251E-03	3000	6.980017E-03	4000	6.79722E-03						
Isopropylbenzene	100	2.821326	150	2.735754	200	2.816105						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
p-Isopropyltoluene	100	2.711537	150	2.646677	200	2.692847						
Methacrylonitrile	1000	0.2242371	1500	0.2193386	2000	0.208372						
Methylene chloride	100	0.3538215	150	0.3426455	200	0.3403141						
Methyl Acetate	100	0.2556779	150	0.2649718	200	0.2560981						
Methylcyclohexane	100	0.39399	150	0.3784436	200	0.4026574						
Naphthalene	100	2.344013	150	2.336375	200	2.409049						
Methyl Methacrylate	100	0.2920621	150	0.3078053	200	0.295845						
4-Methyl-2-pentanone	200	0.3163417	300	0.3264097	400	0.3005327						
Methyl t-Butyl Ether	100	0.8126336	150	0.8081037	200	0.7788036						
n-Propylbenzene	100	4.002272	150	3.867053	200	3.792069						
Propionitrile	1000	4.694749E-02	1500	0.0489272	2000	4.524669E-02						
Styrene	100	2.044558	150	2.140792	200	2.130364						
1,1,2,2-Tetrachloroethane	100	0.9095974	150	0.8808243	200	0.954971						
1,1,1,2-Tetrachloroethane	100	0.7126684	150	0.7031575	200	0.6937245						
tert-Butyl alcohol	500	1.630049E-02	750	0.0191684	1000	1.808311E-02						
Tetrachloroethene	100	0.6897898	150	0.6835116	200	0.7164943						
Toluene	100	1.661251	150	1.713065	200	1.778762						
1,2,3-Trichlorobenzene	100	0.8857069	150	0.8586922	200	0.8930763						
1,2,4-Trichlorobenzene	100	0.9874149	150	0.9702891	200	1.016804						
1,1,2-Trichloroethane	100	0.5848477	150	0.5951533	200	0.5893426						
1,1,1-Trichloroethane	100	0.4368853	150	0.4308223	200	0.4338056						
Tetrahydrofuran	100	2.934189E-02	150	3.168023E-02	200	3.072632E-02						
Trichloroethene	100	0.3312613	150	0.3283271	200	0.3269496						
Trichlorofluoromethane	100	0.4666906	150	0.4482974	200	0.4594569						
1,2,3-Trichloropropane	100	0.2104582	150	0.2076343	200	0.2097475						
1,3,5-Trimethylbenzene	100	2.703917	150	2.572054	200	2.690018						
1,2,4-Trimethylbenzene	100	2.830311	150	2.703401	200	2.854374						
1,1,2-Trichloro-1,2,2-trifluoroethan	100	0.3012097	150	0.2762234	200	0.2892513						
Vinyl chloride	100	0.3622456	150	0.338709	200	0.3194526						
m,p-Xylene	200	2.523362	300	2.471526	400	2.185418						
o-Xylene	100	2.583488	150	2.637181	200	2.624121						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4069001	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	3/6/14 15:44 3/6/14 19:27

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Vinyl acetate	200	0.8495412	300	0.8649375	400	0.8276118						
Xylenes (total)	300	2.543403	450	2.526744	600	2.331652						
Dibromofluoromethane	30	0.2978987	30	0.2894634	30	0.2944619						
1,2-Dichloroethane-d4	30	0.0588709	30	5.668745E-02	30	5.992906E-02						
Toluene-d8	30	2.185335	30	2.277829	30	2.321873						
tert-Amyl alcohol	500	1.414353E-02	750	1.551941E-02	1000	1.479709E-02						
tert-Amyl ethyl ether	100	0.820233	150	0.8188507	200	0.7968251						
1,3,5-Trichlorobenzene	100	1.044831	150	1.054918	200	1.088602						
Diethyl ether	100	0.2871482	150	0.278202	200	0.2718584						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_010	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Calibration:	4069001		Instrument:	MS-VOA4	
Matrix:	Water		Calibration Dates:	3/6/14 15:44	3/6/14 19:27

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Acetone	9.693208E-02	13.81043	3.56	0.212248			15	
Acetonitrile	5.695443E-02	13.19796	3.63625	0.3867275			15	
Acrolein	0.0353411	5.992721	3.446667	0.1443014			15	
Acrylonitrile	0.1275811	4.641045	4.374444	0.120048			15	
Benzene	1.302684	3.460694	7.454444	7.143236E-02			15	
Allyl chloride	0.1551227	5.172778	4.448889	0.1341301			15	
Bromobenzene	0.8948361	6.219143	12.20111	2.931441E-02			15	
Bromochloromethane	0.1793688	5.054196	6.545556	8.135115E-02			15	
Tert-Amyl Methyl Ether	0.8131037	10.00822	7.647778	5.965235E-02			15	
Bromodichloromethane	0.4412152	6.684754	8.444444	5.946976E-02			15	
Bromoform	0.5053899	13.17448	11.61	2.412076E-02			SPCC (0.1)	
Bromomethane	0.2599127	6.682592	2.665556	0.1982899			15	
Bromofluorobenzene	0.9152505	2.390126	12.04111	1.858373E-02			15	
n-Butylbenzene	2.575141	4.476977	13.63667	0.0344083			15	
2-Butanone	0.1660597	4.20223	6.002222	0.1384621			15	
sec-Butylbenzene	3.209345	4.594988	13.09556	0.0410019			15	
tert-Butylbenzene	2.436127	6.628439	12.86222	3.659541E-02			15	
Carbon disulfide	1.181905	3.721252	4.542222	9.529546E-02			15	
Carbon tetrachloride	0.3484475	10.05358	7.425555	7.154712E-02			15	
Chlorobenzene	1.959272	2.849043	10.88556	5.062091E-02			SPCC (0.3)	
Chloroethane	0.2544659	6.892176	2.787778	0.1573432			15	
Chloroform	0.5933461	4.630316	6.52	1.531711E-02			CCC (30)	
2-Chloroethyl vinyl ether	0.2059338	12.83609	8.812222	0.0468773			15	
Chloromethane	0.4947446	6.239686	2.116667	0.2359216			SPCC (0.1)	
1-Chlorohexane	0.9109575	6.703025	10.85778	3.947123E-02			15	
2-Chlorotoluene	2.512339	5.152207	12.42444	4.754732E-02			15	
Chloroprene	0.5504108	5.565545	5.813333	8.660556E-02			15	
4-Chlorotoluene	2.880025	4.935073	12.48667	3.607366E-02			15	
Cyclohexane	0.5532744	5.168047	7.353333	6.822593E-02			15	
Dibromochloromethane	0.8222048	6.588217	10.11778	4.309451E-02			15	
1,2-Dibromo-3-chloropropane	0.1562258	8.937716	14.23111	2.518423E-02			15	
1,2-Dibromoethane (EDB)	0.7529259	5.679395	10.33111	5.966478E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_010	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Calibration:	4069001		Instrument:	MS-VOA4	
Matrix:	Water		Calibration Dates:	3/6/14 15:44	3/6/14 19:27

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Dibromomethane	0.2257197	4.767189	8.378889	4.272819E-02			15	
1,2-Dichlorobenzene	1.539885	3.582958	13.59111	3.020989E-02			15	
1,3-Dichlorobenzene	1.620325	3.204058	13.18	0.033605			15	
trans-1,4-Dichloro-2-butene	0.2859214	10.78032	12.01	2.304143E-02			15	
cis-1,4-Dichloro-2-butene	0.311863	9.402435	11.69625	4.884177E-02			15	
1,4-Dichlorobenzene	1.663697	3.233993	13.27	9.397871E-03			15	
Dichlorodifluoromethane	0.3786201	10.88827	1.908889	0.1748179			15	
1,1-Dichloroethane	0.6559393	6.169721	5.546667	8.908367E-02			SPCC (0.1)	
1,2-Dichloroethane	0.4797593	6.069652	7.286667	6.865682E-02			15	
1,1-Dichloroethene	0.2935421	4.628759	4.006667	0.1232458			CCC (30)	
cis-1,2-Dichloroethene	0.344395	3.136894	6.264445	8.484449E-02			15	
trans-1,2-Dichloroethene	0.321752	4.719039	5.171111	0.0645329			15	
1,2-Dichloroethene (total)	0.3330736	3.559396	6.264445	8.484449E-02			15	
1,2-Dichloropropane	0.3782308	4.948484	8.264445	6.024021E-02			CCC (30)	
1,3-Dichloropropane	1.206854	4.478186	9.864444	5.689311E-02			15	
2,2-Dichloropropane	0.4180605	6.279281	6.368889	9.224848E-02			15	
1,1-Dichloropropene	0.4547803	5.222407	7.303333	0.0669568			15	
cis-1,3-Dichloropropene	0.5108413	8.085308	9.021111	3.059341E-02			15	
trans-1,3-Dichloropropene	1.183659	8.332284	9.5	0			15	
Diisopropyl Ether	1.339463	7.492893	5.921111	5.893923E-02			15	
1,4-Dioxane	2.502623E-03	9.370959	8.428889	9.106473E-02			15	
Ethylbenzene	3.227407	5.434909	11.03333	4.687283E-02			CCC (30)	
Ethyl tert-Butyl Ether	1.036397	6.605746	6.392222	7.217166E-02			15	
Ethyl Methacrylate	0.8561662	10.22258	9.69	2.020717E-02			15	
Hexachlorobutadiene	0.3962034	11.43852	15.59333	3.578777E-02			15	
Hexane	0.3406296	6.592183	5.763333	8.461428E-02			15	
2-Hexanone	0.4886131	8.71433	9.802222	4.160926E-02			15	
Iodomethane	0.3801252	27.63955	4.197778	0.1031084		0.9995961	0.99	
Isobutyl alcohol	6.284305E-03	8.061206	6.617778	9.989747E-02			15	
Isopropylbenzene	2.665986	7.118672	11.93333	0.0384972			15	
p-Isopropyltoluene	2.719715	2.817358	13.23333	0.0341619			15	
Methacrylonitrile	0.2326284	6.718955	6.17	0.1623271			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_010	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Calibration:	4069001		Instrument:	MS-VOA4	
Matrix:	Water		Calibration Dates:	3/6/14 15:44	3/6/14 19:27

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Methylene chloride	0.4307136	25.55388	4.493333	0.1098972		0.9997837	0.99	
Methyl Acetate	0.271139	6.744298	4.357778	0.1531507			15	
Methylcyclohexane	0.3971323	3.092442	8.596667	5.767279E-02			15	
Naphthalene	2.134688	12.3022	15.46	1.455339E-02			15	
Methyl Methacrylate	0.3002953	6.87862	8.407778	4.944537E-02			15	
4-Methyl-2-pentanone	0.3075311	8.333029	8.947778	4.517247E-02			15	
Methyl t-Butyl Ether	0.7901197	5.869231	5.162222	8.640945E-02			15	
n-Propylbenzene	3.980533	6.139347	12.34111	2.718462E-02			15	
Propionitrile	4.595909E-02	4.90682	5.722222	0.1178779			15	
Styrene	1.93708	10.11026	11.50667	4.163682E-02			15	
1,1,2,2-Tetrachloroethane	0.9280386	5.543597	11.85667	4.416491E-02			SPCC (0.3)	
1,1,1,2-Tetrachloroethane	0.6864766	4.928588	10.93	1.332678E-02			15	
tert-Butyl alcohol	1.644547E-02	12.03875	4.147143	0.1816137			15	
Tetrachloroethene	0.7064185	2.403689	10.23	1.616981E-02			15	
Toluene	1.723723	4.146077	9.495555	5.604512E-02			CCC (30)	
1,2,3-Trichlorobenzene	0.8678374	3.851171	15.74778	2.733087E-02			15	
1,2,4-Trichlorobenzene	0.9664658	4.033897	15.31	3.613786E-02			15	
1,1,2-Trichloroethane	0.6026965	3.633231	9.651111	0.0301437			15	
1,1,1-Trichloroethane	0.4353407	5.133061	7.081111	4.893599E-02			15	
Tetrahydrofuran	0.0294187	12.17561	6.73	0.1375823			15	
Trichloroethene	0.331441	5.837026	8.22	8.649674E-02			15	
Trichlorofluoromethane	0.4557045	6.561598	3.258889	0.1839159			15	
1,2,3-Trichloropropane	0.210121	5.833335	11.98444	4.503246E-02			15	
1,3,5-Trimethylbenzene	2.678696	6.021887	12.52	6.137777E-03			15	
1,2,4-Trimethylbenzene	2.777591	6.752684	12.89222	3.821114E-02			15	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.2976538	5.104869	4.085556	0.178067			15	
Vinyl chloride	0.3518702	5.20344	2.253333	0.2215242			CCC (30)	
m,p-Xylene	2.447725	6.898186	11.14444	4.944093E-02			15	
o-Xylene	2.563491	5.272041	11.53667	4.203864E-02			15	
Vinyl acetate	0.7978398	11.68048	5.625556	9.334956E-02			15	
Xylenes (total)	2.486314	5.825802	11.53667	4.203864E-02			15	
Dibromofluoromethane	0.3056235	5.233191	6.694444	7.642584E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010		
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)		
Calibration:	4069001	Instrument:	MS-VOA4		
Matrix:	Water	Calibration Dates:	3/6/14 15:44	3/6/14 19:27	

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
1,2-Dichloroethane-d4	5.998084E-02	5.184054	7.193333	7.039985E-02			15	
Toluene-d8	2.275363	3.338808	9.42	0.0194423			15	
tert-Amyl alcohol	1.271227E-02	19.21454	6.89375	7.579471E-02		0.998464	0.99	
tert-Amyl ethyl ether	0.7712148	9.158393	8.542222	5.440364E-02			15	
1,3,5-Trichlorobenzene	1.066683	2.296636	14.75556	3.499834E-02			15	
Diethyl ether	0.2838666	4.839752	3.66	1.611891E-02			15	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0306ICV2.D	Calibration Date:	03/06/14 03:44
Sequence:	4C06901	Injection Date:	03/06/14
Lab Sample ID:	4C06901-ICV2	Injection Time:	20:51

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Acetone	A	200.0	169.6	9.693208E-02	8.219556E-02		-15.2	20
Benzene	A	100.0	97.45	1.302684	1.269433		-2.6	20
Bromobenzene	A	100.0	99.45	0.8948361	0.889899		-0.6	20
Bromochloromethane	A	100.0	96.72	0.1793688	0.1734912		-3.3	20
Bromodichloromethane	A	100.0	97.88	0.4412152	0.4318615		-2.1	20
Bromoform	A	100.0	108.4	0.5053899	0.5479223	0.1	8.4	20
Bromomethane	A	100.0	104.0	0.2599127	0.2703789		4.0	20
n-Butylbenzene	A	100.0	98.93	2.575141	2.547713		-1.1	20
2-Butanone	A	200.0	177.0	0.1660597	0.1470043		-11.5	20
sec-Butylbenzene	A	100.0	100.7	3.209345	3.231187		0.7	20
tert-Butylbenzene	A	100.0	99.32	2.436127	2.419594		-0.7	20
Carbon disulfide	A	100.0	96.55	1.181905	1.141184		-3.4	20
Carbon tetrachloride	A	100.0	100.5	0.3484475	0.3500825		0.5	20
Chlorobenzene	A	100.0	97.79	1.959272	1.916024	0.3	-2.2	20
Chloroethane	A	100.0	96.87	0.2544659	0.2465032		-3.1	20
Chloroform	A	100.0	93.27	0.5933461	0.5534033		-6.7	20
Chloromethane	A	100.0	91.65	0.4947446	0.4534332	0.1	-8.4	20
2-Chlorotoluene	A	100.0	96.43	2.512339	2.422606		-3.6	20
4-Chlorotoluene	A	100.0	97.56	2.880025	2.809804		-2.4	20
Dibromochloromethane	A	100.0	103.4	0.8222048	0.8498523		3.4	20
1,2-Dibromo-3-chloropropane	A	100.0	101.2	0.1562258	0.1581516		1.2	20
1,2-Dibromoethane (EDB)	A	100.0	101.6	0.7529259	0.7649421		1.6	20
Dibromomethane	A	100.0	95.25	0.2257197	0.2150009		-4.7	20
1,2-Dichlorobenzene	A	100.0	99.21	1.539885	1.527675		-0.8	20
1,3-Dichlorobenzene	A	100.0	99.97	1.620325	1.619866		-0.03	20
1,4-Dichlorobenzene	A	100.0	97.63	1.663697	1.624272		-2.4	20
Dichlorodifluoromethane	A	100.0	102.2	0.3786201	0.3870338		2.2	20
1,1-Dichloroethane	A	100.0	96.66	0.6559393	0.634026	0.1	-3.3	20
1,2-Dichloroethane	A	100.0	90.31	0.4797593	0.4332676		-9.7	20

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0306ICV2.D	Calibration Date:	03/06/14 03:44
Sequence:	4C06901	Injection Date:	03/06/14
Lab Sample ID:	4C06901-ICV2	Injection Time:	20:51

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
1,1-Dichloroethene	A	100.0	101.3	0.2935421	0.2972992		1.3	20
cis-1,2-Dichloroethene	A	100.0	97.95	0.344395	0.3373219		-2.1	20
trans-1,2-Dichloroethene	A	100.0	99.42	0.321752	0.319877		-0.6	20
1,2-Dichloroethene (total)	A	200.0	197.4	0.3330736	0.3285994		-1.3	20
1,2-Dichloropropane	A	100.0	97.88	0.3782308	0.3702094		-2.1	20
1,3-Dichloropropane	A	100.0	98.49	1.206854	1.188675		-1.5	20
2,2-Dichloropropane	A	100.0	92.39	0.4180605	0.3862427		-7.6	20
1,1-Dichloropropene	A	100.0	95.22	0.4547803	0.4330513		-4.8	20
cis-1,3-Dichloropropene	A	100.0	99.63	0.5108413	0.5089451		-0.4	20
trans-1,3-Dichloropropene	A	100.0	104.4	1.183659	1.235201		4.4	20
Ethylbenzene	A	100.0	103.9	3.227407	3.351965		3.9	20
Hexachlorobutadiene	A	100.0	90.10	0.3962034	0.3569801		-9.9	20
2-Hexanone	A	200.0	188.3	0.4886131	0.4599557		-5.9	20
Isopropylbenzene	A	100.0	107.8	2.665986	2.87378		7.8	20
p-Isopropyltoluene	A	100.0	97.00	2.719715	2.638199		-3.0	20
Methylene chloride	Q	100.0	96.25	0.4307136	0.3423915		-3.8	20
Naphthalene	A	100.0	105.3	2.134688	2.247306		5.3	20
4-Methyl-2-pentanone	A	200.0	189.5	0.3075311	0.2914022		-5.2	20
Methyl t-Butyl Ether	A	100.0	98.79	0.7901197	0.7805536		-1.2	20
n-Propylbenzene	A	100.0	101.8	3.980533	4.050543		1.8	20
Styrene	A	100.0	106.5	1.93708	2.063746		6.5	20
1,1,2,2-Tetrachloroethane	A	100.0	95.79	0.9280386	0.8889859	0.3	-4.2	20
1,1,1,2-Tetrachloroethane	A	100.0	101.7	0.6864766	0.697923		1.7	20
Tetrachloroethene	A	100.0	103.2	0.7064185	0.7290543		3.2	20
Toluene	A	100.0	106.8	1.723723	1.841052		6.8	20
1,2,3-Trichlorobenzene	A	100.0	101.0	0.8678374	0.8769537		1.1	20
1,2,4-Trichlorobenzene	A	100.0	101.4	0.9664658	0.9801552		1.4	20
1,1,2-Trichloroethane	A	100.0	98.24	0.6026965	0.5921145		-1.8	20
1,1,1-Trichloroethane	A	100.0	97.22	0.4353407	0.4232517		-2.8	20

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0306ICV2.D	Calibration Date:	03/06/14 03:44
Sequence:	4C06901	Injection Date:	03/06/14
Lab Sample ID:	4C06901-ICV2	Injection Time:	20:51

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Trichloroethene	A	100.0	99.19	0.331441	0.3287533		-0.8	20
Trichlorofluoromethane	A	100.0	100.5	0.4557045	0.4578403		0.5	20
1,2,3-Trichloropropane	A	100.0	96.94	0.210121	0.2037018		-3.1	20
1,3,5-Trimethylbenzene	A	100.0	98.74	2.678696	2.644973		-1.3	20
1,2,4-Trimethylbenzene	A	100.0	99.98	2.777591	2.77702		-0.02	20
Vinyl chloride	A	100.0	96.98	0.3518702	0.3412608		-3.0	20
m,p-Xylene	A	200.0	209.8	2.447725	2.568287		4.9	20
o-Xylene	A	100.0	99.92	2.563491	2.56136		-0.08	20
Xylenes (total)	A	300.0	309.8	2.486314	2.565979		3.2	20
Bromofluorobenzene	A	30.00	30.53	0.9152505	0.9312787		1.8	20
Dibromofluoromethane	A	30.00	27.91	0.3056235	0.2843707		-7.0	20
1,2-Dichloroethane-d4	A	30.00	28.17	5.998084E-02	0.0563232		-6.1	20
Toluene-d8	A	30.00	30.15	2.275363	2.28662		0.5	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0411CCV1.D	Calibration Date:	03/06/14 03:44
Sequence:	4D10404	Injection Date:	04/11/14
Lab Sample ID:	4D10404-CCV1	Injection Time:	12:54

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acetone	A	200.0	273.4	9.693208E-02	0.1324993		36.7	20 *
Benzene	A	100.0	93.95	1.302684	1.223808		-6.1	20
Bromobenzene	A	100.0	106.9	0.8948361	0.9569215		6.9	20
Bromochloromethane	A	100.0	95.81	0.1793688	0.1718574		-4.2	20
Bromodichloromethane	A	100.0	95.12	0.4412152	0.4196639		-4.9	20
Bromoform	A	100.0	107.3	0.5053899	0.5422162	0.1	7.3	20
Bromomethane	A	100.0	94.67	0.2599127	0.2460508		-5.3	20
n-Butylbenzene	A	100.0	106.6	2.575141	2.744728		6.6	20
2-Butanone	A	200.0	204.8	0.1660597	0.1700635		2.4	20
sec-Butylbenzene	A	100.0	108.5	3.209345	3.480582		8.5	20
tert-Butylbenzene	A	100.0	106.5	2.436127	2.593912		6.5	20
Carbon disulfide	A	100.0	94.14	1.181905	1.112693		-5.9	20
Carbon tetrachloride	A	100.0	100.3	0.3484475	0.3495352		0.3	20
Chlorobenzene	A	100.0	102.4	1.959272	2.005719	0.3	2.4	20
Chloroethane	A	100.0	88.38	0.2544659	0.224908		-11.6	20
Chloroform	A	100.0	91.06	0.5933461	0.5403264		-8.9	20
Chloromethane	A	100.0	88.63	0.4947446	0.4384991	0.1	-11.4	20
2-Chlorotoluene	A	100.0	103.8	2.512339	2.607692		3.8	20
4-Chlorotoluene	A	100.0	103.1	2.880025	2.969992		3.1	20
Dibromochloromethane	A	100.0	97.42	0.8222048	0.8010064		-2.6	20
1,2-Dibromo-3-chloropropane	A	100.0	104.3	0.1562258	0.1628738		4.3	20
1,2-Dibromoethane (EDB)	A	100.0	97.32	0.7529259	0.7327326		-2.7	20
Dibromomethane	A	100.0	94.31	0.2257197	0.2128653		-5.7	20
1,2-Dichlorobenzene	A	100.0	101.5	1.539885	1.563282		1.5	20
1,3-Dichlorobenzene	A	100.0	104.4	1.620325	1.692197		4.4	20
1,4-Dichlorobenzene	A	100.0	98.73	1.663697	1.642613		-1.3	20
Dichlorodifluoromethane	A	100.0	88.97	0.3786201	0.3368765		-11.0	20
1,1-Dichloroethane	A	100.0	92.44	0.6559393	0.6063331	0.1	-7.6	20
1,2-Dichloroethane	A	100.0	90.97	0.4797593	0.4364455		-9.0	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0411CCV1.D	Calibration Date:	03/06/14 03:44
Sequence:	4D10404	Injection Date:	04/11/14
Lab Sample ID:	4D10404-CCV1	Injection Time:	12:54

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,1-Dichloroethene	A	100.0	98.26	0.2935421	0.2884283		-1.7	20
cis-1,2-Dichloroethene	A	100.0	98.38	0.344395	0.3388077		-1.6	20
trans-1,2-Dichloroethene	A	100.0	99.27	0.321752	0.3193881		-0.7	20
1,2-Dichloroethene (total)	A	200.0	197.6	0.3330736	0.3290979		-1.2	20
1,2-Dichloropropane	A	100.0	90.66	0.3782308	0.3428981		-9.3	20
1,3-Dichloropropane	A	100.0	92.77	1.206854	1.119654		-7.2	20
2,2-Dichloropropane	A	100.0	98.07	0.4180605	0.410006		-1.9	20
1,1-Dichloropropene	A	100.0	93.27	0.4547803	0.4241814		-6.7	20
cis-1,3-Dichloropropene	A	100.0	94.35	0.5108413	0.4819778		-5.7	20
trans-1,3-Dichloropropene	A	100.0	97.60	1.183659	1.155236		-2.4	20
Ethylbenzene	A	100.0	101.0	3.227407	3.259674		1.0	20
Hexachlorobutadiene	A	100.0	96.33	0.3962034	0.3816796		-3.7	20
2-Hexanone	A	200.0	213.7	0.4886131	0.5220514		6.8	20
Isopropylbenzene	A	100.0	104.1	2.665986	2.776028		4.1	20
p-Isopropyltoluene	A	100.0	102.5	2.719715	2.786367		2.5	20
Methylene chloride	Q	100.0	94.52	0.4307136	0.3365396		-5.5	20
Naphthalene	A	100.0	105.8	2.134688	2.258318		5.8	20
4-Methyl-2-pentanone	A	200.0	190.4	0.3075311	0.2927514		-4.8	20
Methyl t-Butyl Ether	A	100.0	94.31	0.7901197	0.745141		-5.7	20
n-Propylbenzene	A	100.0	107.9	3.980533	4.296578		7.9	20
Styrene	A	100.0	108.4	1.93708	2.100061		8.4	20
1,1,2,2-Tetrachloroethane	A	100.0	101.0	0.9280386	0.9374978	0.3	1.0	20
1,1,1,2-Tetrachloroethane	A	100.0	100.5	0.6864766	0.689727		0.5	20
Tetrachloroethene	A	100.0	99.47	0.7064185	0.7026798		-0.5	20
Toluene	A	100.0	102.1	1.723723	1.760424		2.1	20
1,2,3-Trichlorobenzene	A	100.0	99.37	0.8678374	0.8623582		-0.6	20
1,2,4-Trichlorobenzene	A	100.0	100.4	0.9664658	0.9703696		0.4	20
1,1,2-Trichloroethane	A	100.0	94.20	0.6026965	0.5677303		-5.8	20
1,1,1-Trichloroethane	A	100.0	91.23	0.4353407	0.3971584		-8.8	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4069001
Lab File ID:	0411CCV1.D	Calibration Date:	03/06/14 03:44
Sequence:	4D10404	Injection Date:	04/11/14
Lab Sample ID:	4D10404-CCV1	Injection Time:	12:54

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Trichloroethene	A	100.0	92.98	0.331441	0.3081706		-7.0	20
Trichlorofluoromethane	A	100.0	91.87	0.4557045	0.418641		-8.1	20
1,2,3-Trichloropropane	A	100.0	96.93	0.210121	0.203675		-3.1	20
1,3,5-Trimethylbenzene	A	100.0	108.3	2.678696	2.901591		8.3	20
1,2,4-Trimethylbenzene	A	100.0	108.2	2.777591	3.004803		8.2	20
Vinyl chloride	A	100.0	89.16	0.3518702	0.3137239		-10.8	20
m,p-Xylene	A	200.0	200.7	2.447725	2.456131		0.3	20
o-Xylene	A	100.0	101.0	2.563491	2.589952		1.0	20
Xylenes (total)	A	300.0	301.7	2.486314	2.500738		0.6	20
Bromofluorobenzene	A	30.00	29.07	0.9152505	0.886746		-3.1	20
Dibromofluoromethane	A	30.00	29.35	0.3056235	0.2989857		-2.2	20
1,2-Dichloroethane-d4	A	30.00	29.02	5.998084E-02	5.802923E-02		-3.3	20
Toluene-d8	A	30.00	31.55	2.275363	2.392679		5.2	20

HOLDING TIME SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LF002-30003	04/07/14 12:51	04/09/14 08:45	04/11/14 18:03	N/A	14.00	04/11/14 18:03	4.18	14.00	
LF002-30006	04/07/14 11:18	04/09/14 08:45	04/11/14 18:31	N/A	14.00	04/11/14 18:31	4.26	14.00	
LF002-30007	04/07/14 14:42	04/09/14 08:45	04/11/14 18:59	N/A	14.00	04/11/14 18:59	4.14	14.00	
LF002-80004	04/07/14 08:00	04/09/14 08:45	04/11/14 19:27	N/A	14.00	04/11/14 19:27	4.44	14.00	

PREPARATION BENCH SHEET

4D11008

Empirical Laboratories, LLC

Printed: 5/3/2014 11:08:41AM

Instrument: VOA4

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1403013-01	A	VOC_8260B_REG	04/12/2014	5	5				1	7	
1403225-04	A	VOC_TCLP_8260B	04/11/2014	5	5				1	7	10X-TCLP
1403225-05	A	VOC_TCLP_8260B	04/11/2014	5	5				1	7	10X-TCLP
1404012-04	A	VOC_8260B_REG	04/11/2014	5	5				1	7	Added for BatchQC in: 4D11008
1404012-04	A	VOC_TCLP_8260B	04/11/2014	5	5				1	7	10X-TCLP
1404012-05	A	VOC_TCLP_8260B	04/11/2014	5	5				1	7	10X-TCLP
1404012-06	A	VOC_TCLP_8260B	04/11/2014	5	5				1	7	10X-TCLP
1404014-02	A	VOC_TCLP_8260B	04/11/2014	5	5				1	7	10X-TCLP
1404026-01RE1	B	VOC_TCLP_8260B	04/11/2014	5	5				1	7	RR 10x lower-TCLP-Foamer
1404067-01	B	VOC_8260B_REG	04/11/2014	5	5				1	2	see versions
1404067-03	B	VOC_8260B_REG	04/11/2014	5	5				1	2	see versions
1404067-05	B	VOC_8260B_REG	04/11/2014	5	5				1	2	see versions
1404067-07	B	VOC_8260B_REG	04/11/2014	5	5				1	2	see versions
1404068-01	B	VOC_8260B_REG	04/11/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404068-03	B	VOC_8260B_REG	04/11/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404068-05	B	VOC_8260B_REG	04/11/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404068-07	A	VOC_8260B_REG	04/11/2014	5	5				1	2	TB
4D11008-BLK1		QC	04/11/2014	5	5				1	NA	
4D11008-BS1		QC	04/11/2014	5	5	14D0251		2.5	1	NA	
4D11008-MS1		QC	04/11/2014	5	5	14D0251	1404012-04	25	1	NA	10X
4D11008-MSD1		QC	04/11/2014	5	5	14D0251	1404012-04	25	1	NA	10X

PREPARATION BENCH SHEET

4D11008

Empirical Laboratories, LLC

Printed: 5/3/2014 11:08:41AM

Instrument: VOA4

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description
12A0699	Anti-foam-JT Baker_AFB

Data for SW6010C / SW7470A Forms

Sample Extraction Data

Prep Method: MET_3005A_LOW-SW6010C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404067-02 [LF002-30003]	4D10009	100.00/25.00	100	25.0	1.00			04/10/14
1404067-04 [LF002-30006]	4D10009	100.00/25.00	100	25.0	1.00			04/10/14
1404067-06 [LF002-30007]	4D10009	100.00/25.00	100	25.0	1.00			04/10/14

Sample Extraction Data

Prep Method: pMercury-W SW 7470A-SW7470A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404067-01 [LF002-30003]	4D15008	30.00/30.00	30.0	30.0	1.00			04/15/14
1404067-03 [LF002-30006]	4D15008	30.00/30.00	30.0	30.0	1.00			04/15/14
1404067-05 [LF002-30007]	4D15008	30.00/30.00	30.0	30.0	1.00			04/15/14

ANALYSIS DATA SHEET

LF002-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-01
Sampled:	04/07/14 12:51	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 12:12

ANALYSIS DATA SHEET

LF002-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-02
Sampled:	04/07/14 12:51	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D10009	04/17/14 16:41
7440-39-3	Barium (dissolved)	**48.8**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 16:41
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 16:41
7440-47-3	Chromium (dissolved)	**0.949**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 16:41
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 16:41
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 16:41
7439-96-5	Manganese (dissolved)	**1.47**	**0.750**	1.50	3.75	1	J	SW6010C	4D10009	04/17/14 16:41
7782-49-2	Selenium (dissolved)	**2.14**	**0.750**	1.25	2.50	1	J	SW6010C	4D10009	04/17/14 16:41
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 16:41

ANALYSIS DATA SHEET

LF002-30006

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-03
Sampled:	04/07/14 11:18	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 12:13

ANALYSIS DATA SHEET

LF002-30006

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-04
Sampled:	04/07/14 11:18	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D10009	04/17/14 16:45
7440-39-3	Barium (dissolved)	**56.2**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 16:45
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 16:45
7440-47-3	Chromium (dissolved)	**1.25**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 16:45
7439-89-6	Iron (dissolved)	**11.3**	**7.50**	15.0	25.0	1	J	SW6010C	4D10009	04/17/14 16:45
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 16:45
7439-96-5	Manganese (dissolved)	**2.72**	**0.750**	1.50	3.75	1	J	SW6010C	4D10009	04/17/14 16:45
7782-49-2	Selenium (dissolved)	**2.04**	**0.750**	1.25	2.50	1	J	SW6010C	4D10009	04/17/14 16:45
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 16:45

ANALYSIS DATA SHEET

LF002-30007

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-05
Sampled:	04/07/14 14:42	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 12:13

ANALYSIS DATA SHEET

LF002-30007

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-06
Sampled:	04/07/14 14:42	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D10009	04/17/14 16:50
7440-39-3	Barium (dissolved)	**50.0**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 16:50
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 16:50
7440-47-3	Chromium (dissolved)	**0.888**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 16:50
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 16:50
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 16:50
7439-96-5	Manganese (dissolved)	**0.931**	**0.750**	1.50	3.75	1	J	SW6010C	4D10009	04/17/14 16:50
7782-49-2	Selenium (dissolved)	**1.89**	**0.750**	1.25	2.50	1	J	SW6010C	4D10009	04/17/14 16:50
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 16:50

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4D10009-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4D10009	04/17/14 14:35
7440-39-3	Barium (dissolved)	ND	1.25	2.50	10.0	1	U	SW6010C	4D10009	04/17/14 14:35
7440-43-9	Cadmium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 14:35
7440-47-3	Chromium (dissolved)	ND	0.500	1.00	2.50	1	U	SW6010C	4D10009	04/17/14 14:35
7439-89-6	Iron (dissolved)	ND	7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 14:35
7439-92-1	Lead (dissolved)	ND	0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 14:35
7439-96-5	Manganese (dissolved)	ND	0.750	1.50	3.75	1	U	SW6010C	4D10009	04/17/14 14:35
7782-49-2	Selenium (dissolved)	ND	0.750	1.25	2.50	1	U	SW6010C	4D10009	04/17/14 14:35
7440-22-4	Silver (dissolved)	ND	0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 14:35

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D10009-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)	**4.686**	**0.750**	1.50	2.50	1		SW6010C	4D10009	04/17/14 14:40
7440-39-3	Barium (dissolved)	**35.05**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 14:40
7440-43-9	Cadmium (dissolved)	**2.318**	**0.250**	0.500	1.25	1		SW6010C	4D10009	04/17/14 14:40
7440-47-3	Chromium (dissolved)	**3.743**	**0.500**	1.00	2.50	1		SW6010C	4D10009	04/17/14 14:40
7439-89-6	Iron (dissolved)	**18.07**	**7.50**	15.0	25.0	1	J	SW6010C	4D10009	04/17/14 14:40
7439-92-1	Lead (dissolved)	**4.697**	**0.375**	0.750	0.750	1		SW6010C	4D10009	04/17/14 14:40
7439-96-5	Manganese (dissolved)	**9.632**	**0.750**	1.50	3.75	1		SW6010C	4D10009	04/17/14 14:40
7782-49-2	Selenium (dissolved)	**4.446**	**0.750**	1.25	2.50	1		SW6010C	4D10009	04/17/14 14:40
7440-22-4	Silver (dissolved)	**4.830**	**0.250**	0.500	2.50	1		SW6010C	4D10009	04/17/14 14:40

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_010

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D15008-BLK1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	ND	0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 11:55

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_010

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D15008-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	**1.919**	**0.0800**	0.160	0.200	1		SW7470A	4D15008	04/15/14 11:56

INITIAL AND CONTINUING CALIBRATION CHECK

SW7470A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Calibration: 4106004
Sequence: 4D10611

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D10611-ICV1	Mercury	4.000	4.015	100	ug/L	+/- 20.00%
4D10611-CCV3	Mercury	4.000	3.796	94.9	ug/L	+/- 20.00%
4D10611-CCV4	Mercury	4.000	3.825	95.6	ug/L	+/- 20.00%
4D10611-CCV5	Mercury	2.000	2.021	101	ug/L	+/- 20.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Calibration: 4107004
Sequence: 4D10710

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D10710-ICV1	Arsenic (dissolved)	1000	1043	104	ug/L	+/- 10.00%
	Barium (dissolved)	1000	965.0	96.5	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	1017	102	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	974.5	97.4	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10380	104	ug/L	+/- 10.00%
	Lead (dissolved)	1000	963.8	96.4	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1016	102	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1050	105	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	480.7	96.1	ug/L	+/- 10.00%
4D10710-CCV1	Arsenic (dissolved)	1000	1035	104	ug/L	+/- 10.00%
	Barium (dissolved)	1000	962.0	96.2	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	1018	102	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	989.2	98.9	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10390	104	ug/L	+/- 10.00%
	Lead (dissolved)	1000	970.4	97.0	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1029	103	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1065	107	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	476.5	95.3	ug/L	+/- 10.00%
4D10710-CCV4	Arsenic (dissolved)	1000	1079	108	ug/L	+/- 10.00%
	Barium (dissolved)	1000	975.2	97.5	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	1052	105	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	989.1	98.9	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10030	100	ug/L	+/- 10.00%
	Lead (dissolved)	1000	967.1	96.7	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1002	100	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1057	106	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	488.8	97.8	ug/L	+/- 10.00%
4D10710-CCV5	Arsenic (dissolved)	1000	1082	108	ug/L	+/- 10.00%
	Barium (dissolved)	1000	979.6	98.0	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	1052	105	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	1000	100	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10050	100	ug/L	+/- 10.00%
	Lead (dissolved)	1000	972.4	97.2	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1007	101	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1066	107	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	496.0	99.2	ug/L	+/- 10.00%
4D10710-CCV6	Arsenic (dissolved)	1000	1065	107	ug/L	+/- 10.00%
	Barium (dissolved)	1000	968.6	96.9	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Calibration: 4107004
Sequence: 4D10710

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D10710-CCV6	Cadmium (dissolved)	1000	1039	104	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	991.7	99.2	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10120	101	ug/L	+/- 10.00%
	Lead (dissolved)	1000	964.2	96.4	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	997.4	99.7	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1054	105	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	484.9	97.0	ug/L	+/- 10.00%

CRDL STANDARD

SW6010C

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: ME-ICP

Calibration: 4107004

Sequence: 4D10710

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4D10710-CRL1	Barium (dissolved)	10.00	8.659	86.6	ug/L	80 - 120
	Cadmium (dissolved)	2.000	1.685	84.2	ug/L	80 - 120
	Chromium (dissolved)	4.000	3.583	89.6	ug/L	80 - 120
	Iron (dissolved)	60.00	58.65	97.8	ug/L	80 - 120
	Lead (dissolved)	3.000	3.120	104	ug/L	80 - 120
	Manganese (dissolved)	6.000	5.963	99.4	ug/L	80 - 120
	Silver (dissolved)	2.000	1.885	94.2	ug/L	80 - 120
4D10710-CRL3	Arsenic (dissolved)	5.000	5.522	110	ug/L	80 - 120
	Selenium (dissolved)	5.000	4.317	86.3	ug/L	80 - 120

BLANKS
SW7470A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS
Project: Kirtland AFB (ECOS)
Sequence: 4D10611
Calibration: 4106004

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D10611-ICB1	Mercury	-0.04740	0.0800	0.200	ug/L	U	SW7470A
4D10611-CCB3	Mercury	-0.0389	0.0800	0.200	ug/L	U	SW7470A
4D15008-BLK1	Mercury	-0.0445	0.0800	0.200	ug/L	U	SW7470A
4D10611-CCB4	Mercury	-0.0466	0.0800	0.200	ug/L	U	SW7470A
4D10611-CCB5	Mercury	-0.0540	0.0800	0.200	ug/L	U	SW7470A

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4D10710
Calibration: 4107004

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D10710-ICB1	Arsenic (dissolved)	0.6473	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	-0.06812	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.06587	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	0.06047	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	7.058	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.4791	1.50	3.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.02819	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.7272	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.1235	1.00	10.0	ug/L	U	SW6010C
4D10710-CCB1	Arsenic (dissolved)	0.0552	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	-0.0363	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	0.00121	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	0.0662	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	9.32	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.405	1.50	3.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.299	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.511	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.00987	1.00	10.0	ug/L	U	SW6010C
4D10710-CCB4	Arsenic (dissolved)	0.367	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	-0.0619	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.0771	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	-0.0135	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	-4.17	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.712	1.50	3.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.000410	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.0859	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.212	1.00	10.0	ug/L	U	SW6010C
4D10009-BLK1	Arsenic (dissolved)	0.0722	0.750	2.50	ug/L	U	SW6010C
	Barium (dissolved)	-0.0189	1.25	10.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.0212	0.250	1.25	ug/L	U	SW6010C
	Chromium (dissolved)	0.0133	0.500	2.50	ug/L	U	SW6010C
	Iron (dissolved)	-0.398	7.50	25.0	ug/L	U	SW6010C
	Lead (dissolved)	0.00348	0.375	0.750	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4D10710
Calibration: 4107004

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D10009-BLK1	Manganese (dissolved)	0.0266	0.750	3.75	ug/L	U	SW6010C
	Selenium (dissolved)	-0.229	0.750	2.50	ug/L	U	SW6010C
	Silver (dissolved)	-0.0354	0.250	2.50	ug/L	U	SW6010C
4D10710-CCB5	Arsenic (dissolved)	0.145	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	0.0263	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.0131	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	-0.103	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	-3.35	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.442	1.50	3.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.0325	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.636	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.250	1.00	10.0	ug/L	U	SW6010C
4D10710-CCB6	Arsenic (dissolved)	1.07	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	0.0260	5.00	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.0152	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	0.0694	2.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	-2.92	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.0195	1.50	3.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.0342	3.00	15.0	ug/L	U	SW6010C
	Selenium (dissolved)	-0.0568	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	-0.0206	1.00	10.0	ug/L	U	SW6010C

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4107004
Sequence: 4D10710

Lab Sample ID	Analyte	True	Found	%R	Units
4D10710-IFA1	Arsenic (dissolved)		0.40		ug/L
	Barium (dissolved)		1.02		ug/L
	Cadmium (dissolved)		1.29		ug/L
	Chromium (dissolved)		-1.25		ug/L
	Iron (dissolved)	200000	198,930.00	99.5	ug/L
	Lead (dissolved)		-2.10		ug/L
	Manganese (dissolved)		-1.22		ug/L
	Selenium (dissolved)		-1.67		ug/L
	Silver (dissolved)		-0.79		ug/L
4D10710-IFB1	Arsenic (dissolved)	100.0	110.78	111	ug/L
	Barium (dissolved)	500.0	516.45	103	ug/L
	Cadmium (dissolved)	1000	1,053.50	105	ug/L
	Chromium (dissolved)	500.0	476.87	95.4	ug/L
	Iron (dissolved)	200000	199,570.00	99.8	ug/L
	Lead (dissolved)	50.00	45.00	90.0	ug/L
	Manganese (dissolved)	500.0	501.85	100	ug/L
	Selenium (dissolved)	50.00	55.31	111	ug/L
	Silver (dissolved)	200.0	192.24	96.1	ug/L

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D10009	Laboratory ID:	4D10009-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Arsenic (dissolved)	5.000	4.686	93.7	80 - 120
Barium (dissolved)	40.00	35.05	87.6	80 - 120
Cadmium (dissolved)	2.500	2.318	92.7	80 - 120
Chromium (dissolved)	4.000	3.743	93.6	80 - 120
Iron (dissolved)	20.00	18.07	90.4	80 - 120
Lead (dissolved)	5.000	4.697	93.9	80 - 120
Manganese (dissolved)	10.00	9.632	96.3	80 - 120
Selenium (dissolved)	5.000	4.446	88.9	80 - 120
Silver (dissolved)	5.000	4.830	96.6	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D15008	Laboratory ID:	4D15008-BS1
Preparation:	pMercury-W SW 7470A	Initial/Final:	30 mL / 30 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Mercury	2.000	1.919	95.9	80 - 120

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_010

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Al	Ca	Fe	Mg	Ag
Arsenic	189.042	-0.000011	0.000000	-0.00004	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000005	0.000000	0.000000
Cadmium	214.438	0.000008	0.003803	0.000029	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000003	0.005608	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	-0.000132	0.000000	0.000026	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000025	0.000000	0.000000
Selenium	196.09	0.000015	-0.007295	0.000025	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000004	0.000000	0.000000

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_010

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: As	B	Ba	Be	Cd
Arsenic	189.042	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000313	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000043
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.000000

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_010

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Co	Cr	Cu	K	Mn
Arsenic	189.042	0.000000	0.000195	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	-0.000301	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000088
Iron	261.187	0.000000	-0.000701	0.000000	0.000000	-0.000794
Lead	220.3	-0.000003	0.000000	0.001073	0.000000	0.000116
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.00061
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.00014

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_010

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Mo	Na	Ni	Pb	Sb
Arsenic	189.042	0.000577	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000105	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	-0.000317	0.000000	0.000224	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.09	0.000166	0.000000	0.000039	0.000000	0.000000
Silver	328.068	-0.000046	0.000000	0.000000	0.000000	0.000000

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_010

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Se	Sn	Ti	Tl	V
Arsenic	189.042	0.000000	0.000000	0.000075	0.000000	0.000084
Barium	233.527	0.000000	0.000000	0.000000	0.000000	-0.002594
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000	0.00003
Chromium	267.716	0.000000	0.000000	0.000123	0.000000	-0.000018
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	0.000000	0.000000	-0.000006	0.000000	-0.00007
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.09	0.000000	0.000000	0.000022	0.000000	0.000180
Silver	328.068	0.000000	0.000000	0.000000	0.000000	-0.002831

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_010

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: Zn				
Arsenic	189.042	-0.000011				
Barium	233.527	0.000000				
Cadmium	214.438	0.000000				
Chromium	267.716	0.000000				
Iron	261.187	0.000000				
Lead	220.3	0.000000				
Manganese	257.61	0.000000				
Selenium	196.09	0.000000				
Silver	328.068	0.000000				

Comments:

FORM XA-IN

ICP-AES AND ICP-MS LINEAR RANGES

Lab Name: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc. SDG: KirtlandECOS_010

Project: Kirtland AFB (ECOS)

ICP Instrument ID: ME-ICP Date: 12/27/2013

Analyte	Integ. Time (Sec.)	Concentration ug/L	M
Arsenic	15	10000	P
Barium	15	5000	P
Cadmium	15	10000	P
Chromium	15	10000	P
Iron	15	500000	P
Lead	15	25000	P
Manganese	15	15000	P
Selenium	15	10000	P
Silver	15	2000	P

PREPARATION BATCH SUMMARY

SW6010C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D10009 Batch Matrix: Water Preparation: MET_3005A_LOW

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30003	1404067-02	04/10/14 08:55	100.00	25.00
LF002-30006	1404067-04	04/10/14 08:55	100.00	25.00
LF002-30007	1404067-06	04/10/14 08:55	100.00	25.00
Blank	4D10009-BLK1	04/10/14 08:55	100.00	25.00
LCS	4D10009-BS1	04/10/14 08:55	100.00	25.00

PREPARATION BATCH SUMMARY

SW7470A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D15008 Batch Matrix: Water Preparation: pMercury-W SW 7470A

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30003	1404067-01	04/15/14 10:08	30.00	30.00
LF002-30006	1404067-03	04/15/14 10:08	30.00	30.00
LF002-30007	1404067-05	04/15/14 10:08	30.00	30.00
Blank	4D15008-BLK1	04/15/14 10:08	30.00	30.00
LCS	4D15008-BS1	04/15/14 10:08	30.00	30.00

ANALYSIS SEQUENCE SUMMARY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10611	Instrument:	ME-FIMS
Calibration:	4106004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4D10611-CAL1	041614W-001	04/15/14 11:04
Cal Standard	4D10611-CAL2	041614W-002	04/15/14 11:05
Cal Standard	4D10611-CAL3	041614W-003	04/15/14 11:06
Cal Standard	4D10611-CAL4	041614W-004	04/15/14 11:07
Cal Standard	4D10611-CAL5	041614W-005	04/15/14 11:08
Cal Standard	4D10611-CAL6	041614W-006	04/15/14 11:10
Cal Standard	4D10611-CAL7	041614W-007	04/15/14 11:11
Initial Cal Check	4D10611-ICV1	041614W-008	04/15/14 11:14
Initial Cal Blank	4D10611-ICB1	041614W-009	04/15/14 11:15
Calibration Check	4D10611-CCV3	041614W-045	04/15/14 11:53
Calibration Blank	4D10611-CCB3	041614W-046	04/15/14 11:54
Blank	4D15008-BLK1	041614W-047	04/15/14 11:55
LCS	4D15008-BS1	041614W-048	04/15/14 11:56
Calibration Check	4D10611-CCV4	041614W-059	04/15/14 12:05
Calibration Blank	4D10611-CCB4	041614W-060	04/15/14 12:07
LF002-30003	1404067-01	041614W-065	04/15/14 12:12
LF002-30007	1404067-05	041614W-067	04/15/14 12:13
LF002-30006	1404067-03	041614W-066	04/15/14 12:13
Calibration Check	4D10611-CCV5	041614W-073	04/15/14 12:19
Calibration Blank	4D10611-CCB5	041614W-074	04/15/14 12:20

ANALYSIS SEQUENCE SUMMARY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10710	Instrument:	ME-ICP
Calibration:	4107004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4D10710-CAL1	4-17-14A-001	04/17/14 09:22
Cal Standard	4D10710-CAL2	4-17-14A-002	04/17/14 09:25
Cal Standard	4D10710-CAL3	4-17-14A-003	04/17/14 09:29
Cal Standard	4D10710-CAL4	4-17-14A-004	04/17/14 09:33
Cal Standard	4D10710-CAL5	4-17-14A-005	04/17/14 09:38
Cal Standard	4D10710-CAL6	4-17-14A-006	04/17/14 09:42
Initial Cal Check	4D10710-ICV1	4-17-14B-001	04/17/14 10:40
Initial Cal Blank	4D10710-ICB1	4-17-14B-002	04/17/14 10:47
Instrument RL Check	4D10710-CRL1	4-17-14B-004	04/17/14 10:57
Instrument RL Check	4D10710-CRL3	4-17-14B-006	04/17/14 11:09
Interference Check A	4D10710-IFA1	4-17-14B-007	04/17/14 11:14
Interference Check B	4D10710-IFB1	4-17-14B-008	04/17/14 11:20
Calibration Check	4D10710-CCV1	4-17-14B-010	04/17/14 11:28
Calibration Blank	4D10710-CCB1	4-17-14B-011	04/17/14 11:36
Calibration Check	4D10710-CCV4	4-17-14B-044	04/17/14 14:22
Calibration Blank	4D10710-CCB4	4-17-14B-045	04/17/14 14:30
Blank	4D10009-BLK1	4-17-14C-001	04/17/14 14:35
LCS	4D10009-BS1	4-17-14C-002	04/17/14 14:40
Calibration Check	4D10710-CCV5	4-17-14C-017	04/17/14 15:48
Calibration Blank	4D10710-CCB5	4-17-14C-018	04/17/14 15:56
LF002-30003	1404067-02	4-17-14C-028	04/17/14 16:41
LF002-30006	1404067-04	4-17-14C-029	04/17/14 16:45
LF002-30007	1404067-06	4-17-14C-030	04/17/14 16:50
Calibration Check	4D10710-CCV6	4-17-14C-031	04/17/14 16:55
Calibration Blank	4D10710-CCB6	4-17-14C-032	04/17/14 17:03

INITIAL CALIBRATION DATA

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4106004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/15/14 11:04	4/15/14 11:11

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	0	0	0.2	0.007635	0.5	0.00543	1	0.004441	2	0.004472	4	4.95375E-03

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4106004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/15/14 11:04	4/15/14 11:11

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	6	4.263167E-03										

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4106004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/15/14 11:04	4/15/14 11:11

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Mercury	4.456417E-03	51.16683	0	0	0.9914818		0.99	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4107004	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	4/17/14 9:22 4/17/14 9:59

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum	0	0	5000	2.1816E-05	10000	2.208E-05			500000	2.168E-05		
Antimony	0	0	100	0.0004051	1000	5.1618E-04					10000	5.2144E-04
Arsenic	0	0	100	0.000246	1000	2.8129E-04					10000	2.6872E-04
Barium	0	0	50	0.0086392	1000	0.008387	5000	0.0088492				
Beryllium	0	0	100	0.0024075	1000	0.0024071					10000	0.0023365
Boron	0	0	50	0.0000158	1000	0.0000152					5000	1.5378E-05
Cadmium	0	0	100	0.0143	1000	0.013864					10000	0.013373
Calcium	0	0	1100	7.456364E-05	50000	6.2632E-05					10000	
Chromium	0	0	100	0.0000517	1000	5.075E-05					10000	5.1165E-05
Cobalt	0	0	100	0.0042997	1000	0.0042544					10000	0.0044036
Copper	0	0	100	0.0000858	1000	8.032E-05					10000	8.1778E-05
Iron	0	0	5100	1.683726E-05	10000	1.6628E-05			500000	1.62724E-05	10000	
Lead	0	0	100	0.0010108	1000	0.0010056					10000	0.0010541
Magnesium	0	0	5100		50000	2.7332E-06			500000	2.7282E-06	10000	
Manganese	0	0	100	0.0003229	1000	0.0003066	10000	3.1286E-04			10000	
Molybdenum	0	0	100	0.0030251	1000	0.0032636					10000	0.0032121
Nickel	0	0	100	0.0027261	1000	0.0027401					10000	0.0027878
Potassium	0	0	1000	1.115E-05	10000	1.4198E-05						
Selenium	0	0	100	0.0004012	1000	3.9368E-04					10000	3.7577E-04
Silver	0	0	20	0.0000625	500	5.456E-05	2000	5.7705E-05				
Sodium	0	0	1000		50000	5.046E-05						
Thallium	0	0	100	0.0005528	1000	5.3699E-04					10000	5.5263E-04
Tin	0	0	50	0.0013488	1000	0.0013508					5000	0.0013744
Titanium	0	0	100	0.0001941	1000	1.8842E-04					10000	1.9225E-04
Vanadium	0	0	100	0.000055	1000	5.399E-05					10000	5.4399E-05
Zinc	0	0	100	0.0054278	1000	0.0056196					10000	0.0053319
Strontium	0	0	100	0.001544	1000	0.001515					10000	0.001522
Lithium (outside certification)	0	0	100	0.0000113	1000	1.183E-05					10000	1.1371E-05

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4107004	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	4/17/14 9:22 4/17/14 9:59

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum												
Antimony												
Arsenic												
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	6.341E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.7623E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4329E-05										
Selenium												
Silver												
Sodium	100000	4.9565E-05	500000	4.8654E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_010	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Calibration:	4107004		Instrument:	ME-ICP	
Matrix:	Water		Calibration Dates:	4/17/14 9:22	4/17/14 9:59

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Aluminum	1.6394E-05	66.67436	6.42904	190.7855	0.9999998		0.998	
Antimony	3.6068E-04	68.30572	0.7492475	64.21794	0.9999989		0.998	
Arsenic	1.990025E-04	67.06938	1.507468	115.0742	0.9999706		0.998	
Barium	6.46885E-03	66.73062	2.344623	176.854	0.9998823		0.998	
Beryllium	1.787775E-03	66.6928	1.732167	129.2902	0.9999916		0.998	
Boron	1.15945E-05	66.70198	5.294925	142.2543	0.9999927		0.998	
Cadmium	1.038425E-02	66.76632	1.291935	114.8184	0.9999885		0.998	
Calcium	5.015141E-05	67.54672	1.761512	164.6132	0.9999979		0.998	
Chromium	3.840375E-05	66.67436	25.54795	186.6303	0.9999993		0.998	
Cobalt	3.239425E-03	66.69454	0.9315175	117.7745	0.9999888		0.998	
Copper	6.19745E-05	66.77145	2.386613	87.3855	0.9999956		0.998	
Iron	1.243441E-05	66.69305	8.302335	194.1929	0.9999999		0.998	
Lead	7.67625E-04	66.7268	10.88328	193.3898	0.9999808		0.998	
Magnesium	2.055925E-06	66.67068	25.59571	197.7541	0.9999932		0.998	
Manganese	2.3559E-04	66.72755	14.12945	172.8396	0.9999953		0.998	
Molybdenum	0.0023752	66.80612	15.65115	194.7657	0.9999963		0.998	
Nickel	0.0020635	66.67895	77.02929	198.7822	0.9999974		0.998	
Potassium	9.91925E-06	68.29111	1.703935	152.2689	0.9999986		0.998	
Selenium	2.926625E-04	66.76622	3.4948	172.9708	0.9999823		0.998	
Silver	4.369125E-05	67.08412	4.036782	125.4507	0.9997719		0.998	
Sodium	3.716975E-05	66.69617	1.917163	147.2618	0.9999805		0.998	
Thallium	4.10605E-04	66.69111	6.155895	180.68	0.9999926		0.998	
Tin	0.0010185	66.67644	6.515375	188.1342	0.9999873		0.998	
Titanium	1.436925E-04	66.68699	1.672657	157.4488	0.9999951		0.998	
Vanadium	4.084725E-05	66.6744	4.239575	125.3309	0.9999992		0.998	
Zinc	4.094825E-03	66.73062	4.028435	171.7762	0.9999716		0.998	
Strontium	1.14525E-03	66.67539	5.259975	179.1433	0.9999997		0.998	
Lithium (outside certification)	8.62525E-06	66.72227	3.592175	55.18983	0.9999848		0.998	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

PREPARATION BENCH SHEET

4D10009

Empirical Laboratories, LLC

Printed: 4/24/2014 4:22:18PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1403203-05	J	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	Added for BatchQC in: 4D10009
1403203-05	J	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	MS/MSD
1403217-01	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1403217-03	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1403217-05	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1403217-07	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1403217-09	A	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1403217-10	A	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1404017-02	A	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404017-04	A	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404017-06	A	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404017-08	A	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404017-10	A	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404065-01	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1404066-01	D	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	see versions
1404066-03	J	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	Added for BatchQC in: 4D10009
1404066-03	J	MET_ICP_LOW6010C_FULL	04/10/2014	100	25					NA	MS/MSD
1404067-02	F	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404067-04	F	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
1404067-06	F	MET_ICP_LOW6010C_FULL_I	04/10/2014	100	25					NA	see versions
4D10009-BLK1		QC	04/10/2014	100	25					NA	
4D10009-BS1		QC	04/10/2014	100	25	14D0064		2000		NA	

PREPARATION BENCH SHEET

4D10009

Empirical Laboratories, LLC

Printed: 4/24/2014 4:22:18PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D10009-DUP1		QC	04/10/2014	100	25		1403203-05			NA	
4D10009-DUP2		QC	04/10/2014	100	25		1404066-03			NA	
4D10009-MS1		QC	04/10/2014	100	25	14D0066	1403203-05	25		NA	
4D10009-MS2		QC	04/10/2014	100	25	14D0066	1404066-03	25		NA	
4D10009-MSD1		QC	04/10/2014	100	25	14D0066	1403203-05	25		NA	
4D10009-MSD2		QC	04/10/2014	100	25	14D0066	1404066-03	25		NA	
4D10009-PS1		QC	04/10/2014	100	25	14D0066	1403203-05	25		NA	
4D10009-PS2		QC	04/10/2014	100	25	14D0066	1404066-03	25		NA	

Reagents Used:

Standard	Description
14A0613	Nitric acid
14A0614	Hydrochloric Acid
14B0029	Metals 50mL Digestion Vessel- DigiTUBE

PREPARATION BENCH SHEET

4D15008

Empirical Laboratories, LLC

Printed: 4/25/2014 11:05:02AM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404041-01	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404041-03	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404041-05	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404041-07	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404041-09	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404044-01	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-01	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-02	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-03	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-04	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-05	D	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404045-07	J	MET_7470A_MERCURY	04/15/2014	30	30					NA	MS/MSD
1404067-01	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404067-03	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404067-05	F	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404098-08	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404098-09	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404098-11	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404098-12	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
1404098-13	E	MET_7470A_MERCURY	04/15/2014	30	30					NA	
4D15008-BLK1		QC	04/15/2014	30	30					NA	
4D15008-BS1		QC	04/15/2014	30	30	14D0359		300		NA	

PREPARATION BENCH SHEET

4D15008

Empirical Laboratories, LLC

Printed: 4/25/2014 11:05:02AM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D15008-MS1		QC	04/15/2014	30	30	14D0359	1404045-07	300		NA	
4D15008-MSD1		QC	04/15/2014	30	30	14D0359	1404045-07	300		NA	

Reagents Used:

Standard	Description
13D0424	Sulfuric Acid
13K0647	Potassuim Persulfate (K2S2O8)
14A0613	Nitric acid
14D0101	Mercury Digestion Flip-Top Tubes
14D0372	NAC L-Hydroxylamine Hydrochloride (HG Reagent)
14D0461	KMNO4 Reagent
14D0496	3% HCL Mercury Carrier
14D0497	Stannous Chloride Mercury Reagent

Data for Wet Chemistry Forms

Sample Extraction Data

Prep Method: pNone-SM2540C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404067-01 [LF002-30003]	4D08014	100.00/100.00	100	100	1.00			04/09/14
1404067-03 [LF002-30006]	4D08014	100.00/100.00	100	100	1.00			04/09/14
1404067-05 [LF002-30007]	4D08014	100.00/100.00	100	100	1.00			04/09/14

Sample Extraction Data

Prep Method: WC_PREP_ANIONS_W-SW9056A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404067-01 [LF002-30003]	4D15005	5.00/5.00	5.00	5.00	1.00			04/15/14
1404067-03 [LF002-30006]	4D15005	5.00/5.00	5.00	5.00	1.00			04/15/14
1404067-05 [LF002-30007]	4D15005	5.00/5.00	5.00	5.00	1.00			04/15/14

Sample Extraction Data

Prep Method: pNone-E353.2

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404067-01 [LF002-30003]	4D23024	20.00/20.00	4.00	20.0	1.00			04/23/14
1404067-03 [LF002-30006]	4D23024	20.00/20.00	4.00	20.0	1.00			04/23/14
1404067-05 [LF002-30007]	4D23024	20.00/20.00	4.00	20.0	1.00			04/23/14

ANALYSIS DATA SHEET

LF002-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-01
Sampled:	04/07/14 12:51	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**325**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.1**	**0.170**	0.330	0.500	1		SW9056A	4D15005	04/15/14 17:26
NA	Nitrate/Nitrite as N	**5.68**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 14:01
16984-48-8	Fluoride	**0.307**	**0.0330**	0.100	0.250	1		SW9056A	4D15005	04/15/14 17:26
14808-79-8	Sulfate as SO4	**66.8**	**0.330**	1.00	2.50	1		SW9056A	4D15005	04/15/14 17:26

ANALYSIS DATA SHEET

LF002-30006

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-03
Sampled:	04/07/14 11:18	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**316**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.4**	**0.170**	0.330	0.500	1		SW9056A	4D15005	04/15/14 18:18
NA	Nitrate/Nitrite as N	**3.27**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 14:02
16984-48-8	Fluoride	**0.401**	**0.0330**	0.100	0.250	1		SW9056A	4D15005	04/15/14 18:18
14808-79-8	Sulfate as SO4	**78.5**	**0.330**	1.00	2.50	1		SW9056A	4D15005	04/15/14 18:18

ANALYSIS DATA SHEET

LF002-30007

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-05
Sampled:	04/07/14 14:42	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**317**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.6**	**0.170**	0.330	0.500	1		SW9056A	4D15005	04/15/14 18:35
NA	Nitrate/Nitrite as N	**4.09**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 14:04
16984-48-8	Fluoride	**0.356**	**0.0330**	0.100	0.250	1		SW9056A	4D15005	04/15/14 18:35
14808-79-8	Sulfate as SO4	**74.2**	**0.330**	1.00	2.50	1		SW9056A	4D15005	04/15/14 18:35

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D08014-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	ND	20.0	20.0	20.0	1	U	SM2540C	4D08014	04/09/14 16:07

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_010

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D08014-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**910.0**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_010

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D15005-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	ND	0.170	0.330	0.500	1	U	SW9056A	4D15005	04/15/14 13:05
16984-48-8	Fluoride	ND	0.0330	0.100	0.250	1	U	SW9056A	4D15005	04/15/14 13:05
14808-79-8	Sulfate as SO4	ND	0.330	1.00	2.50	1	U	SW9056A	4D15005	04/15/14 13:05

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D15005-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**4.158**	**0.170**	0.330	0.500	1		SW9056A	4D15005	04/15/14 13:22
16984-48-8	Fluoride	**2.768**	**0.0330**	0.100	0.250	1		SW9056A	4D15005	04/15/14 13:22
14808-79-8	Sulfate as SO4	**20.81**	**0.330**	1.00	2.50	1		SW9056A	4D15005	04/15/14 13:22

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D23024-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	ND	0.0500	0.150	0.300	1	U	E353.2	4D23024	04/23/14 13:49

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D23024-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	**15.54**	**0.500**	1.50	3.00	1		E353.2	4D23024	04/23/14 13:51

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Calibration: 3351002
Sequence: 3L35106

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
3L35106-ICV1	Chloride	4.200	4.193	99.8	mg/L	+/- 10.00%
	Fluoride	2.800	2.803	100	mg/L	+/- 10.00%
	Sulfate as SO4	21.00	21.05	100	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Calibration: 3351002
Sequence: 4D10601

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D10601-CCV1	Chloride	25.00	24.81	99.3	mg/L	+/- 10.00%
	Fluoride	2.500	2.503	100	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	24.99	99.9	mg/L	+/- 10.00%
4D10601-CCV2	Chloride	25.00	25.22	101	mg/L	+/- 10.00%
	Fluoride	2.500	2.571	103	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.07	100	mg/L	+/- 10.00%
4D10601-CCV3	Chloride	25.00	25.25	101	mg/L	+/- 10.00%
	Fluoride	2.500	2.569	103	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.18	101	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

E353.2

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-Lachat

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Calibration: 4113002
Sequence: 4D11305

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D11305-ICV1	Nitrate/Nitrite as N	1.200	1.255	105	mg/L	+/- 10.00%
4D11305-CCV1	Nitrate/Nitrite as N	1.200	1.243	104	mg/L	+/- 10.00%

CRDL STANDARD

SW9056A

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: WC-IC

Calibration: 3351002

Sequence: 4D10601

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4D10601-CRL1	Chloride	0.5000	0.4950	99.0	mg/L	75 - 125
	Fluoride	0.05000	0.04800	96.0	mg/L	75 - 125
	Sulfate as SO4	0.5000	0.6100	122	mg/L	75 - 125

METHOD BLANKS
SM2540C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D08014

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D08014-BLK1	Total Dissolved Solids	-4.00	20.0	20.0	mg/L	U	SM2540C

METHOD BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D15005

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D15005-BLK1	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.0140	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A

METHOD BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D23024

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D23024-BLK1	Nitrate/Nitrite as N	-0.0336	0.0500	0.300	mg/L	U	E353.2

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 3L35106
Calibration: 3351002
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
3L35106-ICB1	Chloride	0.000	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.000	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.000	0.330	2.50	mg/L	U	SW9056A

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4D10601
Calibration: 3351002
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D10601-CCB1	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.0140	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.0320	0.330	2.50	mg/L	U	SW9056A
4D10601-CCB2	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A
4D10601-CCB3	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.0200	0.330	2.50	mg/L	U	SW9056A

BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4D11305
Calibration: 4113002
Instrument ID: WC-Lachat

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D11305-ICB1	Nitrate/Nitrite as N	-0.01640	0.0500	0.300	mg/L	U	E353.2
4D11305-CCB1	Nitrate/Nitrite as N	-0.0264	0.0500	0.300	mg/L	U	E353.2

LCS / LCS DUPLICATE RECOVERY

SM2540C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D08014	Laboratory ID:	4D08014-BS1
Preparation:	pNone	Initial/Final:	20 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Total Dissolved Solids	973.0	910.0	93.5	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D15005	Laboratory ID:	4D15005-BS1
Preparation:	WC_PREP_ANIONS_W	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Chloride	4.200	4.158	99.0	80 - 120
Fluoride	2.800	2.768	98.9	80 - 120
Sulfate as SO4	21.00	20.81	99.1	80 - 120

LCS / LCS DUPLICATE RECOVERY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D23024	Laboratory ID:	4D23024-BS1
Preparation:	pNone	Initial/Final:	2 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Nitrate/Nitrite as N	14.80	15.54	105	90 - 110

PREPARATION BATCH SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D08014 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30003	1404067-01	04/09/14 10:42	100.00	100.00
LF002-30006	1404067-03	04/09/14 10:42	100.00	100.00
LF002-30007	1404067-05	04/09/14 10:42	100.00	100.00
Blank	4D08014-BLK1	04/09/14 10:42	100.00	100.00
LCS	4D08014-BS1	04/09/14 10:42	20.00	20.00

PREPARATION BATCH SUMMARY

SW9056A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D15005 Batch Matrix: Water Preparation: WC_PREP_ANIONS_W

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30003	1404067-01	04/15/14 09:52	5.00	5.00
LF002-30006	1404067-03	04/15/14 09:52	5.00	5.00
LF002-30007	1404067-05	04/15/14 09:52	5.00	5.00
Blank	4D15005-BLK1	04/15/14 09:52	5.00	5.00
LCS	4D15005-BS1	04/15/14 09:52	5.00	5.00

PREPARATION BATCH SUMMARY

E353.2

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D23024 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF002-30003	1404067-01	04/23/14 12:13	4.00	20.00
LF002-30006	1404067-03	04/23/14 12:13	4.00	20.00
LF002-30007	1404067-05	04/23/14 12:13	4.00	20.00
Blank	4D23024-BLK1	04/23/14 12:13	20.00	20.00
LCS	4D23024-BS1	04/23/14 12:13	2.00	20.00

ANALYSIS SEQUENCE SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Sequence:

Instrument:

Calibration:

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
LCS	4D08014-BS1	040914-002	04/09/14 16:07
Blank	4D08014-BLK1	040914-001	04/09/14 16:07

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	3L35106	Instrument:	WC-IC
Calibration:	3351002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	3L35106-CAL1	121013-007	12/10/13 16:44
Cal Standard	3L35106-CAL2	121013-008	12/10/13 17:02
Cal Standard	3L35106-CAL3	121013-009	12/10/13 17:19
Cal Standard	3L35106-CAL4	121013-010	12/10/13 17:37
Cal Standard	3L35106-CAL5	121013-011	12/10/13 17:54
Cal Standard	3L35106-CAL6	121013-012	12/10/13 18:11
Cal Standard	3L35106-CAL7	121013-013	12/10/13 18:29
Cal Standard	3L35106-CAL8	121013-014	12/10/13 18:46
Initial Cal Check	3L35106-ICV1	121013-015	12/10/13 19:04
Initial Cal Blank	3L35106-ICB1	121013-016	12/10/13 19:21

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D10601	Instrument:	WC-IC
Calibration:	3351002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4D10601-CCV1	041514-003	04/15/14 11:38
Calibration Blank	4D10601-CCB1	041514-004	04/15/14 11:55
Instrument RL Check	4D10601-CRL1	041514-005	04/15/14 12:13
Blank	4D15005-BLK1	041514-008	04/15/14 13:05
LCS	4D15005-BS1	041514-009	04/15/14 13:22
LF002-30003	1404067-01	041514-023	04/15/14 17:26
Calibration Check	4D10601-CCV2	041514-024	04/15/14 17:43
Calibration Blank	4D10601-CCB2	041514-025	04/15/14 18:01
LF002-30006	1404067-03	041514-026	04/15/14 18:18
LF002-30007	1404067-05	041514-027	04/15/14 18:35
Calibration Check	4D10601-CCV3	041514-039	04/15/14 22:04
Calibration Blank	4D10601-CCB3	041514-040	04/15/14 22:22

ANALYSIS SEQUENCE SUMMARY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D11305	Instrument:	WC-Lachat
Calibration:	4113002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4D11305-CAL1	M_4-23-2014_01-31-45PM-00	04/23/14 13:33
Cal Standard	4D11305-CAL2	M_4-23-2014_01-31-45PM-00	04/23/14 13:35
Cal Standard	4D11305-CAL3	M_4-23-2014_01-31-45PM-00	04/23/14 13:36
Cal Standard	4D11305-CAL4	M_4-23-2014_01-31-45PM-00	04/23/14 13:38
Cal Standard	4D11305-CAL5	M_4-23-2014_01-31-45PM-00	04/23/14 13:39
Cal Standard	4D11305-CAL6	M_4-23-2014_01-31-45PM-00	04/23/14 13:41
Cal Standard	4D11305-CAL7	M_4-23-2014_01-31-45PM-00	04/23/14 13:42
Cal Standard	4D11305-CAL8	M_4-23-2014_01-31-45PM-00	04/23/14 13:43
Initial Cal Check	4D11305-ICV1	M_4-23-2014_01-31-45PM-00	04/23/14 13:45
Initial Cal Blank	4D11305-ICB1	M_4-23-2014_01-31-45PM-01	04/23/14 13:46
Blank	4D23024-BLK1	M_4-23-2014_01-31-45PM-01	04/23/14 13:49
LCS	4D23024-BS1	M_4-23-2014_01-31-45PM-01	04/23/14 13:51
LF002-30003	1404067-01	M_4-23-2014_01-31-45PM-02	04/23/14 14:01
LF002-30006	1404067-03	M_4-23-2014_01-31-45PM-02	04/23/14 14:02
LF002-30007	1404067-05	M_4-23-2014_01-31-45PM-02	04/23/14 14:04
Calibration Check	4D11305-CCV1	M_4-23-2014_01-31-45PM-02	04/23/14 14:07
Calibration Blank	4D11305-CCB1	M_4-23-2014_01-31-45PM-02	04/23/14 14:08

INITIAL CALIBRATION DATA

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	3351002	Instrument:	WC-IC	
Matrix:	Water	Calibration Dates:	12/10/13 16:44	12/10/13 18:46

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate as N	0.05	813540	0.1	853290	0.25	905720	0.5	956456	2.5	1018020	5	1028788
Nitrite as N	0.05	965740	0.1	944100	0.25	912864	0.5	952380	2.5	889644.8	5	849190.4
Bromide	0.126	134238.1	0.252	137654.8	0.63	145555.6	1.26	160582.5	6.3	175999.5	12.6	179760.6
Chloride	0.5	386028	1	399602	2.5	397485.6	5	405301.8	25	410491.2	50	411932.8
Fluoride	0.05	638320	0.1	659420	0.25	670580	0.5	671448	2.5	665322.8	5	630216.2
Sulfate as SO4	0.5	365110	1	353321	2.5	332900	5	313738.2	25	308262.3	50	308796.8

INITIAL CALIBRATION DATA (Continued)

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	3351002	Instrument:	WC-IC
Matrix:	Water	Calibration Dates:	12/10/13 16:44 12/10/13 18:46

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate as N	12.5	1017034	25	1032948								
Nitrite as N	12.5	743872.1	25	627085.2								
Bromide	31.5	178666.7	63	182048.9								
Chloride	125	404190.3	250	404326.4								
Fluoride	12.5	~~559804.6~~	25	~~506008.4~~								
Sulfate as SO4	125	300572.3	250	300597.6								

INITIAL CALIBRATION DATA (Continued)

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	3351002	Instrument:	WC-IC
Matrix:	Water	Calibration Dates:	12/10/13 16:44 12/10/13 18:46

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Nitrate as N	953224.6	9.050688	9.2925	2.89029				*
Nitrite as N	860609.6	13.77032	5.41	1.226206				*
Bromide	161813.3	12.41877	7.8425	1.187843	0.9998959		0.995	
Chloride	402419.8	2.039875	4.46125	0.5546317	0.9999818		0.995	
Fluoride	655884.5	2.664565	3.07	2.432736E-02	0.9991903		0.995	
Sulfate as SO4	322912.3	7.675524	5.99	2.923035	0.9999575		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4113002	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	4/23/14 13:33	4/23/14 13:43

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	2	3.7135	1.6	3.823125	1.2	3.83	0.8	3.86875	0.4	4.05	0.2	4.0395

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4113002	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	4/23/14 13:33	4/23/14 13:43

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	0.1	4.095	0	0								

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4113002	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	4/23/14 13:33	4/23/14 13:43

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Nitrate/Nitrite as N	3.427484	40.59302	32.21375	3.585318	0.9994725		0.99	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

PREPARATION BENCH SHEET

4D08014

Empirical Laboratories, LLC

Printed: 4/25/2014 11:09:46AM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404017-01	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404017-03	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404017-05	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404017-07	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404041-01	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404041-03	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404041-05	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404041-07	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404065-01	A	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404066-01	A	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404066-03	A	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	MS/MSD
1404067-01	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404067-03	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
1404067-05	D	WC_TOTAL_DISS_SOLIDS_25	04/09/2014	100	100					NA	
4D08014-BLK1		QC	04/09/2014	100	100					NA	
4D08014-BS1		QC	04/09/2014	20	20	14B0390		20000		NA	
4D08014-DUP1		QC	04/09/2014	100	100		1404066-03			NA	

Reagents Used:

Standard	Description
13L0250	Syringe Filters - Glass Fiber, 25mm, 1.5um, 200pk

PREPARATION BENCH SHEET

4D15005

Empirical Laboratories, LLC

Printed: 4/18/2014 4:44:09PM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1403165-10RE1	A	WC_ANIONS_300.0 (Regular)	04/15/2014	5	5					NA	SO4 only; RR at 5X
1403165-16RE1	A	WC_ANIONS_300.0 (Regular)	04/15/2014	5	5					NA	MS/MSD; SO4 only; RR at 5X
1403165-16RE1	A	WC_ANIONS_300.0 (Short Hol	04/15/2014	5	5					NA	Added for BatchQC in: 4D15005
1403165-16RE1	A	WC_ANIONS_9056A (Regular)	04/15/2014	5	5					NA	Added for BatchQC in: 4D15005
1404065-01	A	WC_ANIONS_9056A (Regular)	04/15/2014	5	5					NA	see versions
1404066-01	A	WC_ANIONS_9056A (Regular)	04/15/2014	5	5					NA	see versions
1404066-03	A	WC_ANIONS_300.0 (Short Hol	04/15/2014	5	5					NA	Added for BatchQC in: 4D15005
1404066-03	A	WC_ANIONS_9056A (Regular)	04/15/2014	5	5					NA	MS/MSD
1404066-03	A	WC_ANIONS_300.0 (Regular)	04/15/2014	5	5					NA	Added for BatchQC in: 4D15005
1404067-01	D	WC_ANIONS_9056A (Regular)	04/15/2014	5	5					NA	see versions
1404067-03	D	WC_ANIONS_9056A (Regular)	04/15/2014	5	5					NA	see versions
1404067-05	D	WC_ANIONS_9056A (Regular)	04/15/2014	5	5					NA	see versions
1404084-01	I	WC_ANIONS_300.0 (Regular)	04/15/2014	5	5					NA	Cl, SO4
1404084-03	I	WC_ANIONS_300.0 (Regular)	04/15/2014	5	5					NA	Cl, SO4
1404084-05	I	WC_ANIONS_300.0 (Regular)	04/15/2014	5	5					NA	Cl, SO4
1404084-07	I	WC_ANIONS_300.0 (Regular)	04/15/2014	5	5					NA	Cl, SO4
1404084-09	I	WC_ANIONS_300.0 (Regular)	04/15/2014	5	5					NA	Cl, SO4
1404084-11	AA	WC_ANIONS_300.0 (Short Hol	04/15/2014	5	5					NA	Added for BatchQC in: 4D15005
1404084-11	AA	WC_ANIONS_9056A (Regular)	04/15/2014	5	5					NA	Added for BatchQC in: 4D15005
1404084-11	AA	WC_ANIONS_300.0 (Regular)	04/15/2014	5	5					NA	MS/MSD
1404084-13	I	WC_ANIONS_300.0 (Regular)	04/15/2014	5	5					NA	Cl, SO4
1404085-01	A	WC_ANIONS_9056A (Regular)	04/15/2014	5	5					NA	see versions

PREPARATION BENCH SHEET

4D15005

Empirical Laboratories, LLC

Printed: 4/18/2014 4:44:09PM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404100-04	B	WC_ANIONS_300.0 (Short Hol	04/15/2014	5	5					NA	see versions
4D15005-BLK1		QC	04/15/2014	5	5					NA	
4D15005-BS1		QC	04/15/2014	5	5	14D0348		5000		NA	
4D15005-DUP1		QC	04/15/2014	5	5		1403165-16RE1			NA	5x
4D15005-DUP2		QC	04/15/2014	5	5		1404066-03			NA	
4D15005-DUP3		QC	04/15/2014	5	5		1404084-11			NA	
4D15005-MS1		QC	04/15/2014	22.5	25	14C0398	1403165-16RE1	12500		NA	5x
4D15005-MS2		QC	04/15/2014	22.5	25	14C0398	1404066-03	2500		NA	
4D15005-MS3		QC	04/15/2014	22.5	25	14C0398	1404084-11	2500		NA	
4D15005-MSD1		QC	04/15/2014	22.5	25	14C0398	1403165-16RE1	12500		NA	5x
4D15005-MSD2		QC	04/15/2014	22.5	25	14C0398	1404066-03	2500		NA	
4D15005-MSD3		QC	04/15/2014	22.5	25	14C0398	1404084-11	2500		NA	

Reagents Used:

Standard	Description

From 4D01012 on 4/15/2014 by KBG

PREPARATION BENCH SHEET

4D23024

Empirical Laboratories, LLC

Printed: 4/25/2014 11:10:41AM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404041-01	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404041-03	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404041-05	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404041-07	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404067-01	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404067-03	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404067-05	E	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404101-01	C	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404114-01	A	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404114-01RE1	A	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	Added 4/23/2014 by RGB
1404114-03	A	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
1404114-03RE1	A	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	Added 4/23/2014 by RGB
1404115-01	A	WC_NO3NO2_N_353.2	04/23/2014	4	20					NA	
4D23024-BLK1		QC	04/23/2014	20	20					NA	
4D23024-BS1		QC	04/23/2014	2	20	14A0409		2000		NA	
4D23024-MS1		QC	04/23/2014	4	20	14B0358	1404041-01	500		NA	
4D23024-MSD1		QC	04/23/2014	4	20	14B0358	1404041-01	500		NA	

Reagents Used:

Standard	Description
14A0570	NO3/NO2 Carrier (Acid DI)
14C0133	NO2/NO3 Buffer
14D0740	NO2/NO3 Sulfanilimide Color Reagent

PREPARATION BENCH SHEET

4D23024

Empirical Laboratories, LLC

Printed: 4/25/2014 11:10:41AM

Instrument:

Matrix: Water

Prepared using: WC - pNone

(No Surrogate)

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Subcontractor Data Package

April 29, 2014

Ms. Maryanne Walker
Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228

7Re: ALS Workorder: 14-04-147
Project Name: Kirtland AFB
Project Number: 150577

Dear Ms. Walker:

Three water samples were received from Empirical Laboratories, LLC on April 09, 2014. The samples were scheduled for the following analyses:

Radium-226	pages 1-20
Radium-228	pages 1-20
Gross Alpha/Beta	pages 1-21

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Julie Ellingson
Project Manager

JME/mlc
Enclosure (s): CD

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404147
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF002-30003	1404147-1		WATER	07-Apr-14	12:51
LF002-30006	1404147-2		WATER	07-Apr-14	11:18
LF002-30007	1404147-3		WATER	07-Apr-14	14:42

LF002-RAD

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404147

Reference Document No: 150577-223

Page 1 of 1

Project Number: 150577

Project Name: Kirtland AFB

Sample Coordinator: David Aubrey

Turnaround Time:

Samples Shipment Date: 08 APR 2014

Lab Destination: ALSSL

Lab Contact: Julie Ellingson

Project Contact: Susan Huang

Carrier/Waybill No.: Fed Ex/565119370831

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:

Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

1. Relinquished By (Signature/Affiliation) T Nagy/Shaw Date: 4/8/14 Time: 1500

2. Relinquished By (Signature/Affiliation) Date: Time:

3. Relinquished By (Signature/Affiliation) Date: Time:

Sample Disposal:

Return to Client Disposal by Lab ✓ Archive (mos.)

1. Received By (Signature/Affiliation) C Trumble /ALS Date: 4-9-14 Time: 0930

2. Received By (Signature/Affiliation) Date: Time:

3. Received By (Signature/Affiliation) Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF002-30003	KAFB0219-GW-LF002-30003-REG	07 APR 2014	12:51	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
2	LF002-30006	KAFB0222-GW-LF002-30006-REG	07 APR 2014	11:18	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
3	LF002-30007	KAFB0223-GW-LF002-30007-REG	07 APR 2014	14:42	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SHAW Workorder No: 1404147

Project Manager: JE Initials: CDT Date: 4-9-14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	3.2							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
Background µR/hr reading:	11							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: JE 4/9/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

LF002-RAD

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line
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From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J1013120060225

Ship Date: 08APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

WED - 09 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 0831

XH FTCA

80524
CO-US
DEN

512C1/C4FEA2F60

LF002-RAD

Gross Alpha/Beta

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404147

1. This report consists of the analytical results for three water samples received by ALS on 04/09/14.

2. The samples were prepared according to the current revision of SOP 702. Standard Operating Procedure 702 is compliant with method SW846-9310.

3. The samples were analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. The analyses were completed on 04/13/14. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. No anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Emily Knodel — 4/24/14
Emily Knodel — Date
Radiochemistry Primary Data Reviewer

Julie Ellyson — 04/29/14
Radiochemistry Final Data Reviewer — Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404147
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF002-30003	1404147-1		WATER	07-Apr-14	12:51
LF002-30006	1404147-2		WATER	07-Apr-14	11:18
LF002-30007	1404147-3		WATER	07-Apr-14	14:42

LF002-RAD

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404147

Reference Document No: 150577-223

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 08 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370831

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) T Nagy/Shaw Date: 4/8/14 Time: 1500
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) C Trumble / ALS Date: 4-9-14 Time: 0930
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF002-30003	KAFB0219-GW-LF002-30003-REG	07 APR 2014	12:51	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
2	LF002-30006	KAFB0222-GW-LF002-30006-REG	07 APR 2014	11:18	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
3	LF002-30007	KAFB0223-GW-LF002-30007-REG	07 APR 2014	14:42	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SHAW Workorder No: 1404147

Project Manager: JE Initials: CDT Date: 4-9-14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	3.2							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
Background µR/hr reading:	11							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: 4/9/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

LF002-RAD

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J12131210000225

Ship Date: 08APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

WED - 09 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 0831

XH FTCA

80524
CO-US
DEN

5120C1/C4FB/2B0

LF002-RAD

Section 2

❷

SAMPLE RESULTS SUMMARY

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404147

Reported on: Thursday, April 24, 2014
11:23:09 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404147-1	LF002-30003	Sample	GROSS ALPHA	3.3 +/- 1.5	2.0	pCi/l	WATER	AB140409-5	4/13/2014	
1404147-1	LF002-30003	Sample	GROSS BETA	3.0 +/- 1.6	2.9	pCi/l	WATER	AB140409-5	4/13/2014	LT
1404147-2	LF002-30006	Sample	GROSS ALPHA	2.6 +/- 1.4	2.2	pCi/l	WATER	AB140409-5	4/13/2014	LT
1404147-2	LF002-30006	Sample	GROSS BETA	3.7 +/- 1.7	3.2	pCi/l	WATER	AB140409-5	4/13/2014	LT
1404147-3	LF002-30007	Sample	GROSS ALPHA	3.3 +/- 1.6	2.4	pCi/l	WATER	AB140409-5	4/13/2014	
1404147-3	LF002-30007	Sample	GROSS BETA	3.3 +/- 1.7	3.1	pCi/l	WATER	AB140409-5	4/13/2014	LT

Comments:

Data Package ID: *AB1404147-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140409-5MB

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 09-Apr-14
Date Prepared: 09-Apr-14
Date Analyzed: 13-Apr-14

Prep Batch: AB140409-5
QCBatchID: AB140409-5-3
Run ID: AB140409-5A
Count Time: 180 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABA0413B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.24 +/- 0.70	1.59	3	U
12587-47-2	GROSS BETA	0.2 +/- 1.1	2.4	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *AB1404147-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140409-5LCS

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 09-Apr-14
Date Prepared: 09-Apr-14
Date Analyzed: 13-Apr-14

Prep Batch: AB140409-5
QCBatchID: AB140409-5-3
Run ID: AB140409-5A
Count Time: 30 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABC0413A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
12587-46-1	GROSS ALPHA	227 +/- 42	7	206.8	110	70 - 130	P,M3
12587-47-2	GROSS BETA	203 +/- 35	12	216.6	93.8	70 - 130	P,M3

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *AB1404147-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30003
Lab ID: 1404147-1DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 07-Apr-14
Date Prepared: 09-Apr-14
Date Analyzed: 13-Apr-14

Prep Batch: AB140409-5
QCBatchID: AB140409-5-3
Run ID: AB140409-5A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 190 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0413B

CASNO	Analyte	Sample				Duplicate				DER	DER Lim
		Result +/-	2 s TPU	MDC	Flags	Result +/-	2 s TPU	MDC	Flags		
12587-46-1	GROSS ALPHA	3.3	+/- 1.5	2.0		2.2	+/- 1.4	2.3	U	0.53	2.13
12587-47-2	GROSS BETA	3.0	+/- 1.6	2.9	LT	3.2	+/- 1.5	2.8	LT	0.106	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *AB1404147-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30003
Lab ID: 1404147-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 07-Apr-14
Date Prepared: 09-Apr-14
Date Analyzed: 13-Apr-14

Prep Batch: AB140409-5
QCBatchID: AB140409-5-3
Run ID: AB140409-5A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 190 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0413B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.3 +/- 1.5	2.0	3	
12587-47-2	GROSS BETA	3.0 +/- 1.6	2.9	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404147-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Duplicate Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF002-30003
Lab ID:	1404147-1DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 07-Apr-14
Date Prepared: 09-Apr-14
Date Analyzed: 13-Apr-14

Prep Batch: AB140409-5
QCBatchID: AB140409-5-3
Run ID: AB140409-5A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 190 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0413B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	2.2 +/- 1.4	2.3	3	U
12587-47-2	GROSS BETA	3.2 +/- 1.5	2.8	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404147-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30006
Lab ID: 1404147-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 07-Apr-14
Date Prepared: 09-Apr-14
Date Analyzed: 13-Apr-14

Prep Batch: AB140409-5
QCBatchID: AB140409-5-3
Run ID: AB140409-5A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 170 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0413B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	2.6 +/- 1.4	2.2	3	LT
12587-47-2	GROSS BETA	3.7 +/- 1.7	3.2	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404147-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30007
Lab ID: 1404147-3

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 07-Apr-14
Date Prepared: 09-Apr-14
Date Analyzed: 13-Apr-14

Prep Batch: AB140409-5
QCBatchID: AB140409-5-3
Run ID: AB140409-5A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 170 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0413B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.3 +/- 1.6	2.4	3	
12587-47-2	GROSS BETA	3.3 +/- 1.7	3.1	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404147-1*

Section 5

RAW DATA

5

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404147

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Monday, April 14, 2014
4:44:36 PM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404147-1	GROSS ALPHA	4/7/2014	AB140409-5	NA	NA	WATER	190 ml	LB4100-A	AB140409-5A	4/13/2014	0.267	22.81%	180	3.3	2.0	pCi/l	NA	
SMP	Trg. Analyte	12:51:00 PM	AB140409-5-3	NA	NA	NA	190 ml	A2	ABA0413B	2:15 PM	0.080	NA	NA	1.5	NA	Unfiltered	NA	
1404147-1	GROSS BETA	4/7/2014	AB140409-5	NA	NA	WATER	190 ml	LB4100-A	AB140409-5A	4/13/2014	2.467	42.06%	180	3.0	2.9	pCi/l	NA	
SMP	Trg. Analyte	12:51:00 PM	AB140409-5-3	NA	NA	NA	190 ml	A2	ABA0413B	2:15 PM	1.908	NA	NA	1.6	NA	Unfiltered	NA	LT
1404147-1	GROSS ALPHA	4/7/2014	AB140409-5	NA	NA	WATER	190 ml	LB4100-A	AB140409-5A	4/13/2014	0.206	21.55%	180	2.2	2.3	pCi/l	0.53	
DUP	Trg. Analyte	12:51:00 PM	AB140409-5-3	NA	NA	NA	190 ml	A3	ABA0413B	2:15 PM	0.090	NA	NA	1.4	NA	Unfiltered	NA	U
1404147-1	GROSS BETA	4/7/2014	AB140409-5	NA	NA	WATER	190 ml	LB4100-A	AB140409-5A	4/13/2014	2.506	43.49%	180	3.2	2.8	pCi/l	0.11	
DUP	Trg. Analyte	12:51:00 PM	AB140409-5-3	NA	NA	NA	190 ml	A3	ABA0413B	2:15 PM	1.910	NA	NA	1.5	NA	Unfiltered	NA	LT
1404147-2	GROSS ALPHA	4/7/2014	AB140409-5	NA	NA	WATER	170 ml	LB4100-A	AB140409-5A	4/13/2014	0.239	21.95%	180	2.6	2.2	pCi/l	NA	
SMP	Trg. Analyte	11:18:00 AM	AB140409-5-3	NA	NA	NA	170 ml	A4	ABA0413B	2:15 PM	0.094	NA	NA	1.4	NA	Unfiltered	NA	LT
1404147-2	GROSS BETA	4/7/2014	AB140409-5	NA	NA	WATER	170 ml	LB4100-A	AB140409-5A	4/13/2014	2.572	42.98%	180	3.7	3.2	pCi/l	NA	
SMP	Trg. Analyte	11:18:00 AM	AB140409-5-3	NA	NA	NA	170 ml	A4	ABA0413B	2:15 PM	1.955	NA	NA	1.7	NA	Unfiltered	NA	LT
1404147-3	GROSS ALPHA	4/7/2014	AB140409-5	NA	NA	WATER	170 ml	LB4100-A	AB140409-5A	4/13/2014	0.267	21.62%	180	3.3	2.4	pCi/l	NA	
SMP	Trg. Analyte	2:42:00 PM	AB140409-5-3	NA	NA	NA	170 ml	B1	ABA0413B	2:15 PM	0.095	NA	NA	1.6	NA	Unfiltered	NA	
1404147-3	GROSS BETA	4/7/2014	AB140409-5	NA	NA	WATER	170 ml	LB4100-A	AB140409-5A	4/13/2014	2.394	42.72%	180	3.3	3.1	pCi/l	NA	
SMP	Trg. Analyte	2:42:00 PM	AB140409-5-3	NA	NA	NA	170 ml	B1	ABA0413B	2:15 PM	1.825	NA	NA	1.7	NA	Unfiltered	NA	LT
AB140409-5	GROSS ALPHA	4/9/2014	AB140409-5	NA	NA	WATER	200 ml	LB4100-A	AB140409-5A	4/13/2014	0.106	22.41%	180	0.24	1.59	pCi/l	NA	
MB	Trg. Analyte	4:50:24 PM	AB140409-5-3	NA	NA	NA	200 ml	B2	ABA0413B	2:15 PM	0.088	NA	NA	0.70	NA	Unfiltered	NA	U
AB140409-5	GROSS BETA	4/9/2014	AB140409-5	NA	NA	WATER	200 ml	LB4100-A	AB140409-5A	4/13/2014	1.744	44.89%	180	0.2	2.4	pCi/l	NA	
MB	Trg. Analyte	4:50:24 PM	AB140409-5-3	NA	NA	NA	200 ml	B2	ABA0413B	2:15 PM	1.692	NA	NA	1.1	NA	Unfiltered	NA	U
AB140409-5	GROSS ALPHA	4/9/2014	AB140409-5	NA	NA	WATER	200 ml	LB4100-C	AB140409-5A	4/13/2014	15.600	20.63%	30	227	7	pCi/l	NA	110
LCS	Trg. Analyte	4:50:24 PM	AB140409-5-3	NA	NA	NA	200 ml	B4	ABC0413A	1:56 PM	0.129	NA	NA	42	NA	Unfiltered	NA	P,M3

Comments:

Data Package ID: *AB1404147-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

2014 21

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404147

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Monday, April 14, 2014
4:44:36 PM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
AB140409-5	GROSS BETA	4/9/2014	AB140409-5	NA	NA	WATER	200 ml	LB4100-C	AB140409-5A	4/13/2014	42.767	43.31%	30	203	12	pCi/l	NA	93.8
LCS	Trg. Analyte	4:50:24 PM	AB140409-5-3	NA	NA	NA	200 ml	B4	ABC0413A	1:56 PM	1.712	NA	NA	35	NA	Unfiltered	NA	P,M3

Comments:

Data Package ID: *AB1404147-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

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Radium-226

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404147

1. This report consists of the analytical results for three water samples received by ALS on 04/18/2014.

2. These samples were prepared according to the current revision of SOP 712. This SOP is compliant with method SW846-9315.

3. These samples were analyzed for the presence of ^{226}Ra according to the current revision of SOP 724. This SOP is compliant with method SW846-9315. The analyses were completed on 04/28/2014.

4. This test is a screen for ^{226}Ra and could show high bias in sample results if other alpha emitting isotopes of radium are contained in the samples (esp.^{224}Ra and ^{223}Ra). The potential for this interference has been reduced by allowing the interfering nuclides to decay for at least 14 days.

5. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

6. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.

7. ALS uses the following convention for reporting significant digits in the TPU and MDC results. The TPU value is rounded to two significant digits. The MDC value is rounded to the same decimal place as the TPU value. In practice, this could result in an MDC reported value of zero for samples with significant activity, including the batch laboratory control sample.

8. No anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Jean Anderson — 4/29/14

Jean Anderson
Radiochemistry Primary Data Reviewer

Date

Julie Ellis — 04/29/14

Radiochemistry Final Data Reviewer

Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404147
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF002-30003	1404147-1		WATER	07-Apr-14	12:51
LF002-30006	1404147-2		WATER	07-Apr-14	11:18
LF002-30007	1404147-3		WATER	07-Apr-14	14:42

LF002-RAD

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404147

Reference Document No: 150577-223

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 08 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370831

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) T Nagy/Shaw Date: 4/8/14 Time: 1500
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) C Trumble / ALS Date: 4-9-14 Time: 0930
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF002-30003	KAFB0219-GW-LF002-30003-REG	07 APR 2014	12:51	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
2	LF002-30006	KAFB0222-GW-LF002-30006-REG	07 APR 2014	11:18	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
3	LF002-30007	KAFB0223-GW-LF002-30007-REG	07 APR 2014	14:42	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SHAW Workorder No: 1404147

Project Manager: JE Initials: CDT Date: 4-9-14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	3.2							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
Background µR/hr reading:	11							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/9/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

LF002-RAD

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J12131210000225

Ship Date: 08APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

WED - 09 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 0831

XH FTCA

80524
CO-US
DEN

5120C1/C4FB/2B0

LF002-RAD

Section 2

SAMPLE RESULTS SUMMARY

Ra-226 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404147

Reported on: Tuesday, April 29, 2014
12:23:26 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404147-1	LF002-30003	Sample	Ra-226	0.12 +/- 0.13	0.23	pCi/l	WATER	TR140411-1	4/28/2014	U
1404147-2	LF002-30006	Sample	Ra-226	0.25 +/- 0.18	0.24	pCi/l	WATER	TR140411-1	4/28/2014	LT
1404147-3	LF002-30007	Sample	Ra-226	0.26 +/- 0.18	0.22	pCi/l	WATER	TR140411-1	4/28/2014	LT

Comments:

Data Package ID: *TR1404147-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140411-1MB

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 11-Apr-14
Date Prepared: 11-Apr-14
Date Analyzed: 28-Apr-14

Prep Batch: TR140411-1
QCBatchID: TR140411-1-1
Run ID: TR140411-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0428

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.13 +/- 0.14	0.25	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16880	16200	ug	96.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *TR1404147-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140411-1LCS

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 11-Apr-14
Date Prepared: 11-Apr-14
Date Analyzed: 28-Apr-14

Prep Batch: TR140411-1
QCBatchID: TR140411-1-1
Run ID: TR140411-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0428

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	40 +/- 10	0	45.30	89.1	75 - 125	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	17010	16000	ug	94.1	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404147-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140411-1LCSD

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 11-Apr-14
Date Prepared: 11-Apr-14
Date Analyzed: 28-Apr-14

Prep Batch: TR140411-1
QCBatchID: TR140411-1-1
Run ID: TR140411-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0428

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	51 +/- 13	0	45.30	113	75 - 125	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16870	15670	ug	92.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404147-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:
Lab ID: TR140411-1LCSD

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 11-Apr-14
Date Prepared: 11-Apr-14
Date Analyzed: 28-Apr-14

Prep Batch: TR140411-1
QCBatchID: TR140411-1-1
Run ID: TR140411-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0428

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	40 +/- 10	0	P	51 +/- 13	0	P	0.643	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *TR1404147-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30003
Lab ID: 1404147-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 07-Apr-14
Date Prepared: 11-Apr-14
Date Analyzed: 28-Apr-14

Prep Batch: TR140411-1
QCBatchID: TR140411-1-1
Run ID: TR140411-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0428

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.12 +/- 0.13	0.23	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16930	15540	ug	91.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404147-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30006
Lab ID: 1404147-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 07-Apr-14
Date Prepared: 11-Apr-14
Date Analyzed: 28-Apr-14

Prep Batch: TR140411-1
QCBatchID: TR140411-1-1
Run ID: TR140411-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0428

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.25 +/- 0.18	0.24	1	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16930	14890	ug	87.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404147-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30007
Lab ID: 1404147-3

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 07-Apr-14
Date Prepared: 11-Apr-14
Date Analyzed: 28-Apr-14

Prep Batch: TR140411-1
QCBatchID: TR140411-1-1
Run ID: TR140411-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0428

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.26 +/- 0.18	0.22	1	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16930	15300	ug	90.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404147-1*

Section 5

RAW DATA

5

Ra-226 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404147

Prep SOP: PAI 712
Analytical SOP: PAI 724

Reported on: Tuesday, April 29, 2014
9:27:09 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404147-1	Ra-226	4/7/2014	TR140411-1	4/14/2014	NA	WATER	1000 ml	LB4100-C	TR140411-1A	4/28/2014	0.300	19.84%	30	0.12	0.23	pCi/l	NA	
SMP	Trg. Analyte	12:51:00 PM	TR140411-1-1	5:05:00 PM	NA	NA	995 ml	A1	RDC0428	8:24 AM	0.111	22.28%	91.8%	0.13	NA	Unfiltered	NA	U
1404147-2	Ra-226	4/7/2014	TR140411-1	4/14/2014	NA	WATER	1000 ml	LB4100-C	TR140411-1A	4/28/2014	0.500	20.58%	30	0.25	0.24	pCi/l	NA	
SMP	Trg. Analyte	11:18:00 AM	TR140411-1-1	5:05:00 PM	NA	NA	995 ml	A2	RDC0428	8:24 AM	0.111	21.81%	87.9%	0.18	NA	Unfiltered	NA	LT
1404147-3	Ra-226	4/7/2014	TR140411-1	4/14/2014	NA	WATER	1000 ml	LB4100-C	TR140411-1A	4/28/2014	0.533	20.54%	30	0.26	0.22	pCi/l	NA	
SMP	Trg. Analyte	2:42:00 PM	TR140411-1-1	5:05:00 PM	NA	NA	995 ml	A3	RDC0428	8:24 AM	0.104	22.05%	90.4%	0.18	NA	Unfiltered	NA	LT
TR140411-1	Ra-226	4/11/2014	TR140411-1	4/14/2014	NA	WATER	1000 ml	LB4100-C	TR140411-1A	4/28/2014	0.367	20.28%	30	0.13	0.25	pCi/l	NA	
MB	Trg. Analyte	1:48:46 PM	TR140411-1-1	5:05:00 PM	NA	NA	995 ml	B2	RDC0428	8:24 AM	0.143	21.38%	96.0%	0.14	NA	Unfiltered	NA	U
TR140411-1	Ra-226	4/11/2014	TR140411-1	4/14/2014	NA	WATER	1000 ml	LB4100-C	TR140411-1A	4/28/2014	67.900	19.97%	30	40	0	pCi/l	NA	89.1
LCS	Trg. Analyte	1:48:46 PM	TR140411-1-1	5:05:00 PM	NA	NA	995 ml	B3	RDC0428	8:24 AM	0.105	21.50%	94.1%	10	NA	Unfiltered	NA	P
TR140411-1	Ra-226	4/11/2014	TR140411-1	4/14/2014	NA	WATER	1000 ml	LB4100-C	TR140411-1A	4/28/2014	83.533	19.64%	30	51	0	pCi/l	0.64	113
LCSD	Trg. Analyte	1:48:46 PM	TR140411-1-1	5:05:00 PM	NA	NA	995 ml	B4	RDC0428	8:24 AM	0.121	21.79%	92.9%	13	NA	Unfiltered	NA	P

Comments:

Data Package ID: *TR1404147-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

Radium-228

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404147

1. This report consists of the analytical results for three water samples received by ALS on 04/09/14.

2. These samples were prepared according to the current revision of SOP 749. Standard Operating Procedure 749 is compliant with method SW-846 9320.

3. The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724. The analyses were completed on 04/21/14.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.

6. ICP-AES measurement of barium concentrations prior to chemical separation for the method blank, laboratory control sample, and laboratory control sample duplicate showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

7. No further anomalous situations were noted during the preparation and analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Emily Knodel — 4/24/14

Emily Knodel
Radiochemistry Primary Data Reviewer

Date

04/29/14

Radiochemistry Final Data Reviewer

Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404147
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF002-30003	1404147-1		WATER	07-Apr-14	12:51
LF002-30006	1404147-2		WATER	07-Apr-14	11:18
LF002-30007	1404147-3		WATER	07-Apr-14	14:42

LF002-RAD

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404147

Reference Document No: 150577-223

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 08 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370831

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) T Nagy/Shaw Date: 4/8/14 Time: 1500
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) C Trumble / ALS Date: 4-9-14 Time: 0930
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF002-30003	KAFB0219-GW-LF002-30003-REG	07 APR 2014	12:51	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
2	LF002-30006	KAFB0222-GW-LF002-30006-REG	07 APR 2014	11:18	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
3	LF002-30007	KAFB0223-GW-LF002-30007-REG	07 APR 2014	14:42	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SHAW Workorder No: 1404147

Project Manager: JE Initials: CDT Date: 4-9-14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	3.2							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
Background µR/hr reading:	11							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/9/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

LF002-RAD

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J12131210000225

Ship Date: 08APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

WED - 09 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 0831

XH FTCA

80524
CO-US
DEN

5120C1/C4FB/2B0

LF002-RAD

Section 2

SAMPLE RESULTS SUMMARY

Radium-228 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404147

Page: 1 of 1
Reported on: Thursday, April 24, 2014
1:40:36 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404147-1	LF002-30003	Sample	Ra-228	0.03 +/- 0.20	0.46	pCi/l	WATER	RA140416-1	4/21/2014	U
1404147-2	LF002-30006	Sample	Ra-228	0.18 +/- 0.21	0.45	pCi/l	WATER	RA140416-1	4/21/2014	U
1404147-3	LF002-30007	Sample	Ra-228	0.07 +/- 0.24	0.54	pCi/l	WATER	RA140416-1	4/21/2014	U

Comments:

Data Package ID: *RA1404147-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140416-1MB

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.08 +/- 0.23	0.50	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33900	32310	ug	95.3	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404147-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140416-1LCS

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 30 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0421A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	8.0 +/- 2.1	0.9	8.857	89.9	70 - 130	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33900	33010	ug	97.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *RA1404147-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140416-1LCSD

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 30 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0421B

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	8.7 +/- 2.2	0.9	8.856	98.2	70 - 130	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33900	32690	ug	96.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *RA1404147-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:
Lab ID: RA140416-1LCSD

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 30 minutes

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0421B

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
15262-20-1	Ra-228	8.0 +/- 2.1	0.9	P	8.7 +/- 2.2	0.9	P	0.241	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *RA1404147-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30003
Lab ID: 1404147-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 07-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.03 +/- 0.20	0.46	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33960	32480	ug	95.7	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404147-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30006
Lab ID: 1404147-2

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 07-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.18 +/- 0.21	0.45	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34040	33110	ug	97.3	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404147-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30007
Lab ID: 1404147-3

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 07-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.07 +/- 0.24	0.54	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33960	33390	ug	98.3	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404147-1*

Section 5

RAW DATA

5

Radium-228 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404147

Prep SOP: SOP749
Analytical SOP: PAI 724

Reported on: Tuesday, April 22, 2014
10:31:21 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404147-1	Ra-228	4/7/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-C	RA140416-1A	4/21/2014	1.700	54.22%	120	0.03	0.46	pCi/l	NA	
SMP	Trg. Analyte	12:51:00 PM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	D3	RAC0421	10:16 AM	1.668	NA	95.7%	0.20	NA	Unfiltered	NA	U
1404147-2	Ra-228	4/7/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-C	RA140416-1A	4/21/2014	1.842	53.13%	120	0.18	0.45	pCi/l	NA	
SMP	Trg. Analyte	11:18:00 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	D4	RAC0421	10:16 AM	1.614	NA	97.3%	0.21	NA	Unfiltered	NA	U
1404147-3	Ra-228	4/7/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-A	RA140416-1A	4/21/2014	2.050	48.58%	120	0.07	0.54	pCi/l	NA	
SMP	Trg. Analyte	2:42:00 PM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	A1	RAA0421	10:16 AM	1.968	NA	98.3%	0.24	NA	Unfiltered	NA	U
RA140416-1	Ra-228	4/17/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-A	RA140416-1A	4/21/2014	2.058	53.71%	120	0.08	0.50	pCi/l	NA	
MB	Trg. Analyte	11:06:05 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	A4	RAA0421	10:16 AM	1.955	NA	95.3%	0.23	NA	Unfiltered	NA	U
RA140416-1	Ra-228	4/17/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-A	RA140416-1A	4/21/2014	12.867	53.93%	30	8.0	0.9	pCi/l	NA	89.9
LCS	Trg. Analyte	11:06:05 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	B2	RAA0421A	10:05 AM	1.692	NA	97.4%	2.1	NA	Unfiltered	NA	P
RA140416-1	Ra-228	4/17/2014	RA140416-1	4/19/2014	4/21/2014	WATER	1500 ml	LB4100-A	RA140416-1A	4/21/2014	12.900	53.93%	30	8.7	0.9	pCi/l	0.24	98.2
LCSD	Trg. Analyte	11:06:05 AM	RA140416-1-1	4:20:00 PM	8:30:00 AM	NA	1500 ml	B2	RAA0421B	10:45 AM	1.692	NA	96.4%	2.2	NA	Unfiltered	NA	P

Comments:

Data Package ID: *RA1404147-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

ANALYTICAL DATA PACKAGE

SDG # KIRTLANDECOS_012

PROJECT NAME: KIRTLAND AFB (ECOS)
PROJECT LOCATION: ALBUQUERQUE, NEW MEXICO

SUBMITTAL TO:
Susan Huang
SHAW E&I, Inc.
4005 Port Chicago Highway
Concord, CA 94520

SUBMITTAL BY:
Empirical Laboratories, LLC (EL)
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Tel (615)345-1115
Fax (866)417-0548

LABORATORY CONTACT PERSON:
Project Manager: Marianne Walker
Tel (615)345-1115
Fax (866)417-0548
Email: mwalker@empirlabs.com

Original Report Date: May 9, 2014
Report Revision #: 01
Revision Date: May 15, 2014
Total # of Pages: 313

THIS DOCUMENT MEETS DoD QSM 4.2 STANDARDS

The results relate to only the samples associated with the referenced SDG and the submitted data has been produced in accordance with laboratory procedures. The Laboratory's Technical Lab Director, Mr. Rick Davis, is responsible for the final data produced and reported. His signature is listed at the end of the Case Narrative within the Analytical Data Package. If applicable to this report package, details on report revisions and the information on subcontracted analysis are listed in the package Case Narrative. This report shall not be reproduced, except in full, without the written approval of Empirical Laboratories, LLC.

L-A-B Accredited - Certificate Number L2226 - Testing

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Sample Delivery Group Case Narrative

Receipt Information:

The samples were received within the preservation guidelines for the associated methods. The information associated with sample receipt and the Sample Delivery Group (SDG) are included within section 4 of this package, which also provides information on the link between the client sample ID listed on the COC and laboratory's assigned unique sample ID or WorkOrder #. The sample is tracked through the laboratory for all analysis via the assigned WorkOrder #.

All samples that were received were analyzed and none of the samples were placed on hold without analyses. Samples were subcontracted to Test America for Uranium and to ALS Environmental for Gross Alpha, Gross Beta, and Ra226.

The following issues were discovered with the COC and/or samples upon log-in:

1. Metals samples were analyzed on a list provided by the client not the compounds requested via the COC.

Changes to the Revision:

Revision 01: The package was revised to replace the subcontracted package from Test America due to the sample IDs being changed and to add supporting documentation.

Analytical Information:

All samples were prepped (where applicable) and analyzed within the standard allowed holding times, unless noted within the exceptions listed below. The laboratory analyzed all samples within the program and method guidelines. Sample preparation and dilution information is provided within the final results report and at the beginning of each form set. The following information is provided specific to individual methods:

SW8260B:

The following batch spikes exceeded criteria:

4D25001-BS1 with a positive bias for Acetone and a negative bias for Bromoform; note – no positive results were detected in the associated samples for the compounds exceeding criteria and the exceedence for Bromoform was minimal at 68.7% (70%)

No additional anomalies or deviations are noted and the proper data qualifiers have been applied.

SW6010C/SW7470A:

No anomalies or deviations are noted.

Wet Chemistry:

The following blanks have reported results:

4D23015-BLK1 for Total Dissolved Solids; note – the concentrations were not greater than 10x the concentration in the blank; therefore, the samples are qualified with a "B"

The following batch spikes exceeded criteria:

4D23015-BSD1 with a positive bias for Total Dissolved Solids; note – since the exceedences was minimal and the holding time had been exceeded upon discovery, the associated samples were not re-extracted

No additional anomalies or deviations are noted and the proper data qualifiers have been applied.

Data Qualifiers:

As applicable and where required, the following general qualifiers are associated with the sample results. Additional qualifiers will be specified within the reporting sections of the data package or within the body of the Case Narrative.

Analytical Report Terms and Qualifiers

DL: The detection limit (DL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The DL is supported by the method detection limit (MDL) which is determined from analysis of a sample containing the analyte in a given matrix.

LOD: The Limit of Detection is an estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. This definition is further clarified in the DoD QSM 4.2 revisions as the smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.

LOQ: The Limit of Quantitation is the minimum level, concentration, or quantity of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. This term is further clarified within the DoD QSM 4.2 as the lowest concentration that produces a quantitative result within specified limits of precision and bias.

*****: Exceeding quality control criteria are associated with the reported result.

B: The presence of a "B" to the right of an analytical value indicates that this compound was also detected in the method blank and the data should be interpreted with caution. One should consider the possibility that the correct sample result might be less than the reported result and, perhaps, zero.

D: When a sample (or sample extract) is rerun diluted because one of the compound concentrations exceeded the highest concentration range for the standard curve, all of the values obtained in the dilution run will be flagged with a "D".

E: The concentration for any compound found which exceeds the highest concentration level on the standard curve for that compound will be flagged with an "E". Usually the sample will be rerun at a dilution to quantitate the flagged compound. For Metals, the qualifier indicates that the serial dilution was outside of the control limits and the compound should be considered estimated due to the presence of interference.

H1: The result was analyzed outside of the EPA recommended holding time.

H2: The result was extracted outside of the EPA recommended holding time.

H3: The sample for this analyte was received outside of the EPA recommended holding time.

J: The presence of a "J" to the right of an analytical result indicates that the reported result is estimated. The mass spectral data pass the identification criteria showing that the compound is present, but the calculated result is less than the LOQ. One should feel confident that the result is greater than zero and less than the LOQ.

M: Indicates that the sample matrix interfered with the quantitation of the analyte. In dual column analysis the result is reported from the column with the lower concentration. In inorganics, it indicates that the parameters DL/LOD/LOQ have been raised.

N: The MS/MSD accuracy and/or precision are outside criteria. The predigested spike recovery is not within control limits for the associated parameter.

P: The associated numerical value is an estimated quantity. There is greater than a 40% difference between the two GC columns for the detected concentrations. The higher of the two values is reported unless matrix interference is obvious or for HPLC analysis where the primary column is reported.

Q: The relative percent difference (RPD) and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

S: The associated internal standard exceeded criteria.

U: The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.

X: The parameter shows a potential positive bias on a reported concentration due to an ICV or CCV exceeding the upper control limit on the high side.

Y: The parameter shows a potential negative bias on a reported concentration due to an ICV or CCV exceeding the lower control limit on the low side.

Z: The parameter shows lack of confirmation/detection, which may be due to a negative bias in the ICV or CCV which exceeds the lower control limit.

Chromatographic Flags for Manual Integration:

The following letters are used to denote manual integrations on the laboratory's raw data in association with chromatographic integrations:

A: The peak was manually integrated as it was not integrated in the original chromatogram.

B: The peak was manually integrated due to resolution or coelution issues in the original chromatogram.

C: The peak was manually integrated to correct the baseline from the original chromatogram.

D: The peak was manually integrated to identify the correct peak as the wrong peak was identified in the original chromatogram.

E: The peak was manually integrated to include the entire peak as the original chromatogram only integrated part of the peak.

LIMS Definitions / Naming Conventions:

The following are general naming conventions that are used throughout the laboratory; however, on a method by method basis, there are additional QAQC items that are named in a consistent format.

BS: LIMS assigns a unique identifier to the Blank Spike by naming it as the letters BS appended to the Batch ID. The Blank Spike or Lab Control Sample is a controlled analyte-free matrix, which is spiked with known and verified concentrations of target analytes. Spiking concentrations can be referenced in the method SOP. The BS is used to evaluate the viability of analytes taken through the entire prep (when applicable) and analytical process. Blank Spikes within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally. A duplicate Blank Spike will be designated as a BSD.

MS: The LIMS assigns each Client sample with a unique identifier. The Matrix Spike is designated with a MS at the end of the sample's unique identifier. The Matrix Spike sample is used to assess the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. A duplicate Matrix Spike will be designated as a MSD.

IDs: The LIMS assigns each Client sample with a unique identifier. The letter "RE" may potentially be appended to the end of the LIMS Sample ID. And "**RE"** implies that the sample was either re-prepped, re-analyzed straight, or re-analyzed at a dilution. Subsequent re-analysis for the sample will be appended with a numerical value beginning with 1 that will increase incrementally. Eg: RE1, RE2, RE3, etc.

Statement of Data Authenticity:

I certify that, based upon my inquiry of those individuals immediately responsible for obtaining the information and to the best of my knowledge, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in this Case Narrative, as verified by my signature below. During absences, the Data Quality Manager, Technical Directors or Project Managers are authorized to sign this Statement of Data Authenticity.

Mr. Rick D. Davis
Laboratory Technical Director / VP Operations

ORGANIC CALCULATIONS

GC/MS Volatiles

$$\text{Final Concentration} = \frac{\text{On-column(ug/L or ug/Kg) * Expected Vol/Weight (mL or g) * Dilution}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

Note - Expected Vol/Weight value is found in "Final Vol" column of Preparation Batch Summary.

GC/MS Extractables

$$\text{Final Concentration} = \frac{\text{On-column(ng/uL) * Final Vol (ml) * Dilution *(1000uL/mL)}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

= ng/mL or ng/g

= ug/L or ug/kg

GC or LC Extractables

$$\text{Final Concentration} = \frac{\text{On-column(ng/mL) * Final Vol (mL) * Dilution}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

= ng/mL or ng/g

= ug/L or ug/kg

Empirical Laboratories, LLC
Certifications/Approvals
(Revised 03/19/2014)

DoD ELAP, Certificate Number L2226
- Aqueous
- Non-aqueous
- Expires: 11/30/2015

State of Florida, Department of Health – NELAP, Lab ID: E87646
- Clean Water Act
- RCRA/CERCLA
- Expires: 06/30/2014

State of Georgia, Environmental Protection Agency – NELAP
- Expires: 06/30/2014

State of Illinois, Environmental Protection Agency – NELAP, Certificate No.: 003300
- Groundwater
- Solid and Hazardous Waste
- Expires: 09/13/2014

State of Kansas Department of Health and Environment – NELAP, Certificate No.: E-10407
- Aqueous
- Non-aqueous
- Expires: 04/30/2014

State of Kentucky Department of Environmental Protection – NELAP, Certificate No.: 77
- Aqueous
- Non-aqueous
- Expires: 06/30/2014

State of Nevada, Department of Conservation and Natural Resources – NELAP, Certificate No.: TN000042013-1
- Aqueous
- Non-aqueous
- Expires: 07/31/2014

State of New Jersey Department of Environmental Protection – NELAP, Lab ID: TN473
- Water Pollution
- Solid and Hazardous Waste
- Expires: 06/30/2014

State of North Carolina, Department of Environment and Natural Resources - Certificate No.: 643
- Aqueous
- Non-aqueous
- Expires: 12/31/2014

State of North Dakota, Department of Health – NELAP, Certificate No.: R-204
- Aqueous
- Non-aqueous
- Expires: 06/30/2014

State of Texas, Commission on Environmental Quality – NELAP, Certificate No.: T104704307-14-10
- Aqueous
- Non-aqueous
- Expires: 12/31/2014

State of Utah, Department of Health – NELAP, Certificate No.: TN0042013-5
- Aqueous
- Non-aqueous
- Expires: 07/31/2014

Commonwealth of Virginia, Department of General Services – VELAP, Certificate No.: 2633 – Lab ID: 460243
- Aqueous
- Non-aqueous
- Expires: 12/14/2014

State of Washington, Department of Ecology – NELAP, Lab ID: C934-14
- Groundwater
- Solid and Hazardous Waste
- Expires: 03/18/2015

Sample Receipt Information

LF008

1404127

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-307

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 17 APR 2014
Lab Destination: Empirical Laboratories, Inc.
Lab Contact: ~~Jennifer Ghandler~~ Marianne Walker
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119370990

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) [signature] Date: 4/17/14 Time: 1600
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) Date: Time:
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) [signature] Date: 4/18/14 Time: 0900

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
01	LF008-30001	KAFB0307-GW-LF008-30001-REG	17 APR 2014	12:39	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF008-30001	KAFB0307-GW-LF008-30001-REG	17 APR 2014	12:39	250 mL HDPE	1	HNO3<pH 2	Total Calcium, Potassium, Magnesium, Sodium, and Lead by SW846 6010C			N		
	LF008-30001	KAFB0307-GW-LF008-30001-REG	17 APR 2014	12:39	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
	LF008-30001	KAFB0307-GW-LF008-30001-REG	17 APR 2014	12:39	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, ~~Alkalinity by SM2320B~~, TDS by SM 2540C			N		
02	LF008-30001	KAFB0307-GW-LF008-30001-REG	17 APR 2014	12:39	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		

1404127

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-307

	Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
05	LF008-30003	KAFB0311-GW-LF008-30003-REG	16 APR 2014	13:32	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
04	LF008-30003	KAFB0311-GW-LF008-30003-REG	16 APR 2014	13:32	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
03	LF008-30003	KAFB0311-GW-LF008-30003-REG	16 APR 2014	13:32	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		
	LF008-30003	KAFB0311-GW-LF008-30003-REG	16 APR 2014	13:32	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
	LF008-30003	KAFB0311-GW-LF008-30003-REG	16 APR 2014	13:32	250 mL HDPE	1	HNO3<pH 2	Total Calcium, Potassium, Magnesium, Sodium, and Lead by SW846 6010C			N		
05	LF008-80001	FIELDQC-BW-LF008-80001-ER	16 APR 2014	15:45	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF008-80001	FIELDQC-BW-LF008-80001-ER	16 APR 2014	15:45	250 mL HDPE	1	HNO3<pH 2	Total Calcium, Potassium, Magnesium, Sodium, and Lead by SW846 6010C			N		
06	LF008-80001	FIELDQC-BW-LF008-80001-ER	16 APR 2014	15:45	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
07	LF008-80003	FIELDQC-BW-LF008-80003-TB	16 APR 2014	08:00	40 mL VOA VIAL	2	HCl<pH 2	VOCs by SW846 8260B			N		

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

Cooler Received/Opened On: 04/18/14 0900 Workorder# 1404127

1. Tracking # 0990 (last 4 digits, FedEx)

   Courier: FedEx

2. Temperature of rep. sample or temp blank when opened: 0.1 °C + *correction factor (+0.1)* = 0.2 °C

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

   If yes, how many and where: 2. Front + back

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (initial) JTG

7. Were custody seals on containers: YES NO and Intact YES NO NA

   Were these signed and dated correctly? YES NO NA

8. Packing material used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13. a. Were VOA vials received? YES NO NA

    b. Was there any observable headspace present in any VOA vial? YES NO NA

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence # —

I certify that I unloaded the cooler and answered questions 7-14 (initial) JTG

15. a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

    b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) JTG

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) JTG

I certify that I attached a label with the unique LIMS number to each container (initial) JTG

I certify that I have performed a second check of the LIMS information against the COC to confirm accuracy (initial) _____

21. Were there Non-Conformance issues at login? YES NO Was a NCR generated? YES NO # _____

Additional Details:

WORK ORDER

Printed: 4/22/2014 2:05:18PM

1404127

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Report To:
Shaw Environmental, Inc.
Susan Huang
4005 Port Chicago Highway
Concord, CA 94520
Phone: (925) 288-2099
Fax: (925) 288-0888

Invoice To:
Shaw Environmental, Inc.
Accounts Payable
PO Box 98519
Baton Rouge, LA 70884
Phone :(225) 932-2500
Fax: (225) 932-2661

Due to Client: 05/09/2014 16:00 *This is the projected due date to the client, at the time of receipt, and is for report delivery via upload, and/or email, and/or shipment to meet TAT as setup by project*

Received By: Joshua T. Gross
Date Received: 04/18/2014 09:00
Logged In By: Joshua T. Gross
Date Logged In: 04/18/2014 13:05

Samples Received at: **0.2°C**

Custody Seals	Yes	Received On Ice	Yes
Containers Intact	Yes		
COC/Labels Agree	Yes		
Preservation Confirme	Yes		

Method	Test Code	Due	TAT	Expires	Comments
1404127-01 LF008-30001 [Water] Sampled 04/17/2014 12:39 Mountain 'Client Sample'					
E353.2	WC_NO3NO2_N_353.2	05/06/2014 14:00	15	05/15/2014 13:39	
SW6010C	MET_ICP_LOW6010C_FULL	05/06/2014 14:00	15	10/14/2014 13:39	May need to sub - Do not use for batch QC.
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/06/2014 14:00	15	04/24/2014 13:39	
SM2320B	WC_ALKALINITY_2320B	05/06/2014 14:00	15	05/01/2014 13:39	
SW7470A	MET_7470A_MERCURY	05/06/2014 14:00	15	05/15/2014 13:39	
SW8260B	VOC_8260B_REG	05/06/2014 14:00	15	05/01/2014 13:39	see versions
SW9056A	WC_ANIONS_9056A (Regular)	05/06/2014 14:00	15	05/15/2014 13:39	see versions
1404127-02 LF008-30001 [Water] Sampled 04/17/2014 12:39 Mountain 'Client Sample'					**Filtered**
SW7470A	MET_7470A_DIS_MERCURY	05/06/2014 14:00	15	05/15/2014 13:39	
SW6010C	MET_ICP_LOW6010C_FULL_DIS	05/06/2014 14:00	15	10/14/2014 13:39	May need to sub - Do not use for batch QC.
1404127-03 LF008-30003 [Water] Sampled 04/16/2014 13:32 Mountain 'Client Sample'					
SM2320B	WC_ALKALINITY_2320B	05/06/2014 14:00	15	04/30/2014 14:32	
SW7470A	MET_7470A_MERCURY	05/06/2014 14:00	15	05/14/2014 14:32	
SW8260B	VOC_8260B_REG	05/06/2014 14:00	15	04/30/2014 14:32	see versions
SW6010C	MET_ICP_LOW6010C_FULL	05/06/2014 14:00	15	10/13/2014 14:32	May need to sub - Do not use for batch QC.
SW9056A	WC_ANIONS_9056A (Regular)	05/06/2014 14:00	15	05/14/2014 14:32	see versions
E353.2	WC_NO3NO2_N_353.2	05/06/2014 14:00	15	05/14/2014 14:32	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/06/2014 14:00	15	04/23/2014 14:32	

1404127

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Method	Test Code	Due	TAT	Expires	Comments
1404127-04 LF008-30003 [Water] Sampled 04/16/2014 13:32 Mountain 'Client Sample'					**Filtered**
SW7470A	MET_7470A_DIS_MERCURY	05/06/2014 14:00	15	05/14/2014 14:32	
SW6010C	MET_ICP_LOW6010C_FULL_DIS	05/06/2014 14:00	15	10/13/2014 14:32	May need to sub - Do not use for batch QC.
1404127-05 LF008-80001 [Water] Sampled 04/16/2014 15:45 Mountain 'Client Sample'					
SW7470A	MET_7470A_MERCURY	05/06/2014 14:00	15	05/14/2014 16:45	
SW6010C	MET_ICP_LOW6010C_FULL	05/06/2014 14:00	15	10/13/2014 16:45	May need to sub - Do not use for batch QC.
SW8260B	VOC_8260B_REG	05/06/2014 14:00	15	04/30/2014 16:45	see versions
1404127-06 LF008-80003 [Water] Sampled 04/16/2014 08:00 Mountain 'Trip Blank'					**Fitered**
SW8260B	VOC_8260B_REG	05/06/2014 14:00	15	04/30/2014 09:00	see versions

ALS Environmental - CO (SUB)

1404127-01 LF008-30001 [Water] Sampled 04/17/2014 12:39 Mountain 'Client Sample'					
EPA 9315	SUB_RAD_Ra226	05/06/2014 14:00	15	10/14/2014 13:39	Radium 226
EPA 900.0	SUB_RAD_GrossAlpha	05/06/2014 14:00	15	05/01/2014 13:39	
EPA 900.0	SUB_RAD_GrossBeta	05/06/2014 14:00	15	05/01/2014 13:39	
1404127-03 LF008-30003 [Water] Sampled 04/16/2014 13:32 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossBeta	05/06/2014 14:00	15	04/30/2014 14:32	
EPA 9315	SUB_RAD_Ra226	05/06/2014 14:00	15	10/13/2014 14:32	Radium 226
EPA 900.0	SUB_RAD_GrossAlpha	05/06/2014 14:00	15	04/30/2014 14:32	

Test America St.Louis

1404127-01 LF008-30001 [Water] Sampled 04/17/2014 12:39 Mountain 'Client Sample'					
SUB_SPECIAL	SUB_SPECIALTY	05/06/2014 14:00	15	10/14/2014 13:39	Total Uranium by 200.8
1404127-02 LF008-30001 [Water] Sampled 04/17/2014 12:39 Mountain 'Client Sample'					**Filtered**
SUB_SPECIAL	SUB_SPECIALTY	05/06/2014 14:00	15	10/14/2014 13:39	Dissolved Uranium by 200.8
1404127-03 LF008-30003 [Water] Sampled 04/16/2014 13:32 Mountain 'Client Sample'					
SUB_SPECIAL	SUB_SPECIALTY	05/06/2014 14:00	15	10/13/2014 14:32	Total Uranium by 200.8
1404127-04 LF008-30003 [Water] Sampled 04/16/2014 13:32 Mountain 'Client Sample'					**Filtered**
SUB_SPECIAL	SUB_SPECIALTY	05/06/2014 14:00	15	10/13/2014 14:32	Dissolved Uranium by 200.8

WORK ORDER

Printed: 4/22/2014 2:05:18PM

1404127

Empirical Laboratories, LLC

Client:	**Shaw Environmental, Inc.**	**Project Manager:**	**Marianne J. Walker**
Project:	**Kirtland AFB (ECOS)**	**Project Number:**	**SHW_Kirtland_ECOS**

Method	Test Code	Due	TAT	Expires	Comments
Test America St.Louis					
1404127-05 LF008-80001 [Water] Sampled 04/16/2014 15:45 Mountain 'Client Sample'					
SUB_SPECIAL	SUB_SPECIALTY	05/06/2014 14:00	15	10/13/2014 16:45	Total Uranium by 200.8

Reviewed By

Date

SUBCONTRACT ORDER

Empirical Laboratories, LLC

1404127

SENDING LABORATORY:

Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Phone: 615.345.1115
Fax: 866.417.0548
Project Manager: Marianne J. Walker

RECEIVING LABORATORY:

ALS Environmental - CO (SUB)
225 Commerce Drive
Fort Collins, CO 80524
Phone :(970) 490-1511
Fax: (970) 490-1522

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: LF008-30001				
Reference No: 1404127-01	**Water**	**Sampled:04/17/2014 12:39**		
SUB_RAD_Ra226	05/06/2014 14:00	10/14/2014 13:39		Radium 226
SUB_RAD_GrossBeta	05/06/2014 14:00	05/01/2014 13:39		
SUB_RAD_GrossAlpha	05/06/2014 14:00	05/01/2014 13:39		
Containers Supplied:				
Sample ID: LF008-30003				
Reference No: 1404127-03	**Water**	**Sampled:04/16/2014 13:32**		
SUB_RAD_Ra226	05/06/2014 14:00	10/13/2014 14:32		Radium 226
SUB_RAD_GrossBeta	05/06/2014 14:00	04/30/2014 14:32		
SUB_RAD_GrossAlpha	05/06/2014 14:00	04/30/2014 14:32		
Containers Supplied:				

Released By	Date	Received By	Date

Released By	Date	Received By	Date

SUBCONTRACT ORDER

Empirical Laboratories, LLC

1404127

SENDING LABORATORY:

Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Phone: 615.345.1115
Fax: 866.417.0548
Project Manager: Marianne J. Walker

RECEIVING LABORATORY:

Test America St.Louis
13715 Rider Trail North
Earth City, MO 63045-1205
Phone :(314) 298-8566
Fax: (314) 298-8757

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: LF008-30001				
Reference No: 1404127-01	**Water**	**Sampled:04/17/2014 12:39**		
SUB_SPECIALTY	05/06/2014 14:00	10/14/2014 13:39		Total Uranium by 200.8
Containers Supplied:				
Sample ID: LF008-30001				
Reference No: 1404127-02	**Water**	**Sampled:04/17/2014 12:39**		**Filtered**
SUB_SPECIALTY	05/06/2014 14:00	10/14/2014 13:39		Dissolved Uranium by 200.8
Containers Supplied:				
Sample ID: LF008-30003				
Reference No: 1404127-03	**Water**	**Sampled:04/16/2014 13:32**		
SUB_SPECIALTY	05/06/2014 14:00	10/13/2014 14:32		Total Uranium by 200.8
Containers Supplied:				
Sample ID: LF008-30003				
Reference No: 1404127-04	**Water**	**Sampled:04/16/2014 13:32**		**Filtered**
SUB_SPECIALTY	05/06/2014 14:00	10/13/2014 14:32		Dissolved Uranium by 200.8
Containers Supplied:				
Sample ID: LF008-80001				
Reference No: 1404127-05	**Water**	**Sampled:04/16/2014 15:45**		
SUB_SPECIALTY	05/06/2014 14:00	10/13/2014 16:45		Total Uranium by 200.8
Containers Supplied:				

Released By	Date	Received By	Date

Released By	Date	Received By	Date

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404329
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:
Report Due Date: 5/10/2014

Client Sample Number	Lab Sample Number	Test Group	COC Number	Matrix	Date Collected	Time Collected
LF008-30001	1404329-1	1		WATER	17-Apr-14	12:39
LF008-30003	1404329-2	1		WATER	16-Apr-14	13:32

***Designated QC*

Analytical Methods by Test Group

Test Group: 1

GAB
Ra226_GF
Ra228

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404329

Reference Document No: 150577-311

Page 1 of 1

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 17 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371003

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification: Non-hazard ✓ Flammable ☐ Skin Irritant ☐ Poison B ☐ Radiological ☐ Unknown ☐

Sample Disposal: Return to Client ☐ Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) T Nager / Shaw	Date: 4/17/14 Time: 1600	1. Received By (Signature/Affiliation) C Trimble / ALS	Date: 4-18-14 Time: 0940
2. Relinquished By (Signature/Affiliation)	Date: Time:	2. Received By (Signature/Affiliation)	Date: Time:
3. Relinquished By (Signature/Affiliation)	Date: Time:	3. Received By (Signature/Affiliation)	Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF008-30001	KAFB0307-GW-LF008-30001-REG	17 APR 2014	12:39	1 L HDPE	4 TN ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
2	LF008-30003	KAFB0311-GW-LF008-30003-REG	16 APR 2014	13.32	1 L HDPE	4 TN ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ~~SHAW E&I~~ Empirical 4/18/14 Workorder No: 1404329

Project Manager: JE Initials: CDJ Date: 4-18-14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	~~NONE~~	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: (#2) #4	RAD ONLY	(YES)	NO

Cooler #:	1
Temperature (°C):	3.4
No. of custody seals on cooler:	2
DOT Survey/ Acceptance Information — External µR/hr reading:	11
Background µR/hr reading:	10

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: 4/18/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

Sample Delivery Group Assignment Form

CLIENT: Shaw Environmental, Inc.
PROJECT NAME: Kirtland AFB (ECOS)
SDG #: KirtlandECOS_012

QC LEVEL: Level III
Report Due: 5/9/2014 - 5/9/2014
Client Sample Count: 5

Lab ID	Client ID	Sampled	Received	Matrix	E 353.2	E 900.0	E 9315	SM 2320B	SM 2540C	SW 6020	SW 6010C	SW 7470A	SW 8260B	SW 9056A
1404127-01	LF008-30001	4/17/2014	4/18/2014	Water	X	X	X	X	X	X	X	X	X	X
1404127-02	LF008-30001	4/17/2014	4/18/2014	Water						DISS	DISS	DISS		
1404127-03	LF008-30003	4/16/2014	4/18/2014	Water	X	X	X	X	X	X	X	X	X	X
1404127-04	LF008-30003	4/16/2014	4/18/2014	Water						DISS	DISS	DISS		
1404127-05	LF008-80001	4/16/2014	4/18/2014	Water						X	X	X	X	
1404127-06	LF008-80003	4/16/2014	4/18/2014	Water									X	

Data for SW8260B Forms

Sample Extraction Data

Prep Method: 5030B-SW8260B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404127-01 [LF008-30001]	4D25001	5.00/5.00	5.00	5.00	1.00			04/25/14
1404127-03 [LF008-30003]	4D25001	5.00/5.00	5.00	5.00	1.00			04/25/14
1404127-05 [LF008-80001]	4D25001	5.00/5.00	5.00	5.00	1.00			04/25/14
1404127-06 [LF008-80003]	4D25001	5.00/5.00	5.00	5.00	1.00			04/25/14

ANALYSIS DATA SHEET

LF008-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-01	File ID:	0412701.D
Sampled:	04/17/14 12:39	Prepared:	04/25/14 14:34	Analyzed:	04/25/14 14:34
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	UQ
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-01	File ID:	0412701.D
Sampled:	04/17/14 12:39	Prepared:	04/25/14 14:34	Analyzed:	04/25/14 14:34
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene	**1.08**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.00	100	75 - 120	
Dibromofluoromethane	30.00	29.39	98.0	85 - 115	
1,2-Dichloroethane-d4	30.00	29.11	97.0	70 - 120	
Toluene-d8	30.00	28.84	96.1	85 - 120	

ANALYSIS DATA SHEET

LF008-30003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-03	File ID:	0412703.D
Sampled:	04/16/14 13:32	Prepared:	04/25/14 15:01	Analyzed:	04/25/14 15:01
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	UQ
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-30003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-03	File ID:	0412703.D
Sampled:	04/16/14 13:32	Prepared:	04/25/14 15:01	Analyzed:	04/25/14 15:01
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.34	101	75 - 120	
Dibromofluoromethane	30.00	28.99	96.6	85 - 115	
1,2-Dichloroethane-d4	30.00	29.44	98.1	70 - 120	
Toluene-d8	30.00	29.26	97.5	85 - 120	

ANALYSIS DATA SHEET

LF008-80001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-05	File ID:	0412705.D
Sampled:	04/16/14 15:45	Prepared:	04/25/14 15:29	Analyzed:	04/25/14 15:29
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	UQ
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-80001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-05	File ID:	0412705.D
Sampled:	04/16/14 15:45	Prepared:	04/25/14 15:29	Analyzed:	04/25/14 15:29
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.95	99.8	75 - 120	
Dibromofluoromethane	30.00	29.32	97.7	85 - 115	
1,2-Dichloroethane-d4	30.00	30.07	100	70 - 120	
Toluene-d8	30.00	29.13	97.1	85 - 120	

ANALYSIS DATA SHEET

LF008-80003

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404127-06 File ID: 0412706.D

Sampled: 04/16/14 08:00 Prepared: 04/25/14 12:44 Analyzed: 04/25/14 12:44

Solids: Preparation: 5030B Dilution: 1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	UQ
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-80003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-06	File ID:	0412706.D
Sampled:	04/16/14 08:00	Prepared:	04/25/14 12:44	Analyzed:	04/25/14 12:44
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.59	98.6	75 - 120	
Dibromofluoromethane	30.00	29.33	97.8	85 - 115	
1,2-Dichloroethane-d4	30.00	29.83	99.4	70 - 120	
Toluene-d8	30.00	29.25	97.5	85 - 120	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D11901	Instrument:	MS-VOA6
		Calibration:	4114001

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
Calibration Check (4D11901-CCV1) ug/L				Lab File ID: 0425CCV1.D		Analyzed: 04/25/14 07:39		
Bromofluorobenzene	30.00	102	80 - 120	11.9	11.9	0.0000	+/-1.000	
Dibromofluoromethane	30.00	99.3	80 - 120	6.56	6.56	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	99.6	80 - 120	7.06	7.06	0.0000	+/-1.000	
Toluene-d8	30.00	99.0	80 - 120	9.29	9.29	0.0000	+/-1.000	
Calibration Check (4D11901-CCV2) ug/L				Lab File ID: 0425CCV2.D		Analyzed: 04/25/14 08:07		
Bromofluorobenzene	30.00	101	80 - 120	11.89	11.9	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	98.3	80 - 120	6.56	6.56	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	99.9	80 - 120	7.07	7.06	0.0100	+/-1.000	
Toluene-d8	30.00	98.3	80 - 120	9.28	9.29	-0.0100	+/-1.000	
LCS (4D25001-BS1) ug/L				Lab File ID: 0425LCS1.D		Analyzed: 04/25/14 08:34		
Bromofluorobenzene	30.00	98.8	75 - 120	11.89	11.9	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	99.2	85 - 115	6.55	6.56	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	100	70 - 120	7.06	7.06	0.0000	+/-1.000	
Toluene-d8	30.00	98.6	85 - 120	9.28	9.29	-0.0100	+/-1.000	
Blank (4D25001-BLK1) ug/L				Lab File ID: 0425BLK1.D		Analyzed: 04/25/14 10:26		
Bromofluorobenzene	30.00	100	75 - 120	11.89	11.9	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	99.3	85 - 115	6.55	6.56	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	98.8	70 - 120	7.06	7.06	0.0000	+/-1.000	
Toluene-d8	30.00	98.3	85 - 120	9.27	9.29	-0.0200	+/-1.000	
LF008-80003 (1404127-06) ug/L				Lab File ID: 0412706.D		Analyzed: 04/25/14 12:44		
Bromofluorobenzene	30.00	98.6	75 - 120	11.89	11.9	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	97.8	85 - 115	6.55	6.56	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	99.4	70 - 120	7.06	7.06	0.0000	+/-1.000	
Toluene-d8	30.00	97.5	85 - 120	9.27	9.29	-0.0200	+/-1.000	
LF008-30001 (1404127-01) ug/L				Lab File ID: 0412701.D		Analyzed: 04/25/14 14:34		
Bromofluorobenzene	30.00	100	75 - 120	11.89	11.9	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	98.0	85 - 115	6.55	6.56	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	97.0	70 - 120	7.06	7.06	0.0000	+/-1.000	
Toluene-d8	30.00	96.1	85 - 120	9.28	9.29	-0.0100	+/-1.000	
LF008-30003 (1404127-03) ug/L				Lab File ID: 0412703.D		Analyzed: 04/25/14 15:01		
Bromofluorobenzene	30.00	101	75 - 120	11.89	11.9	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	96.6	85 - 115	6.55	6.56	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	98.1	70 - 120	7.05	7.06	-0.0100	+/-1.000	
Toluene-d8	30.00	97.5	85 - 120	9.28	9.29	-0.0100	+/-1.000	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D11901	Instrument:	MS-VOA6
		Calibration:	4114001

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
LF008-80001 (1404127-05) ug/L				Lab File ID: 0412705.D		Analyzed: 04/25/14 15:29		
Bromofluorobenzene	30.00	99.8	75 - 120	11.89	11.9	-0.0100	+/-1.000	
Dibromofluoromethane	30.00	97.7	85 - 115	6.56	6.56	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	100	70 - 120	7.06	7.06	0.0000	+/-1.000	
Toluene-d8	30.00	97.1	85 - 120	9.28	9.29	-0.0100	+/-1.000	

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D25001	Laboratory ID:	4D25001-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Acetone	**100.0**	**162**	**162**	**40 - 140**
Benzene	50.00	47.1	94.3	80 - 120
Bromobenzene	50.00	46.7	93.3	75 - 125
Bromochloromethane	50.00	43.2	86.5	65 - 130
Bromodichloromethane	50.00	47.8	95.5	75 - 120
Bromoform	**50.00**	**34.3**	**68.7**	**70 - 130**
Bromomethane	50.00	41.9	83.8	30 - 145
n-Butylbenzene	50.00	48.7	97.4	70 - 135
2-Butanone	100.0	117	117	30 - 150
sec-Butylbenzene	50.00	51.1	102	70 - 125
tert-Butylbenzene	50.00	50.5	101	70 - 130
Carbon disulfide	50.00	33.3	66.5	35 - 160
Carbon tetrachloride	50.00	42.0	84.1	65 - 140
Chlorobenzene	50.00	50.2	100	80 - 120
Chloroethane	50.00	49.8	99.6	60 - 135
Chloroform	50.00	38.7	77.4	65 - 135
Chloromethane	50.00	50.6	101	40 - 125
2-Chlorotoluene	50.00	48.8	97.6	75 - 125
4-Chlorotoluene	50.00	49.1	98.2	75 - 130
Dibromochloromethane	50.00	39.9	79.8	60 - 135
1,2-Dibromo-3-chloropropane	50.00	40.5	81.1	50 - 130
1,2-Dibromoethane (EDB)	50.00	49.4	98.8	80 - 120
Dibromomethane	50.00	43.8	87.6	75 - 125
1,2-Dichlorobenzene	50.00	49.9	99.7	70 - 120
1,3-Dichlorobenzene	50.00	49.4	98.8	75 - 125
1,4-Dichlorobenzene	50.00	47.8	95.6	75 - 125
Dichlorodifluoromethane	50.00	52.1	104	30 - 155
1,1-Dichloroethane	50.00	43.8	87.7	70 - 135
1,2-Dichloroethane	50.00	47.1	94.1	70 - 130
1,1-Dichloroethene	50.00	41.9	83.8	70 - 130

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D25001	Laboratory ID:	4D25001-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
cis-1,2-Dichloroethene	50.00	46.3	92.7	70 - 125
trans-1,2-Dichloroethene	50.00	46.5	93.0	60 - 140
1,2-Dichloroethene (total)	100.0	92.8	92.8	75 - 125
1,2-Dichloropropane	50.00	47.6	95.2	75 - 125
1,3-Dichloropropane	50.00	48.6	97.3	75 - 125
2,2-Dichloropropane	50.00	42.8	85.6	70 - 135
1,1-Dichloropropene	50.00	48.2	96.5	75 - 130
cis-1,3-Dichloropropene	50.00	53.6	107	70 - 130
trans-1,3-Dichloropropene	50.00	48.5	96.9	55 - 140
1,3-Dichloropropene (total)	100.0	102	102	55 - 140
Ethylbenzene	50.00	49.2	98.3	75 - 125
Hexachlorobutadiene	50.00	46.9	93.7	50 - 140
2-Hexanone	100.0	124	124	55 - 130
Isopropylbenzene	50.00	54.4	109	75 - 125
p-Isopropyltoluene	50.00	46.0	91.9	75 - 130
Methylene chloride	50.00	39.8	79.7	55 - 140
Naphthalene	50.00	47.4	94.7	55 - 140
4-Methyl-2-pentanone	100.0	105	105	60 - 135
Methyl t-Butyl Ether	50.00	47.3	94.5	65 - 125
n-Propylbenzene	50.00	50.0	100	70 - 130
Styrene	50.00	51.9	104	65 - 135
1,1,2,2-Tetrachloroethane	50.00	47.8	95.6	65 - 130
1,1,1,2-Tetrachloroethane	50.00	49.1	98.2	80 - 130
Tetrachloroethene	50.00	44.4	88.7	45 - 150
Toluene	50.00	49.3	98.6	75 - 120
1,2,3-Trichlorobenzene	50.00	50.7	101	55 - 140
1,2,4-Trichlorobenzene	50.00	50.5	101	65 - 135
1,1,2-Trichloroethane	50.00	49.6	99.2	75 - 125
1,1,1-Trichloroethane	50.00	44.3	88.5	65 - 130
Trichloroethene	50.00	47.5	95.1	70 - 125

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D25001	Laboratory ID:	4D25001-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Trichlorofluoromethane	50.00	50.0	99.9	60 - 145
1,2,3-Trichloropropane	50.00	48.6	97.2	75 - 125
1,3,5-Trimethylbenzene	50.00	49.8	99.5	75 - 130
1,2,4-Trimethylbenzene	50.00	49.2	98.4	75 - 130
Vinyl chloride	50.00	52.6	105	50 - 145
m,p-Xylene	100.0	103	103	75 - 130
o-Xylene	50.00	49.8	99.7	80 - 120
Xylenes (total)	150.0	152	102	75 - 130

PREPARATION BATCH SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D25001 Batch Matrix: Water Preparation: 5030B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30001	1404127-01	04/25/14 14:34	5.00	5.00
LF008-30003	1404127-03	04/25/14 15:01	5.00	5.00
LF008-80001	1404127-05	04/25/14 15:29	5.00	5.00
LF008-80003	1404127-06	04/25/14 12:44	5.00	5.00
Blank	4D25001-BLK1	04/25/14 10:26	5.00	5.00
LCS	4D25001-BS1	04/25/14 08:34	5.00	5.00

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D25001-BLK1 File ID: 0425BLK1.D

Sampled: Prepared: Analyzed: 04/25/14 10:26

Solids: Preparation: 5030B Dilution:

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	UQ
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D25001-BLK1 File ID: 0425BLK1.D

Sampled: Prepared: Analyzed: 04/25/14 10:26

Solids: Preparation: 5030B Dilution:

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.08	100	75 - 120	
Dibromofluoromethane	30.00	29.78	99.3	85 - 115	
1,2-Dichloroethane-d4	30.00	29.63	98.8	70 - 120	
Toluene-d8	30.00	29.49	98.3	85 - 120	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D25001-BS1 File ID: 0425LCS1.D

Sampled: Prepared: Analyzed: 04/25/14 08:34

Solids: Preparation: 5030B Dilution:

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**162**	2.50	5.00	10.0	
71-43-2	Benzene	**47.1**	0.250	0.500	1.00	
108-86-1	Bromobenzene	**46.7**	0.250	0.500	1.00	
74-97-5	Bromochloromethane	**43.2**	0.250	0.500	1.00	
75-27-4	Bromodichloromethane	**47.8**	0.250	0.500	1.00	
75-25-2	Bromoform	**34.3**	0.250	0.500	1.00	
74-83-9	Bromomethane	**41.9**	0.500	1.00	2.00	
104-51-8	n-Butylbenzene	**48.7**	0.250	0.500	1.00	
78-93-3	2-Butanone	**117**	2.50	5.00	10.0	
135-98-8	sec-Butylbenzene	**51.1**	0.250	0.500	1.00	
98-06-6	tert-Butylbenzene	**50.5**	0.250	0.500	1.00	
75-15-0	Carbon disulfide	**33.3**	0.250	0.500	1.00	
56-23-5	Carbon tetrachloride	**42.0**	0.250	0.500	1.00	
108-90-7	Chlorobenzene	**50.2**	0.250	0.500	1.00	
75-00-3	Chloroethane	**49.8**	0.500	1.00	2.00	
67-66-3	Chloroform	**38.7**	0.250	0.500	1.00	
74-87-3	Chloromethane	**50.6**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene	**48.8**	0.250	0.500	1.00	
106-43-4	4-Chlorotoluene	**49.1**	0.250	0.500	1.00	
124-48-1	Dibromochloromethane	**39.9**	0.250	0.500	1.00	
96-12-8	1,2-Dibromo-3-chloropropane	**40.5**	0.500	1.00	2.00	
106-93-4	1,2-Dibromoethane (EDB)	**49.4**	0.250	0.500	1.00	
74-95-3	Dibromomethane	**43.8**	0.250	0.500	1.00	
95-50-1	1,2-Dichlorobenzene	**49.9**	0.250	0.500	1.00	
541-73-1	1,3-Dichlorobenzene	**49.4**	0.250	0.500	1.00	
106-46-7	1,4-Dichlorobenzene	**47.8**	0.250	0.500	1.00	
75-71-8	Dichlorodifluoromethane	**52.1**	0.500	1.00	2.00	
75-34-3	1,1-Dichloroethane	**43.8**	0.250	0.500	1.00	
107-06-2	1,2-Dichloroethane	**47.1**	0.250	0.500	1.00	
75-35-4	1,1-Dichloroethene	**41.9**	0.250	0.500	1.00	
156-59-2	cis-1,2-Dichloroethene	**46.3**	0.250	0.500	1.00	
156-60-5	trans-1,2-Dichloroethene	**46.5**	0.250	0.500	1.00	
540-59-0	1,2-Dichloroethene (total)	**92.8**	0.500	1.00	2.00	
78-87-5	1,2-Dichloropropane	**47.6**	0.250	0.500	1.00	
142-28-9	1,3-Dichloropropane	**48.6**	0.250	0.500	1.00	
594-20-7	2,2-Dichloropropane	**42.8**	0.250	0.500	1.00	
563-58-6	1,1-Dichloropropene	**48.2**	0.250	0.500	1.00	
10061-01-5	cis-1,3-Dichloropropene	**53.6**	0.250	0.500	1.00	
10061-02-6	trans-1,3-Dichloropropene	**48.5**	0.250	0.500	1.00	
542-75-6	1,3-Dichloropropene (total)	**102**	0.500	1.00	2.00	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4D25001-BS1 File ID: 0425LCS1.D

Sampled: Prepared: Analyzed: 04/25/14 08:34

Solids: Preparation: 5030B Dilution:

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene	**49.2**	0.250	0.500	1.00	
87-68-3	Hexachlorobutadiene	**46.9**	0.250	0.500	1.00	
591-78-6	2-Hexanone	**124**	1.25	2.50	5.00	
98-82-8	Isopropylbenzene	**54.4**	0.250	0.500	1.00	
99-87-6	p-Isopropyltoluene	**46.0**	0.250	0.500	1.00	
75-09-2	Methylene chloride	**39.8**	0.500	1.00	2.00	
91-20-3	Naphthalene	**47.4**	0.250	0.500	1.00	
108-10-1	4-Methyl-2-pentanone	**105**	1.25	2.50	5.00	
1634-04-4	Methyl t-Butyl Ether	**47.3**	0.250	0.500	1.00	
103-65-1	n-Propylbenzene	**50.0**	0.250	0.500	1.00	
100-42-5	Styrene	**51.9**	0.250	0.500	1.00	
79-34-5	1,1,2,2-Tetrachloroethane	**47.8**	0.250	0.500	1.00	
630-20-6	1,1,1,2-Tetrachloroethane	**49.1**	0.250	0.500	1.00	
127-18-4	Tetrachloroethene	**44.4**	0.250	0.500	1.00	
108-88-3	Toluene	**49.3**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene	**50.7**	0.250	0.500	1.00	
120-82-1	1,2,4-Trichlorobenzene	**50.5**	0.250	0.500	1.00	
79-00-5	1,1,2-Trichloroethane	**49.6**	0.250	0.500	1.00	
71-55-6	1,1,1-Trichloroethane	**44.3**	0.250	0.500	1.00	
79-01-6	Trichloroethene	**47.5**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane	**50.0**	0.500	1.00	2.00	
96-18-4	1,2,3-Trichloropropane	**48.6**	0.500	1.00	2.00	
108-67-8	1,3,5-Trimethylbenzene	**49.8**	0.250	0.500	1.00	
95-63-6	1,2,4-Trimethylbenzene	**49.2**	0.250	0.500	1.00	
75-01-4	Vinyl chloride	**52.6**	0.250	0.500	1.00	
108-38-3/106-42-	m,p-Xylene	**103**	0.500	1.00	2.00	
95-47-6	o-Xylene	**49.8**	0.250	0.500	1.00	
1330-20-7	Xylenes (total)	**152**	0.750	1.50	3.00	

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.63	98.8	75 - 120	
Dibromofluoromethane	30.00	29.76	99.2	85 - 115	
1,2-Dichloroethane-d4	30.00	29.99	100	70 - 120	
Toluene-d8	30.00	29.57	98.6	85 - 120	

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0423TU1.D	Injection Date:	04/23/14
Instrument ID:	MS-VOA6	Injection Time:	10:09
Sequence:	4D11403	Lab Sample ID:	4D11403-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	28.1	PASS
75	30 - 60% of 95	49.8	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.58	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	63	PASS
175	5 - 9% of 174	7.18	PASS
176	95 - 101% of 174	96.6	PASS
177	5 - 9% of 176	6.56	PASS

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0425TU1.D	Injection Date:	04/25/14
Instrument ID:	MS-VOA6	Injection Time:	07:10
Sequence:	4D11901	Lab Sample ID:	4D11901-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	27.6	PASS
75	30 - 60% of 95	50	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.48	PASS
173	Less than 2% of 174	0.391	PASS
174	50 - 200% of 95	66.6	PASS
175	5 - 9% of 174	7.44	PASS
176	95 - 101% of 174	98	PASS
177	5 - 9% of 176	6.19	PASS

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D11403	Instrument:	MS-VOA6
Calibration:	4114001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4D11403-TUN1	0423TU1.D	04/23/14 10:09
Cal Standard	4D11403-CAL1	0423CAL1.D	04/23/14 11:33
Cal Standard	4D11403-CAL2	0423CAL2.D	04/23/14 12:01
Cal Standard	4D11403-CAL3	0423CAL3.D	04/23/14 12:28
Cal Standard	4D11403-CAL4	0423CAL4.D	04/23/14 12:56
Cal Standard	4D11403-CAL5	0423CAL5.D	04/23/14 13:23
Cal Standard	4D11403-CAL6	0423CAL6.D	04/23/14 13:51
Cal Standard	4D11403-CAL7	0423CAL7.D	04/23/14 14:18
Cal Standard	4D11403-CAL8	0423CAL8.D	04/23/14 14:46
Cal Standard	4D11403-CAL9	0423CAL9.D	04/23/14 15:13
Initial Cal Check	4D11403-ICV2	0423ICV2.D	04/23/14 16:36

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D11901	Instrument:	MS-VOA6
Calibration:	4114001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4D11901-TUN1	0425TU1.D	04/25/14 07:10
Calibration Check	4D11901-CCV1	0425CCV1.D	04/25/14 07:39
Calibration Check	4D11901-CCV2	0425CCV2.D	04/25/14 08:07
LCS	4D25001-BS1	0425LCS1.D	04/25/14 08:34
Blank	4D25001-BLK1	0425BLK1.D	04/25/14 10:26
LF008-80003	1404127-06	0412706.D	04/25/14 12:44
LF008-30001	1404127-01	0412701.D	04/25/14 14:34
LF008-30003	1404127-03	0412703.D	04/25/14 15:01
LF008-80001	1404127-05	0412705.D	04/25/14 15:29

INTERNAL STANDARD AREA AND RT SUMMARY
SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D11901	Instrument:	MS-VOA6
		Calibration:	4114001

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (4D11901-CCV1)			Lab File ID: 0425CCV1.D				Analyzed: 04/25/14 07:39		
Fluorobenzene	1016568	7.59	1183182	7.59	86	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	428324	10.71	486002	10.7	88	50 - 200	0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	288770	13.09	328521	13.08	88	50 - 200	0.0100	+/-0.50	
Calibration Check (4D11901-CCV2)			Lab File ID: 0425CCV2.D				Analyzed: 04/25/14 08:07		
Fluorobenzene	1046736	7.59	1183182	7.59	88	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	436906	10.7	486002	10.71	90	50 - 200	-0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	312570	13.09	328521	13.09	95	50 - 200	0.0000	+/-0.50	
LCS (4D25001-BS1)			Lab File ID: 0425LCS1.D				Analyzed: 04/25/14 08:34		
Fluorobenzene	1021511	7.59	1183182	7.59	86	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	430002	10.7	486002	10.71	88	50 - 200	-0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	294166	13.08	328521	13.09	90	50 - 200	-0.0100	+/-0.50	
Blank (4D25001-BLK1)			Lab File ID: 0425BLK1.D				Analyzed: 04/25/14 10:26		
Fluorobenzene	1052615	7.59	1183182	7.59	89	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	443549	10.7	486002	10.71	91	50 - 200	-0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	309403	13.08	328521	13.09	94	50 - 200	-0.0100	+/-0.50	
LF008-80003 (1404127-06)			Lab File ID: 0412706.D				Analyzed: 04/25/14 12:44		
Fluorobenzene	1023003	7.59	1183182	7.59	86	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	436899	10.7	486002	10.71	90	50 - 200	-0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	303848	13.08	328521	13.09	92	50 - 200	-0.0100	+/-0.50	
LF008-30001 (1404127-01)			Lab File ID: 0412701.D				Analyzed: 04/25/14 14:34		
Fluorobenzene	1019647	7.59	1183182	7.59	86	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	435137	10.7	486002	10.71	90	50 - 200	-0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	300073	13.08	328521	13.09	91	50 - 200	-0.0100	+/-0.50	
LF008-30003 (1404127-03)			Lab File ID: 0412703.D				Analyzed: 04/25/14 15:01		
Fluorobenzene	1019518	7.58	1183182	7.59	86	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	425161	10.7	486002	10.71	87	50 - 200	-0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	295086	13.08	328521	13.09	90	50 - 200	-0.0100	+/-0.50	
LF008-80001 (1404127-05)			Lab File ID: 0412705.D				Analyzed: 04/25/14 15:29		
Fluorobenzene	1008270	7.59	1183182	7.59	85	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	425760	10.7	486002	10.71	88	50 - 200	-0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	294597	13.08	328521	13.09	90	50 - 200	-0.0100	+/-0.50	

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4114001	Instrument:	MS-VOA6
Matrix:	Water	Calibration Dates:	4/23/14 11:33 4/23/14 15:13

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone	1	~~0.4307517~~	2	0.1347205	4	0.1516318	10	0.1408272	20	0.1221612	100	0.1465683
Acetonitrile	5	~~0.1129777~~	10	8.067264E-02	20	0.1042966	50	8.449833E-02	100	6.921725E-02	500	7.927469E-02
Acrolein	2.5	5.560763E-02	5	4.834022E-02	10	5.937926E-02	25	6.036128E-02	50	4.300474E-02	250	5.803196E-02
Acrylonitrile	2.5	0.1469037	5	0.1288807	10	0.1607153	25	0.1608088	50	0.1309862	250	0.1581205
Benzene	0.5	1.193538	1	1.09358	2	1.220111	5	1.170568	10	1.088265	50	1.203594
Allyl chloride	0.5	0.1660418	1	0.1425909	2	0.1528163	5	0.1548973	10	0.1350001	50	0.1647796
Bromobenzene	0.5	0.8047143	1	0.8368227	2	0.864321	5	0.8723892	10	0.7429484	50	0.8743772
Bromochloromethane	0.5	0.1495889	1	0.1353566	2	0.1522523	5	0.1605153	10	0.1385213	50	0.1541253
Tert-Amyl Methyl Ether	0.5	0.8625774	1	0.7789367	2	0.9056923	5	0.8597948	10	0.7330845	50	0.8804698
Bromodichloromethane	0.5	0.4353409	1	0.3761846	2	0.4033363	5	0.4068431	10	0.3559065	50	0.4377623
Bromoform	0.5	0.2423596	1	0.2276011	2	0.2665561	5	0.288251	10	0.2486015	50	0.3733648
Bromomethane	0.5	~~0.2996661~~	1	8.484111E-02	2	7.724794E-02	5	8.227737E-02	10	0.1299553	50	9.603477E-02
Bromofluorobenzene	30	0.882715	35	0.8408314	40	0.8602803	50	0.8661401	60	0.8517816	70	0.8525412
n-Butylbenzene	0.5	2.525385	1	2.525838	2	2.694306	5	2.639088	10	2.339729	50	2.649517
2-Butanone	1	0.2259457	2	0.2109677	4	0.2544243	10	0.2374142	20	0.2090425	100	0.2171601
sec-Butylbenzene	0.5	3.008547	1	2.983574	2	3.229674	5	3.192025	10	2.820649	50	3.212084
tert-Butylbenzene	0.5	2.136287	1	2.070419	2	2.261409	5	2.25605	10	1.969694	50	2.265665
Carbon disulfide	0.5	1.177622	1	1.14634	2	1.201711	5	1.200362	10	1.093046	50	1.303921
Carbon tetrachloride	0.5	0.2706661	1	0.2660234	2	0.2800128	5	0.2862284	10	0.2620578	50	0.3161141
Chlorobenzene	0.5	1.464349	1	1.503543	2	1.632902	5	1.557044	10	1.379263	50	1.617663
Chloroethane	0.5	0.1256176	1	0.1902127	2	8.778915E-02	5	9.344269E-02	10	8.655709E-02	50	8.438877E-02
Chloroform	0.5	0.8638956	1	0.6936715	2	0.7001448	5	0.601762	10	0.5480802	50	0.5707515
2-Chloroethyl vinyl ether	1	0.1814449	2	0.1604023	4	0.1984281	10	0.2155955	20	0.1803772	100	0.2053306
Chloromethane	0.5	0.7162595	1	0.5850818	2	0.6375117	5	0.6141831	10	0.5982664	50	0.6734496
1-Chlorohexane	0.5	1.029999	1	0.919537	2	0.8734828	5	0.8355508	10	0.7194456	50	0.8211348
2-Chlorotoluene	0.5	2.647468	1	2.614191	2	2.882168	5	2.677754	10	2.338045	50	2.716143
Chloroprene	0.5	0.6876501	1	0.5434221	2	0.5746028	5	0.5979142	10	0.5879274	50	0.5880796
4-Chlorotoluene	0.5	3.060416	1	2.934117	2	3.222001	5	3.118961	10	2.712127	50	3.115457
Cyclohexane	0.5	0.6622142	1	0.5856805	2	0.617971	5	0.5882971	10	0.5453296	50	0.5686111
Dibromochloromethane	0.5	0.4903419	1	0.4630301	2	0.5154193	5	0.5164022	10	0.4640927	50	0.6334204
1,2-Dibromo-3-chloropropane	0.5	9.222943E-02	1	0.1081876	2	0.1194185	5	0.1453039	10	0.1260743	50	0.1580347

INITIAL CALIBRATION DATA

SW8260B

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Calibration: 4114001
Instrument: MS-VOA6
Matrix: Water
Calibration Dates: 4/23/14 11:33 4/23/14 15:13

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,2-Dibromoethane (EDB)	0.5	0.5962352	1	0.6376153	2	0.7040732	5	0.6890422	10	0.5839836	50	0.6985646
Dibromomethane	0.5	0.2400062	1	0.2241891	2	0.2393395	5	0.2464741	10	0.2110337	50	0.2404201
1,2-Dichlorobenzene	0.5	1.37677	1	1.312934	2	1.440304	5	1.428685	10	1.181966	50	1.411071
1,3-Dichlorobenzene	0.5	1.451488	1	1.394676	2	1.50632	5	1.484935	10	1.272144	50	1.485188
trans-1,4-Dichloro-2-butene	0.5	0.4568109	1	0.3495491	2	0.4140418	5	0.4060215	10	0.3395948	50	0.3991662
cis-1,4-Dichloro-2-butene	0.5	0.4409668	1	0.3605396	2	0.4383156	5	0.4267939	10	0.3565891	50	0.4241075
1,4-Dichlorobenzene	0.5	1.473503	1	1.418803	2	1.510091	5	1.497823	10	1.300394	50	1.522565
Dichlorodifluoromethane	0.5	0.3758763	1	0.3189836	2	0.3211875	5	0.3206019	10	0.3551534	50	0.3978366
1,1-Dichloroethane	0.5	0.6725155	1	0.6336516	2	0.6596721	5	0.6312084	10	0.5795759	50	0.6387405
1,2-Dichloroethane	0.5	0.5436268	1	0.4703056	2	0.5708927	5	0.5136196	10	0.4859117	50	0.4938703
1,1-Dichloroethene	0.5	0.2676392	1	0.2498335	2	0.2661375	5	0.2568022	10	0.2286893	50	0.2640185
cis-1,2-Dichloroethene	0.5	0.313629	1	0.2868782	2	0.3513948	5	0.3429527	10	0.3083188	50	0.328279
trans-1,2-Dichloroethene	0.5	0.2967856	1	0.275428	2	0.2987764	5	0.3006163	10	0.2593695	50	0.3117262
1,2-Dichloroethene (total)	1	0.3052073	2	0.2811531	4	0.3250856	10	0.3217845	20	0.2838442	100	0.3200026
1,2-Dichloropropane	0.5	0.3848595	1	0.3546563	2	0.3971444	5	0.3885872	10	0.3441661	50	0.3944749
1,3-Dichloropropane	0.5	1.125233	1	1.051958	2	1.139353	5	1.152079	10	0.9816673	50	1.133838
2,2-Dichloropropane	0.5	0.4647314	1	0.4186925	2	0.4593137	5	0.4215587	10	0.3945168	50	0.3987953
1,1-Dichloropropene	0.5	0.4562853	1	0.4211621	2	0.4745929	5	0.445261	10	0.4189528	50	0.4394878
cis-1,3-Dichloropropene	0.5	0.4969535	1	0.4779141	2	0.4971167	5	0.5078957	10	0.4383564	50	0.5167879
trans-1,3-Dichloropropene	0.5	1.125584	1	0.9959773	2	1.127478	5	1.109147	10	0.9560486	50	1.132553
Diisopropyl Ether	0.5	1.790429	1	1.59629	2	1.838822	5	1.696381	10	1.578773	50	1.662806
1,4-Dioxane	10	2.450837E-03	20	2.090469E-03	40	2.783207E-03	100	3.121144E-03	200	2.534619E-03	1000	2.945142E-03
Ethylbenzene	0.5	2.812731	1	2.689939	2	2.810027	5	2.785881	10	2.449432	50	2.902141
Ethyl tert-Butyl Ether	0.5	1.174156	1	1.049974	2	1.237183	5	1.170477	10	1.073936	50	1.133593
Ethyl Methacrylate	0.5	0.919889	1	0.7888354	2	0.8801065	5	0.9005353	10	0.7496063	50	0.9011534
Hexachlorobutadiene	0.5	0.3647482	1	0.3329775	2	0.3474622	5	0.3247486	10	0.292899	50	0.3379479
Hexane	0.5	0.3829555	1	0.3719438	2	0.3560199	5	0.3233907	10	0.3061568	50	0.3332787
2-Hexanone	1	0.6262812	2	0.5717307	4	0.6637497	10	0.6567337	20	0.5373176	100	0.6247217
Iodomethane	0.5	0.2564591	1	0.2682935	2	0.304868	5	0.3581373	10	0.3297898	50	0.4346831
Isobutyl alcohol	10	8.404613E-03	20	8.209705E-03	40	9.88944E-03	100	9.745191E-03	200	8.529901E-03	1000	9.557289E-03
Isopropylbenzene	0.5	2.060818	1	2.045801	2	2.170728	5	2.166921	10	1.887618	50	2.230311

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4114001	Instrument:	MS-VOA6
Matrix:	Water	Calibration Dates:	4/23/14 11:33 4/23/14 15:13

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
p-Isopropyltoluene	0.5	2.32625	1	2.202133	2	2.443679	5	2.414722	10	2.102891	50	2.437568
Methacrylonitrile	5	0.329745	10	0.2763385	20	0.3440911	50	0.3197899	100	0.2961911	500	0.2808713
Methylene chloride	0.5	~~0.6043119~~	1	0.4755443	2	0.4178257	5	0.391603	10	0.3287748	50	0.3847979
Methyl Acetate	0.5	0.3747535	1	0.3255943	2	0.3625627	5	0.3698422	10	0.3174209	50	0.3698538
Methylcyclohexane	0.5	0.3331576	1	0.3476964	2	0.351495	5	0.3583138	10	0.3184084	50	0.3544032
Naphthalene	0.5	2.006199	1	1.876884	2	2.202371	5	2.297766	10	1.918385	50	2.249193
Methyl Methacrylate	0.5	0.4649755	1	0.3547311	2	0.3993379	5	0.4018706	10	0.328902	50	0.3850753
4-Methyl-2-pentanone	1	0.3987248	2	0.333315	4	0.4699678	10	0.4252578	20	0.3399966	100	0.3958663
Methyl t-Butyl Ether	0.5	0.7911028	1	0.727099	2	0.8566963	5	0.8170247	10	0.6835542	50	0.8341347
n-Propylbenzene	0.5	4.193854	1	4.146076	2	4.41753	5	4.31879	10	3.823813	50	4.469286
Propionitrile	5	5.302009E-02	10	4.638446E-02	20	5.319867E-02	50	5.904757E-02	100	4.500121E-02	500	4.898014E-02
Styrene	0.5	1.526432	1	1.429949	2	1.598412	5	1.628016	10	1.392783	50	1.664519
1,1,2,2-Tetrachloroethane	0.5	1.206154	1	1.126954	2	1.293057	5	1.265574	10	1.065566	50	1.259197
1,1,1,2-Tetrachloroethane	0.5	0.4441893	1	0.4050328	2	0.4741858	5	0.4679929	10	0.4220215	50	0.5362038
tert-Butyl alcohol	2.5	1.617943E-02	5	1.732245E-02	10	2.583037E-02	25	2.575385E-02	50	1.860566E-02	250	2.362162E-02
Tetrachloroethene	0.5	0.5374316	1	0.5416053	2	0.5777172	5	0.5609939	10	0.4892942	50	0.5753276
Toluene	0.5	1.478054	1	1.429179	2	1.538769	5	1.498521	10	1.316097	50	1.51583
1,2,3-Trichlorobenzene	0.5	0.7798641	1	0.7888252	2	0.8716898	5	0.8480005	10	0.7407403	50	0.8671007
1,2,4-Trichlorobenzene	0.5	0.8088838	1	0.8256605	2	0.8962237	5	0.9004113	10	0.7966636	50	0.9517675
1,1,2-Trichloroethane	0.5	0.6012721	1	0.5401228	2	0.592128	5	0.5895321	10	0.4955931	50	0.5809878
1,1,1-Trichloroethane	0.5	0.3936962	1	0.3869613	2	0.4321397	5	0.3963334	10	0.3724374	50	0.4066903
Tetrahydrofuran	0.5	2.568008E-02	1	2.891233E-02	2	3.523348E-02	5	3.341525E-02	10	2.923141E-02	50	3.187029E-02
Trichloroethene	0.5	0.3453141	1	0.3070345	2	0.337908	5	0.3243791	10	0.2849028	50	0.3264354
Trichlorofluoromethane	0.5	0.3793915	1	0.4516211	2	0.4548516	5	0.4575207	10	0.3676395	50	0.4806892
1,2,3-Trichloropropane	0.5	0.2127236	1	0.1604713	2	0.192652	5	0.1925823	10	0.1578783	50	0.1856647
1,3,5-Trimethylbenzene	0.5	2.675988	1	2.508751	2	2.833924	5	2.78273	10	2.397947	50	2.768225
1,2,4-Trimethylbenzene	0.5	2.739364	1	2.702201	2	2.909043	5	2.916825	10	2.532656	50	2.903333
1,1,2-Trichloro-1,2,2-trifluoroethar	0.5	0.2390786	1	0.2506816	2	0.2392643	5	0.2532015	10	0.2326294	50	0.2652517
Vinyl chloride	0.5	0.4334368	1	0.3742638	2	0.415181	5	0.3396495	10	0.3416798	50	0.3134848
m,p-Xylene	1	2.113999	2	2.038566	4	2.20146	10	2.157519	20	1.873299	100	2.227334
o-Xylene	0.5	2.150898	1	2.136592	2	2.304514	5	2.230009	10	1.921428	50	2.203283

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4114001	Instrument:	MS-VOA6
Matrix:	Water	Calibration Dates:	4/23/14 11:33 4/23/14 15:13

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Vinyl acetate	1	1.132414	2	1.045609	4	1.158243	10	1.0686	20	0.9911635	100	1.089557
Xylenes (total)	1.5	2.126299	3	2.071241	6	2.235811	15	2.181682	30	1.889342	150	2.219317
Dibromofluoromethane	30	0.3054164	35	0.2966841	40	0.31017	50	0.3146087	60	0.3236876	70	0.3088637
1,2-Dichloroethane-d4	30	6.485116E-02	35	6.419158E-02	40	6.535805E-02	50	6.753603E-02	60	6.765052E-02	70	6.542387E-02
Toluene-d8	30	2.144108	35	2.069132	40	2.10839	50	2.138772	60	2.145474	70	2.162763
tert-Amyl alcohol	2.5	1.635519E-02	5	1.598036E-02	10	1.955076E-02	25	1.989584E-02	50	1.710943E-02	250	1.815672E-02
tert-Amyl ethyl ether	0.5	0.9144258	1	0.8518786	2	0.9226886	5	0.9248552	10	0.8054398	50	0.9518289
1,3,5-Trichlorobenzene	0.5	0.9403066	1	0.9517935	2	0.9824391	5	0.9752399	10	0.8409623	50	1.009562
Diethyl ether	0.5	0.2957603	1	0.2582902	2	0.3397631	5	0.3247926	10	0.2523298	50	0.3024186

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4114001	Instrument:	MS-VOA6
Matrix:	Water	Calibration Dates:	4/23/14 11:33 4/23/14 15:13

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone	200	0.169322	300	0.1820273	400	0.1569857						
Acetonitrile	1000	8.179858E-02	1500	8.896204E-02	2000	7.991204E-02						
Acrolein	500	5.637058E-02	750	6.583171E-02	1000	6.412024E-02						
Acrylonitrile	500	0.1684809	750	0.186242	1000	0.1851014						
Benzene	100	1.221858	150	1.324209	200	1.284893						
Allyl chloride	100	0.1639434	150	0.1744744	200	0.172155						
Bromobenzene	100	0.904649	150	0.9760689	200	0.9788882						
Bromochloromethane	100	0.167534	150	0.169496	200	0.1571144						
Tert-Amyl Methyl Ether	100	0.900747	150	0.9639505	200	0.9434616						
Bromodichloromethane	100	0.4439753	150	0.4794938	200	0.4598446						
Bromoform	100	0.4214273	150	0.479962	200	0.469823						
Bromomethane	100	0.1037602	150	0.1218587	200	0.112656						
Bromofluorobenzene	30	0.8727762	30	0.8840921	30	0.897284						
n-Butylbenzene	100	2.671161	150	2.931872	200	2.808595						
2-Butanone	200	0.2708626	300	0.3062006	400	0.2327721						
sec-Butylbenzene	100	3.283894	150	3.554697	200	3.456343						
tert-Butylbenzene	100	2.25787	150	2.469582	200	2.373419						
Carbon disulfide	100	1.342787	150	1.491628	200	1.500353						
Carbon tetrachloride	100	0.3236674	150	0.3494483	200	0.3390282						
Chlorobenzene	100	1.610143	150	1.738344	200	1.639963						
Chloroethane	100	8.446503E-02	150	~~0.1608013~~	200	~~0.1109312~~						
Chloroform	100	0.6577433	150	0.6483153	200	0.5758341						
2-Chloroethyl vinyl ether	200	0.2081926	300	0.2183407	400	0.2132613						
Chloromethane	100	0.6684169	150	0.6880905	200	0.6376911						
1-Chlorohexane	100	0.801322	150	0.8470897	200	0.7925941						
2-Chlorotoluene	100	2.762776	150	3.006633	200	3.018796						
Chloroprene	100	0.6870756	150	0.74385	200	0.5739891						
4-Chlorotoluene	100	3.235718	150	3.297425	200	3.426662						
Cyclohexane	100	0.5641556	150	0.5840778	200	0.5551139						
Dibromochloromethane	100	0.6796194	150	0.7395092	200	0.7479362						
1,2-Dibromo-3-chloropropane	100	0.1751459	150	0.2029533	200	0.2021705						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4114001	Instrument:	MS-VOA6
Matrix:	Water	Calibration Dates:	4/23/14 11:33 4/23/14 15:13

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,2-Dibromoethane (EDB)	100	0.7201421	150	0.7582106	200	0.7563709						
Dibromomethane	100	0.2446807	150	0.2557448	200	0.2472342						
1,2-Dichlorobenzene	100	1.447753	150	1.586974	200	1.572259						
1,3-Dichlorobenzene	100	1.4954	150	1.623549	200	1.600063						
trans-1,4-Dichloro-2-butene	100	0.4198453	150	0.4586812	200	0.4615037						
cis-1,4-Dichloro-2-butene	100	0.4439844	150	0.503713	200	0.4865754						
1,4-Dichlorobenzene	100	1.522565	150	1.64119	200	1.613388						
Dichlorodifluoromethane	100	0.3945491	150	0.4036648	200	0.3708543						
1,1-Dichloroethane	100	0.713522	150	0.780374	200	0.6571932						
1,2-Dichloroethane	100	0.4821818	150	0.5050212	200	0.4907955						
1,1-Dichloroethene	100	0.271728	150	0.292431	200	0.3191455						
cis-1,2-Dichloroethene	100	0.372865	150	0.3982905	200	0.3301114						
trans-1,2-Dichloroethene	100	0.319943	150	0.3552431	200	0.2943937						
1,2-Dichloroethene (total)	200	0.346404	300	0.3767668	400	0.3122526						
1,2-Dichloropropane	100	0.3922009	150	0.4191143	200	0.4010612						
1,3-Dichloropropane	100	1.160104	150	1.185792	200	1.194828						
2,2-Dichloropropane	100	0.4593759	150	0.4834581	200	0.3854924						
1,1-Dichloropropene	100	0.4249618	150	0.4501437	200	0.4219459						
cis-1,3-Dichloropropene	100	0.502856	150	0.5366124	200	0.5270441						
trans-1,3-Dichloropropene	100	1.139081	150	1.140234	200	1.106262						
Diisopropyl Ether	100	2.0321	150	2.270469	200	1.723841						
1,4-Dioxane	2000	3.123666E-03	3000	3.353774E-03	4000	3.183887E-03						
Ethylbenzene	100	2.957271	150	3.151508	200	3.007392						
Ethyl tert-Butyl Ether	100	1.364573	150	1.454306	200	1.169681						
Ethyl Methacrylate	100	0.9680028	150	1.009622	200	0.9880997						
Hexachlorobutadiene	100	0.3565252	150	0.3940837	200	0.3948107						
Hexane	100	0.362829	150	0.3783794	200	0.2997939						
2-Hexanone	200	0.6685997	300	0.7145526	400	0.6891416						
Iodomethane	100	0.4533319	150	0.4995976	200	0.5016952						
Isobutyl alcohol	2000	1.220677E-02	3000	1.163879E-02	4000	1.068226E-02						
Isopropylbenzene	100	2.25611	150	2.383472	200	2.298634						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4114001	Instrument:	MS-VOA6
Matrix:	Water	Calibration Dates:	4/23/14 11:33 4/23/14 15:13

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
p-Isopropyltoluene	100	2.432136	150	2.592533	200	2.50134						
Methacrylonitrile	1000	0.3848443	1500	0.3458464	2000	0.2506672						
Methylene chloride	100	0.3920995	150	0.4263181	200	0.4295345						
Methyl Acetate	100	0.3875132	150	0.4182378	200	0.4161595						
Methylcyclohexane	100	0.3546707	150	0.368578	200	0.3492953						
Naphthalene	100	2.445473	150	2.727044	200	2.771176						
Methyl Methacrylate	100	0.4001154	150	0.4168012	200	0.3914612						
4-Methyl-2-pentanone	200	0.4213454	300	0.4558664	400	0.4310546						
Methyl t-Butyl Ether	100	0.8909717	150	0.9916406	200	0.8039286						
n-Propylbenzene	100	4.692494	150	5.049039	200	4.841556						
Propionitrile	1000	5.939743E-02	1500	6.465487E-02	2000	5.728894E-02						
Styrene	100	1.670519	150	1.70262	200	1.63284						
1,1,2,2-Tetrachloroethane	100	1.332101	150	1.482374	200	1.450319						
1,1,1,2-Tetrachloroethane	100	0.5470403	150	0.5864323	200	0.5805693						
tert-Butyl alcohol	500	2.570338E-02	750	2.958848E-02	1000	0.0307572						
Tetrachloroethene	100	0.5843994	150	0.6143513	200	0.5938688						
Toluene	100	1.510526	150	1.500672	200	1.430723						
1,2,3-Trichlorobenzene	100	0.8932187	150	0.9849075	200	0.9918549						
1,2,4-Trichlorobenzene	100	0.9724922	150	1.074141	200	1.074021						
1,1,2-Trichloroethane	100	0.5837797	150	0.6086997	200	0.6040946						
1,1,1-Trichloroethane	100	0.4040059	150	0.4252942	200	0.4091124						
Tetrahydrofuran	100	3.602058E-02	150	3.532248E-02	200	3.340776E-02						
Trichloroethene	100	0.322654	150	0.3435221	200	0.3267008						
Trichlorofluoromethane	100	0.5132966	150	0.4997205	200	0.5282055						
1,2,3-Trichloropropane	100	0.1917992	150	0.2024604	200	0.196401						
1,3,5-Trimethylbenzene	100	2.868193	150	3.004052	200	2.963381						
1,2,4-Trimethylbenzene	100	2.920028	150	3.097111	200	3.007098						
1,1,2-Trichloro-1,2,2-trifluoroethan	100	0.2720566	150	0.2905513	200	0.2899291						
Vinyl chloride	100	0.33236	150	~~0.2686824~~	200	~~0.226483~~						
m,p-Xylene	200	2.199024	300	2.165547	400	1.885742						
o-Xylene	100	2.172631	150	2.273138	200	2.141884						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4114001	Instrument:	MS-VOA6
Matrix:	Water	Calibration Dates:	4/23/14 11:33 4/23/14 15:13

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Vinyl acetate	200	1.387171	300	1.343694	400	1.043119						
Xylenes (total)	300	2.190226	450	2.201411	600	1.971123						
Dibromofluoromethane	30	0.3314883	30	0.3118165	30	0.3052017						
1,2-Dichloroethane-d4	30	6.346699E-02	30	0.0641691	30	6.431384E-02						
Toluene-d8	30	2.182293	30	2.186036	30	2.214368						
tert-Amyl alcohol	500	0.0217125	750	0.0226699	1000	2.128443E-02						
tert-Amyl ethyl ether	100	0.9554808	150	1.027843	200	0.9769599						
1,3,5-Trichlorobenzene	100	1.03044	150	1.128771	200	1.108026						
Diethyl ether	100	0.3119327	150	0.3407297	200	0.328097						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4114001	Instrument:	MS-VOA6
Matrix:	Water	Calibration Dates:	4/23/14 11:33 4/23/14 15:13

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Acetone	0.1505305	12.68599	3.425	0.155862			15	
Acetonitrile	8.357902E-02	12.04048	3.48625	0.1492729			15	
Acrolein	5.678307E-02	12.75257	3.318889	0.181679			15	
Acrylonitrile	0.1584711	12.92463	4.235555	0.1716128			15	
Benzene	1.200068	6.47124	7.324445	0.069763			15	
Allyl chloride	0.1585221	8.399147	4.315556	0.1679649			15	
Bromobenzene	0.8727977	8.669055	12.04556	3.875968E-02			15	
Bromochloromethane	0.1538338	7.57001	6.418889	4.951174E-02			15	
Tert-Amyl Methyl Ether	0.8698572	8.501481	7.523333	6.736285E-02			15	
Bromodichloromethane	0.4220764	9.437085	8.313334	6.064107E-02			15	
Bromoform	0.3353274	30.29927	11.45778	4.056003E-02	0.9949656		SPCC (0.1)	
Bromomethane	0.1010789	19.13042	2.555	0.2958904	0.9939314		0.99	
Bromofluorobenzene	0.8676047	2.100762	11.89111	4.513278E-02			15	
n-Butylbenzene	2.642832	6.469747	13.47556	3.773695E-02			15	
2-Butanone	0.2405322	13.24515	5.876667	8.514697E-02			15	
sec-Butylbenzene	3.193499	7.231605	12.93778	3.297168E-02			15	
tert-Butylbenzene	2.228933	6.798113	12.70444	3.941621E-02			15	
Carbon disulfide	1.273086	11.55754	4.402222	0.1894116			15	
Carbon tetrachloride	0.2992496	11.09995	7.295556	7.120175E-02			15	
Chlorobenzene	1.571468	6.867756	10.73889	3.098241E-02			SPCC (0.3)	
Chloroethane	0.1074961	36.54401	2.682857	0.3544341	0.9997666		0.99	
Chloroform	0.6511331	14.84236	6.396667	0.0810331			CCC (30)	
2-Chloroethyl vinyl ether	0.1979304	9.965035	8.684444	6.073705E-02			15	
Chloromethane	0.6465501	6.720514	2.012222	0.2199037			SPCC (0.1)	
1-Chlorohexane	0.8489062	10.33138	10.71778	3.935848E-02			15	
2-Chlorotoluene	2.740442	7.740267	12.26667	4.337159E-02			15	
Chloroprene	0.6205012	10.95854	5.686667	0.0900825			15	
4-Chlorotoluene	3.124765	6.728099	12.32889	5.011549E-02			15	
Cyclohexane	0.5857168	6.10429	7.223333	6.688362E-02			15	
Dibromochloromethane	0.5833079	20.07481	9.976666	4.615684E-02	0.9971512		0.99	
1,2-Dibromo-3-chloropropane	0.1477242	27.0685	14.06333	3.350034E-02	0.9940366		0.99	
1,2-Dibromoethane (EDB)	0.6826931	9.341054	10.18778	4.248446E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4114001	Instrument:	MS-VOA6
Matrix:	Water	Calibration Dates:	4/23/14 11:33 4/23/14 15:13

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Dibromomethane	0.2387914	5.619542	8.247778	8.110769E-02			15	
1,2-Dichlorobenzene	1.417635	8.723267	13.42667	4.108277E-02			15	
1,3-Dichlorobenzene	1.479307	7.06143	13.02	4.133724E-02			15	
trans-1,4-Dichloro-2-butene	0.4116905	10.87836	11.86111	5.100337E-02			15	
cis-1,4-Dichloro-2-butene	0.4312873	11.3777	11.54889	3.719786E-02			15	
1,4-Dichlorobenzene	1.500036	6.710277	13.11111	4.406509E-02			15	
Dichlorodifluoromethane	0.3620786	9.580862	1.812222	0.367421			15	
1,1-Dichloroethane	0.6629392	8.580296	5.42	9.088651E-02			SPCC (0.1)	
1,2-Dichloroethane	0.5062472	6.365832	7.158889	8.438004E-02			15	
1,1-Dichloroethene	0.2684916	9.536356	3.867778	0.2511011			CCC (30)	
cis-1,2-Dichloroethene	0.3369688	10.11282	6.137778	0.1097552			15	
trans-1,2-Dichloroethene	0.3013646	8.987256	5.038889	0.1194075			15	
1,2-Dichloroethene (total)	0.3191667	9.292867	6.137778	0.1097552			15	
1,2-Dichloropropane	0.3862516	6.000802	8.136667	8.633505E-02			CCC (30)	
1,3-Dichloropropane	1.124984	6.020686	9.725555	5.510423E-02			15	
2,2-Dichloropropane	0.4317705	8.258127	6.243333	0.1377342			15	
1,1-Dichloropropene	0.4391993	4.362506	7.175555	7.446858E-02			15	
cis-1,3-Dichloropropene	0.5001708	5.798565	8.888889	6.591797E-02			15	
trans-1,3-Dichloropropene	1.092485	6.205863	9.366666	0.0544699			15	
Diisopropyl Ether	1.798879	12.47063	5.804445	9.210101E-02			15	
1,4-Dioxane	2.842972E-03	14.51577	8.296667	5.618963E-02			15	
Ethylbenzene	2.840702	7.065762	10.88778	4.305697E-02			CCC (30)	
Ethyl tert-Butyl Ether	1.203098	10.92943	6.274445	8.581522E-02			15	
Ethyl Methacrylate	0.90065	9.629001	9.557778	8.796411E-02			15	
Hexachlorobutadiene	0.3495781	9.351485	15.42111	1.737795E-02			15	
Hexane	0.3460831	9.060641	5.634444	0.1292093			15	
2-Hexanone	0.6392032	8.790065	9.666667	7.423696E-02			15	
Iodomethane	0.3785395	25.38099	4.056667	0.2129692	0.9972285		0.99	
Isobutyl alcohol	9.873773E-03	14.35078	6.494444	8.213976E-02			15	
Isopropylbenzene	2.166713	6.926153	11.78222	3.266731E-02			15	
p-Isopropyltoluene	2.383695	6.334206	13.07333	3.633067E-02			15	
Methacrylonitrile	0.314265	13.34152	6.05	0.2607094			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4114001	Instrument:	MS-VOA6
Matrix:	Water	Calibration Dates:	4/23/14 11:33 4/23/14 15:13

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Methylene chloride	0.4058122	10.51939	4.3625	0.1623977			15	
Methyl Acetate	0.3713264	9.31092	4.224444	0.171669			15	
Methylcyclohexane	0.3484465	4.21232	8.461111	4.176668E-02			15	
Naphthalene	2.277166	14.26315	15.28222	3.075195E-02			15	
Methyl Methacrylate	0.3936967	9.651406	8.282222	5.261105E-02			15	
4-Methyl-2-pentanone	0.4079327	11.48958	8.82	7.973876E-02			15	
Methyl t-Butyl Ether	0.8217947	10.91483	5.036667	9.914989E-02			15	
n-Propylbenzene	4.43916	8.498608	12.18778	3.013382E-02			15	
Propionitrile	5.410815E-02	12.13012	5.596667	0.1264579			15	
Styrene	1.582899	6.926588	11.36	4.368241E-02			15	
1,1,2,2-Tetrachloroethane	1.2757	10.66851	11.70667	4.319865E-02			SPCC (0.3)	
1,1,1,2-Tetrachloroethane	0.4959631	13.7573	10.78556	5.192743E-02			15	
tert-Butyl alcohol	2.370694E-02	22.14234	4.011111	0.1488134	0.9926136		0.99	
Tetrachloroethene	0.5638877	6.563176	10.08778	0.0462892			15	
Toluene	1.468708	4.641117	9.358889	3.987567E-02			CCC (30)	
1,2,3-Trichlorobenzene	0.8629113	10.0408	15.57	3.596625E-02			15	
1,2,4-Trichlorobenzene	0.9222516	11.41152	15.13556	3.146131E-02			15	
1,1,2-Trichloroethane	0.5773567	6.352602	9.516667	0.0518744			15	
1,1,1-Trichloroethane	0.4029634	4.576258	6.953333	7.260652E-02			15	
Tetrahydrofuran	3.212152E-02	10.9332	6.606667	7.357446E-02			15	
Trichloroethene	0.3243168	5.829522	8.091111	7.674101E-02			15	
Trichlorofluoromethane	0.4592151	12.08136	3.144445	0.2805773			15	
1,2,3-Trichloropropane	0.1880703	9.619817	11.83222	0.0383823			15	
1,3,5-Trimethylbenzene	2.75591	7.254837	12.36444	0.0407744			15	
1,2,4-Trimethylbenzene	2.858629	6.002797	12.73556	3.716381E-02			15	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.2591827	8.348906	3.942222	0.3048019			15	
Vinyl chloride	0.3642937	12.37285	2.15	0.268442			CCC (30)	
m,p-Xylene	2.095832	6.42436	10.99889	7.215501E-02			15	
o-Xylene	2.170486	5.086405	11.38778	0.0347488			15	
Vinyl acetate	1.139952	12.05455	5.503333	0.1570502			15	
Xylenes (total)	2.120717	5.688366	11.38778	0.0347488			15	
Dibromofluoromethane	0.311993	3.32432	6.567778	0.1012732			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4114001	Instrument:	MS-VOA6
Matrix:	Water	Calibration Dates:	4/23/14 11:33 4/23/14 15:13

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
1,2-Dichloroethane-d4	0.0652179	2.269407	7.067778	6.023793E-02			15	
Toluene-d8	2.150148	2.020527	9.282222	4.544554E-02			15	
tert-Amyl alcohol	1.919057E-02	12.66018	6.771111	8.963745E-02			15	
tert-Amyl ethyl ether	0.9257112	7.112383	8.415556	6.122302E-02			15	
1,3,5-Trichlorobenzene	0.9963934	8.781977	14.58333	3.543418E-02			15	
Diethyl ether	0.3060127	10.65005	3.536667	0.2003108			15	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA6	Calibration:	4114001
Lab File ID:	0423ICV2.D	Calibration Date:	04/23/14 11:33
Sequence:	4D11403	Injection Date:	04/23/14
Lab Sample ID:	4D11403-ICV2	Injection Time:	16:36

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Acetone	A	200.0	199.9	0.1505305	0.1504479		-0.05	20
Benzene	A	100.0	105.2	1.200068	1.262603		5.2	20
Bromobenzene	A	100.0	108.0	0.8727977	0.9429906		8.0	20
Bromochloromethane	A	100.0	103.2	0.1538338	0.1587298		3.2	20
Bromodichloromethane	A	100.0	108.9	0.4220764	0.4595909		8.9	20
Bromoform	A	100.0	95.71	0.3353274	0.4429965	0.1	-4.3	20
Bromomethane	A	100.0	95.62	0.1010789	0.1087038		-4.4	20
n-Butylbenzene	A	100.0	106.6	2.642832	2.816651		6.6	20
2-Butanone	A	200.0	190.4	0.2405322	0.228978		-4.8	20
sec-Butylbenzene	A	100.0	107.7	3.193499	3.439725		7.7	20
tert-Butylbenzene	A	100.0	109.4	2.228933	2.439457		9.4	20
Carbon disulfide	A	100.0	110.7	1.273086	1.409355		10.7	20
Carbon tetrachloride	A	100.0	114.5	0.2992496	0.3425762		14.5	20
Chlorobenzene	A	100.0	107.5	1.571468	1.688657	0.3	7.5	20
Chloroethane	A	100.0	104.0	0.1074961	8.785816E-02		4.0	20
Chloroform	A	100.0	88.87	0.6511331	0.5786758		-11.1	20
Chloromethane	A	100.0	105.8	0.6465501	0.684304	0.1	5.8	20
2-Chlorotoluene	A	100.0	106.2	2.740442	2.910721		6.2	20
4-Chlorotoluene	A	100.0	107.9	3.124765	3.372412		7.9	20
Dibromochloromethane	A	100.0	97.94	0.5833079	0.7169603		-2.1	20
1,2-Dibromo-3-chloropropane	A	100.0	92.26	0.1477242	0.1819473		-7.7	20
1,2-Dibromoethane (EDB)	A	100.0	108.8	0.6826931	0.7425501		8.8	20
Dibromomethane	A	100.0	105.1	0.2387914	0.2510261		5.1	20
1,2-Dichlorobenzene	A	100.0	107.9	1.417635	1.529876		7.9	20
1,3-Dichlorobenzene	A	100.0	107.0	1.479307	1.582758		7.0	20
1,4-Dichlorobenzene	A	100.0	105.5	1.500036	1.582533		5.5	20
Dichlorodifluoromethane	A	100.0	112.6	0.3620786	0.4076763		12.6	20
1,1-Dichloroethane	A	100.0	103.7	0.6629392	0.6875976	0.1	3.7	20
1,2-Dichloroethane	A	100.0	98.38	0.5062472	0.4980273		-1.6	20

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA6	Calibration:	4114001
Lab File ID:	0423ICV2.D	Calibration Date:	04/23/14 11:33
Sequence:	4D11403	Injection Date:	04/23/14
Lab Sample ID:	4D11403-ICV2	Injection Time:	16:36

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
1,1-Dichloroethene	A	100.0	105.5	0.2684916	0.2831714		5.5	20
cis-1,2-Dichloroethene	A	100.0	99.86	0.3369688	0.3364801		-0.1	20
trans-1,2-Dichloroethene	A	100.0	111.5	0.3013646	0.3359816		11.5	20
1,2-Dichloroethene (total)	A	200.0	211.3	0.3191667	0.3362308		5.3	20
1,2-Dichloropropane	A	100.0	106.1	0.3862516	0.409948		6.1	20
1,3-Dichloropropane	A	100.0	103.8	1.124984	1.168119		3.8	20
2,2-Dichloropropane	A	100.0	87.89	0.4317705	0.3794893		-12.1	20
1,1-Dichloropropene	A	100.0	101.2	0.4391993	0.4445696		1.2	20
cis-1,3-Dichloropropene	A	100.0	104.6	0.5001708	0.5232621		4.6	20
trans-1,3-Dichloropropene	A	100.0	106.7	1.092485	1.165676		6.7	20
Ethylbenzene	A	100.0	108.2	2.840702	3.074983		8.2	20
Hexachlorobutadiene	A	100.0	108.8	0.3495781	0.3803822		8.8	20
2-Hexanone	A	200.0	205.3	0.6392032	0.6560943		2.6	20
Isopropylbenzene	A	100.0	106.8	2.166713	2.313948		6.8	20
p-Isopropyltoluene	A	100.0	106.4	2.383695	2.536477		6.4	20
Methylene chloride	A	100.0	100.5	0.4058122	0.4079956		0.5	20
Naphthalene	A	100.0	109.2	2.277166	2.487671		9.2	20
4-Methyl-2-pentanone	A	200.0	203.8	0.4079327	0.415776		1.9	20
Methyl t-Butyl Ether	A	100.0	112.7	0.8217947	0.9261872		12.7	20
n-Propylbenzene	A	100.0	108.5	4.43916	4.815677		8.5	20
Styrene	A	100.0	108.8	1.582899	1.722466		8.8	20
1,1,2,2-Tetrachloroethane	A	100.0	106.2	1.2757	1.354585	0.3	6.2	20
1,1,1,2-Tetrachloroethane	A	100.0	116.1	0.4959631	0.5756961		16.1	20
Tetrachloroethene	A	100.0	108.3	0.5638877	0.6105662		8.3	20
Toluene	A	100.0	107.0	1.468708	1.570782		6.9	20
1,2,3-Trichlorobenzene	A	100.0	107.5	0.8629113	0.9277753		7.5	20
1,2,4-Trichlorobenzene	A	100.0	111.1	0.9222516	1.02496		11.1	20
1,1,2-Trichloroethane	A	100.0	104.4	0.5773567	0.6029694		4.4	20
1,1,1-Trichloroethane	A	100.0	103.9	0.4029634	0.4186176		3.9	20

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA6	Calibration:	4114001
Lab File ID:	0423ICV2.D	Calibration Date:	04/23/14 11:33
Sequence:	4D11403	Injection Date:	04/23/14
Lab Sample ID:	4D11403-ICV2	Injection Time:	16:36

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Trichloroethene	A	100.0	103.9	0.3243168	0.3368697		3.9	20
Trichlorofluoromethane	A	100.0	105.9	0.4592151	0.486295		5.9	20
1,2,3-Trichloropropane	A	100.0	103.7	0.1880703	0.1950355		3.7	20
1,3,5-Trimethylbenzene	A	100.0	108.1	2.75591	2.979801		8.1	20
1,2,4-Trimethylbenzene	A	100.0	107.3	2.858629	3.066228		7.3	20
Vinyl chloride	A	100.0	94.82	0.3642937	0.3454118		-5.2	20
m,p-Xylene	A	200.0	220.3	2.095832	2.308294		10.1	20
o-Xylene	A	100.0	103.8	2.170486	2.25234		3.8	20
Xylenes (total)	A	300.0	324.0	2.120717	2.289644		8.0	20
Bromofluorobenzene	A	30.00	30.66	0.8676047	0.8866886		2.2	20
Dibromofluoromethane	A	30.00	29.22	0.311993	0.3038849		-2.6	20
1,2-Dichloroethane-d4	A	30.00	29.88	0.0652179	6.495408E-02		-0.4	20
Toluene-d8	A	30.00	30.48	2.150148	2.184358		1.6	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA6	Calibration:	4114001
Lab File ID:	0425CCV1.D	Calibration Date:	04/23/14 11:33
Sequence:	4D11901	Injection Date:	04/25/14
Lab Sample ID:	4D11901-CCV1	Injection Time:	07:39

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Benzene	A	100.0	102.0	1.200068	1.224326		2.0	20
Bromobenzene	A	100.0	98.24	0.8727977	0.85747		-1.8	20
Bromochloromethane	A	100.0	99.58	0.1538338	0.1531952		-0.4	20
Bromodichloromethane	A	100.0	102.9	0.4220764	0.4342635		2.9	20
Bromoform	A	100.0	83.50	0.3353274	0.3864803	0.1	-16.5	20
Bromomethane	A	100.0	106.9	0.1010789	0.121487		6.9	20
n-Butylbenzene	A	100.0	105.3	2.642832	2.783885		5.3	20
2-Butanone	A	200.0	211.0	0.2405322	0.2537724		5.5	20
sec-Butylbenzene	A	100.0	102.7	3.193499	3.278168		2.7	20
tert-Butylbenzene	A	100.0	101.8	2.228933	2.268743		1.8	20
Carbon disulfide	A	100.0	85.09	1.273086	1.083243		-14.9	20
Carbon tetrachloride	A	100.0	101.2	0.2992496	0.3028227		1.2	20
Chlorobenzene	A	100.0	100.4	1.571468	1.577028	0.3	0.4	20
Chloroethane	A	100.0	113.5	0.1074961	9.587996E-02		13.5	20
Chloroform	A	100.0	86.11	0.6511331	0.5607184		-13.9	20
Chloromethane	A	100.0	108.5	0.6465501	0.7018264	0.1	8.5	20
2-Chlorotoluene	A	100.0	101.5	2.740442	2.78148		1.5	20
4-Chlorotoluene	A	100.0	102.4	3.124765	3.198465		2.4	20
Dibromochloromethane	A	100.0	86.98	0.5833079	0.6366907		-13.0	20
1,2-Dibromo-3-chloropropane	A	100.0	85.93	0.1477242	0.1694709		-14.1	20
1,2-Dibromoethane (EDB)	A	100.0	103.1	0.6826931	0.7036795		3.1	20
Dibromomethane	A	100.0	101.1	0.2387914	0.2414285		1.1	20
1,2-Dichlorobenzene	A	100.0	100.8	1.417635	1.429645		0.8	20
1,3-Dichlorobenzene	A	100.0	100.1	1.479307	1.481312		0.1	20
1,4-Dichlorobenzene	A	100.0	100.3	1.500036	1.504729		0.3	20
Dichlorodifluoromethane	A	100.0	117.9	0.3620786	0.4268834		17.9	20
1,1-Dichloroethane	A	100.0	100.5	0.6629392	0.6664964	0.1	0.5	20
1,2-Dichloroethane	A	100.0	97.54	0.5062472	0.4937726		-2.5	20
1,1-Dichloroethene	A	100.0	102.4	0.2684916	0.274869		2.4	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA6	Calibration:	4114001
Lab File ID:	0425CCV1.D	Calibration Date:	04/23/14 11:33
Sequence:	4D11901	Injection Date:	04/25/14
Lab Sample ID:	4D11901-CCV1	Injection Time:	07:39

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
cis-1,2-Dichloroethene	A	100.0	94.43	0.3369688	0.3182004		-5.6	20
trans-1,2-Dichloroethene	A	100.0	97.45	0.3013646	0.2936796		-2.6	20
1,2-Dichloroethene (total)	A	200.0	191.9	0.3191667	0.30594		-4.1	20
1,2-Dichloropropane	A	100.0	100.9	0.3862516	0.3895782		0.9	20
1,3-Dichloropropane	A	100.0	98.33	1.124984	1.106154		-1.7	20
2,2-Dichloropropane	A	100.0	97.74	0.4317705	0.4220049		-2.3	20
1,1-Dichloropropene	A	100.0	99.81	0.4391993	0.438383		-0.2	20
cis-1,3-Dichloropropene	A	100.0	101.4	0.5001708	0.5069667		1.4	20
trans-1,3-Dichloropropene	A	100.0	101.1	1.092485	1.104262		1.1	20
Ethylbenzene	A	100.0	101.5	2.840702	2.88463		1.5	20
Hexachlorobutadiene	A	100.0	101.4	0.3495781	0.3543339		1.4	20
2-Hexanone	A	200.0	226.2	0.6392032	0.7228159		13.1	20
Isopropylbenzene	A	100.0	102.2	2.166713	2.213575		2.2	20
p-Isopropyltoluene	A	100.0	102.3	2.383695	2.43859		2.3	20
Methylene chloride	A	100.0	85.74	0.4058122	0.3479546		-14.3	20
Naphthalene	A	100.0	100.5	2.277166	2.288289		0.5	20
4-Methyl-2-pentanone	A	200.0	210.9	0.4079327	0.4301154		5.4	20
Methyl t-Butyl Ether	A	100.0	98.70	0.8217947	0.811123		-1.3	20
n-Propylbenzene	A	100.0	105.2	4.43916	4.671259		5.2	20
Styrene	A	100.0	101.2	1.582899	1.602389		1.2	20
1,1,2,2-Tetrachloroethane	A	100.0	100.8	1.2757	1.286501	0.3	0.8	20
1,1,1,2-Tetrachloroethane	A	100.0	104.2	0.4959631	0.5168032		4.2	20
Tetrachloroethene	A	100.0	102.9	0.5638877	0.580098		2.9	20
Toluene	A	100.0	99.75	1.468708	1.465013		-0.3	20
1,2,3-Trichlorobenzene	A	100.0	103.0	0.8629113	0.889048		3.0	20
1,2,4-Trichlorobenzene	A	100.0	106.5	0.9222516	0.9819403		6.5	20
1,1,2-Trichloroethane	A	100.0	98.62	0.5773567	0.5693902		-1.4	20
1,1,1-Trichloroethane	A	100.0	99.80	0.4029634	0.4021708		-0.2	20
Trichloroethene	A	100.0	99.72	0.3243168	0.3234164		-0.3	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA6	Calibration:	4114001
Lab File ID:	0425CCV1.D	Calibration Date:	04/23/14 11:33
Sequence:	4D11901	Injection Date:	04/25/14
Lab Sample ID:	4D11901-CCV1	Injection Time:	07:39

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Trichlorofluoromethane	A	100.0	107.2	0.4592151	0.4924216		7.2	20
1,2,3-Trichloropropane	A	100.0	100.3	0.1880703	0.1885475		0.3	20
1,3,5-Trimethylbenzene	A	100.0	103.6	2.75591	2.854391		3.6	20
1,2,4-Trimethylbenzene	A	100.0	102.4	2.858629	2.926727		2.4	20
Vinyl chloride	A	100.0	98.36	0.3642937	0.3583354		-1.6	20
m,p-Xylene	A	200.0	207.9	2.095832	2.178437		3.9	20
o-Xylene	A	100.0	98.05	2.170486	2.128236		-1.9	20
Xylenes (total)	A	300.0	305.9	2.120717	2.161703		1.9	20
Bromofluorobenzene	A	30.00	30.49	0.8676047	0.881662		1.6	20
Dibromofluoromethane	A	30.00	29.79	0.311993	0.3098268		-0.7	20
1,2-Dichloroethane-d4	A	30.00	29.87	0.0652179	6.493614E-02		-0.4	20
Toluene-d8	A	30.00	29.71	2.150148	2.12932		-1.0	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA6	Calibration:	4114001
Lab File ID:	0425CCV2.D	Calibration Date:	04/23/14 11:33
Sequence:	4D11901	Injection Date:	04/25/14
Lab Sample ID:	4D11901-CCV2	Injection Time:	08:07

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acetone	A	200.0	191.8	0.1505305	0.1443685		-4.1	20
Bromofluorobenzene	A	30.00	30.39	0.8676047	0.8789511		1.3	20
Dibromofluoromethane	A	30.00	29.48	0.311993	0.3066217		-1.7	20
1,2-Dichloroethane-d4	A	30.00	29.96	0.0652179	6.512148E-02		-0.1	20
Toluene-d8	A	30.00	29.49	2.150148	2.113812		-1.7	20

HOLDING TIME SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LF008-30001	04/17/14 12:39	04/18/14 09:00	04/25/14 14:34	N/A	14.00	04/25/14 14:34	8.04	14.00	
LF008-30003	04/16/14 13:32	04/18/14 09:00	04/25/14 15:01	N/A	14.00	04/25/14 15:01	9.02	14.00	
LF008-80001	04/16/14 15:45	04/18/14 09:00	04/25/14 15:29	N/A	14.00	04/25/14 15:29	8.95	14.00	
LF008-80003	04/16/14 08:00	04/18/14 09:00	04/25/14 12:44	N/A	14.00	04/25/14 12:44	9.16	14.00	

PREPARATION BENCH SHEET

4D25001

Empirical Laboratories, LLC

Instrument: VOA6

Printed: 5/8/2014 8:21:17AM

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404119-09RE1	C	VOC_8260B_REG	04/25/2014	5	5				1	2	Re-extract added 4/25/2014 by ADM-RR 1X lower
1404127-01	B	VOC_8260B_REG	04/25/2014	5	5				1	2	see versions
1404127-03	B	VOC_8260B_REG	04/25/2014	5	5				1	2	see versions
1404127-05	B	VOC_8260B_REG	04/25/2014	5	5				1	2	see versions
1404127-06	B	VOC_8260B_REG	04/25/2014	5	5				1	2	see versions
1404128-01	B	VOC_8260B_REG	04/25/2014	5	5				1	2	2X at end -late matrix per scr
1404128-03	B	VOC_8260B_REG	04/25/2014	5	5				1	2	2X per scr
1404128-05	B	VOC_8260B_REG	04/25/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404128-07	AA	VOC_8260B_REG	04/25/2014	5	5				1	2	MS/MSD; ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404128-09	B	VOC_8260B_REG	04/25/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404128-11	B	VOC_8260B_REG	04/25/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404128-13	A	VOC_8260B_REG	04/25/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404128-14	A	VOC_8260B_REG	04/25/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404129-01	A	VOC_8260B_REG	04/25/2014	5	5				1	2	IS-ICAL
1404129-02	B	VOC_8260B_REG	04/25/2014	5	5				1	2	IS-ICAL
1404129-03	B	VOC_8260B_REG	04/25/2014	5	5				1	2	IS-ICAL
4D25001-BLK1		QC	04/25/2014	5	5				1	NA	
4D25001-BS1		QC	04/25/2014	5	5	14D0700		2.5	1	NA	
4D25001-MS1		QC	04/25/2014	5	5	14D0700	1404128-07	2.5	1	NA	
4D25001-MSD1		QC	04/25/2014	5	5	14D0700	1404128-07	2.5	1	NA	

PREPARATION BENCH SHEET

4D25001

Empirical Laboratories, LLC

Printed: 5/8/2014 8:21:17AM

Instrument: VOA6

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description
12A0699	Anti-foam-JT Baker_AFB

Data for SW6010C / SW7470A Forms

Sample Extraction Data

Prep Method: pMercury-W SW 7470A-SW7470A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404127-01 [LF008-30001]	4D29005	30.00/30.00	30.0	30.0	1.00			04/29/14
1404127-02 [LF008-30001]	4D29005	30.00/30.00	30.0	30.0	1.00			04/29/14
1404127-03 [LF008-30003]	4D29005	30.00/30.00	30.0	30.0	1.00			04/29/14
1404127-04 [LF008-30003]	4D29005	30.00/30.00	30.0	30.0	1.00			04/29/14
1404127-05 [LF008-80001]	4D29005	30.00/30.00	30.0	30.0	1.00			04/29/14

Sample Extraction Data

Prep Method: MET_3005A_LOW-SW6010C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404127-01 [LF008-30001]	4D29021	100.00/25.00	100	25.0	1.00			04/29/14
1404127-02 [LF008-30001]	4D29021	100.00/25.00	100	25.0	1.00			04/29/14
1404127-03 [LF008-30003]	4D29021	100.00/25.00	100	25.0	1.00			04/29/14

Sample Extraction Data

Prep Method: MET_3005A_LOW-SW6010C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404127-04 [LF008-30003]	4E06002	100.00/25.00	100	25.0	1.00			05/06/14
1404127-05 [LF008-80001]	4E06002	100.00/25.00	100	25.0	1.00			05/06/14

ANALYSIS DATA SHEET

LF008-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-01
Sampled:	04/17/14 12:39	Received:	04/18/14 09:00

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:09
7429-90-5	Aluminum	**40.5**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 11:58
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 11:58
7440-39-3	Barium	**162**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 11:58
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:58
7440-42-8	Boron	**40.9**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 11:58
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:58
7440-47-3	Chromium	**10.6**	**0.500**	1.00	2.50	1		SW6010C	4D29021	05/02/14 11:58
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 11:58
7440-50-8	Copper	**5.01**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 11:58
7439-89-6	Iron	**52.7**	**7.50**	15.0	25.0	1		SW6010C	4D29021	05/02/14 11:58
7439-92-1	Lead		0.375	0.750	0.750	1	U	SW6010C	4D29021	05/02/14 11:58
7439-96-5	Manganese	**0.928**	**0.750**	1.50	3.75	1	J	SW6010C	4D29021	05/02/14 11:58
7439-98-7	Molybdenum	**1.82**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 11:58
7440-02-0	Nickel	**2.27**	**0.750**	1.50	2.50	1	J	SW6010C	4D29021	05/02/14 11:58
7782-49-2	Selenium	**4.96**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 11:58
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 11:58
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 11:58
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 11:58
7440-62-2	Vanadium	**4.85**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 11:58
7440-66-6	Zinc	**5.08**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 11:58

ANALYSIS DATA SHEET

LF008-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-02
Sampled:	04/17/14 12:39	Received:	04/18/14 09:00

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:10
7429-90-5	Aluminum (dissolved)	**30.4**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 12:02
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:02
7440-39-3	Barium (dissolved)	**160**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:02
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:02
7440-42-8	Boron (dissolved)	**41.3**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:02
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:02
7440-47-3	Chromium (dissolved)	**1.11**	**0.500**	1.00	2.50	1	J	SW6010C	4D29021	05/02/14 12:02
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:02
7440-50-8	Copper (dissolved)	**4.15**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 12:02
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D29021	05/02/14 12:02
7439-92-1	Lead (dissolved)	**0.589**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 12:02
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D29021	05/02/14 12:02
7439-98-7	Molybdenum (dissolved)	**1.71**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:02
7440-02-0	Nickel (dissolved)	**1.72**	**0.750**	1.50	2.50	1	J	SW6010C	4D29021	05/02/14 12:02
7782-49-2	Selenium (dissolved)	**5.17**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:02
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:02
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:02
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:02
7440-62-2	Vanadium (dissolved)	**4.63**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:02
7440-66-6	Zinc (dissolved)	**4.53**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:02

ANALYSIS DATA SHEET

LF008-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-03
Sampled:	04/16/14 13:32	Received:	04/18/14 09:00

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:11
7429-90-5	Aluminum	**81.4**	**12.5**	25.0	50.0	1		SW6010C	4D29021	05/02/14 12:06
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:06
7440-39-3	Barium	**143**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:06
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:06
7440-42-8	Boron	**38.4**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:06
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:06
7440-47-3	Chromium	**2.29**	**0.500**	1.00	2.50	1	J	SW6010C	4D29021	05/02/14 12:06
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:06
7440-50-8	Copper	**4.79**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 12:06
7439-89-6	Iron	**70.5**	**7.50**	15.0	25.0	1		SW6010C	4D29021	05/02/14 12:06
7439-92-1	Lead	**0.994**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 12:06
7439-96-5	Manganese	**2.04**	**0.750**	1.50	3.75	1	J	SW6010C	4D29021	05/02/14 12:06
7439-98-7	Molybdenum	**2.02**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:06
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:06
7782-49-2	Selenium	**2.82**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:06
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:06
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:06
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:06
7440-62-2	Vanadium	**4.50**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:06
7440-66-6	Zinc	**11.4**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 12:06

ANALYSIS DATA SHEET

LF008-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-04
Sampled:	04/16/14 13:32	Received:	04/18/14 09:00

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:12
7429-90-5	Aluminum (dissolved)		12.5	25.0	50.0	1	U	SW6010C	4E06002	05/07/14 14:00
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7440-39-3	Barium (dissolved)		1.25	2.50	10.0	1	U	SW6010C	4E06002	05/07/14 14:00
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:00
7440-42-8	Boron (dissolved)		2.50	5.00	10.0	1	U	SW6010C	4E06002	05/07/14 14:00
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:00
7440-47-3	Chromium (dissolved)		0.500	1.00	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:00
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4E06002	05/07/14 14:00
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 14:00
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4E06002	05/07/14 14:00
7439-98-7	Molybdenum (dissolved)		1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 14:00
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 14:00
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 14:00
7440-62-2	Vanadium (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:00
7440-66-6	Zinc (dissolved)		1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 14:00

ANALYSIS DATA SHEET

LF008-80001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-05
Sampled:	04/16/14 15:45	Received:	04/18/14 09:00

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:14
7429-90-5	Aluminum	**34.8**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 14:05
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:05
7440-39-3	Barium		1.25	2.50	10.0	1	U	SW6010C	4E06002	05/07/14 14:05
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:05
7440-42-8	Boron		2.50	5.00	10.0	1	U	SW6010C	4E06002	05/07/14 14:05
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:05
7440-47-3	Chromium		0.500	1.00	2.50	1	U	SW6010C	4E06002	05/07/14 14:05
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:05
7440-50-8	Copper	**1.26**	**1.00**	2.00	2.50	1	J	SW6010C	4E06002	05/07/14 14:05
7439-89-6	Iron	**42.5**	**7.50**	15.0	25.0	1		SW6010C	4E06002	05/07/14 14:05
7439-92-1	Lead		0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 14:05
7439-96-5	Manganese	**1.00**	**0.750**	1.50	3.75	1	J	SW6010C	4E06002	05/07/14 14:05
7439-98-7	Molybdenum		1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 14:05
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:05
7782-49-2	Selenium		0.750	1.25	2.50	1	U	SW6010C	4E06002	05/07/14 14:05
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 14:05
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 14:05
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 14:05
7440-62-2	Vanadium		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:05
7440-66-6	Zinc	**1.97**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 14:05

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4D29005-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	ND	0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:06
7439-97-6	Mercury (dissolved)	ND	0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:06

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_012

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D29005-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	**2.098**	**0.0800**	0.160	0.200	1		SW7470A	4D29005	04/29/14 11:07
7439-97-6	Mercury (dissolved)	**2.098**	**0.0800**	0.160	0.200	1		SW7470A	4D29005	04/29/14 11:07

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4D29021-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum	ND	12.5	25.0	50.0	1	U	SW6010C	4D29021	05/02/14 11:48
7429-90-5	Aluminum (dissolved)	ND	12.5	25.0	50.0	1	U	SW6010C	4D29021	05/02/14 11:48
7440-38-2	Arsenic	ND	0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-38-2	Arsenic (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-39-3	Barium	ND	1.25	2.50	10.0	1	U	SW6010C	4D29021	05/02/14 11:48
7440-39-3	Barium (dissolved)	ND	1.25	2.50	10.0	1	U	SW6010C	4D29021	05/02/14 11:48
7440-41-7	Beryllium	ND	0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:48
7440-41-7	Beryllium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:48
7440-42-8	Boron	ND	2.50	5.00	10.0	1	U	SW6010C	4D29021	05/02/14 11:48
7440-42-8	Boron (dissolved)	ND	2.50	5.00	10.0	1	U	SW6010C	4D29021	05/02/14 11:48
7440-43-9	Cadmium	ND	0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:48
7440-43-9	Cadmium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:48
7440-47-3	Chromium	ND	0.500	1.00	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-47-3	Chromium (dissolved)	ND	0.500	1.00	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-48-4	Cobalt	ND	1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 11:48
7440-48-4	Cobalt (dissolved)	ND	1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 11:48
7440-50-8	Copper	ND	1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-50-8	Copper (dissolved)	ND	1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7439-89-6	Iron	ND	7.50	15.0	25.0	1	U	SW6010C	4D29021	05/02/14 11:48
7439-89-6	Iron (dissolved)	ND	7.50	15.0	25.0	1	U	SW6010C	4D29021	05/02/14 11:48
7439-92-1	Lead	ND	0.375	0.750	0.750	1	U	SW6010C	4D29021	05/02/14 11:48
7439-92-1	Lead (dissolved)	ND	0.375	0.750	0.750	1	U	SW6010C	4D29021	05/02/14 11:48
7439-96-5	Manganese	ND	0.750	1.50	3.75	1	U	SW6010C	4D29021	05/02/14 11:48
7439-96-5	Manganese (dissolved)	ND	0.750	1.50	3.75	1	U	SW6010C	4D29021	05/02/14 11:48
7439-98-7	Molybdenum	ND	1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 11:48
7439-98-7	Molybdenum (dissolved)	ND	1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 11:48
7440-02-0	Nickel	ND	0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-02-0	Nickel (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7782-49-2	Selenium	ND	0.750	1.25	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7782-49-2	Selenium (dissolved)	ND	0.750	1.25	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-22-4	Silver	ND	0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-22-4	Silver (dissolved)	ND	0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-28-0	Thallium	ND	0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 11:48

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4D29021-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-28-0	Thallium (dissolved)	ND	0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 11:48
7440-31-5	Tin	ND	2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-31-5	Tin (dissolved)	ND	2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-62-2	Vanadium	ND	1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 11:48
7440-62-2	Vanadium (dissolved)	ND	1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 11:48
7440-66-6	Zinc	ND	1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 11:48
7440-66-6	Zinc (dissolved)	ND	1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 11:48

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29021-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum	**40.30**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 11:52
7429-90-5	Aluminum (dissolved)	**40.30**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 11:52
7440-38-2	Arsenic	**4.390**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-38-2	Arsenic (dissolved)	**4.390**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-39-3	Barium	**34.96**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 11:52
7440-39-3	Barium (dissolved)	**34.96**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 11:52
7440-41-7	Beryllium	**0.9114**	**0.250**	0.500	1.25	1	J	SW6010C	4D29021	05/02/14 11:52
7440-41-7	Beryllium (dissolved)	**0.9114**	**0.250**	0.500	1.25	1	J	SW6010C	4D29021	05/02/14 11:52
7440-42-8	Boron	**18.00**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 11:52
7440-42-8	Boron (dissolved)	**18.00**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 11:52
7440-43-9	Cadmium	**2.318**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/02/14 11:52
7440-43-9	Cadmium (dissolved)	**2.318**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/02/14 11:52
7440-47-3	Chromium	**3.624**	**0.500**	1.00	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-47-3	Chromium (dissolved)	**3.624**	**0.500**	1.00	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-48-4	Cobalt	**8.840**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 11:52
7440-48-4	Cobalt (dissolved)	**8.840**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 11:52
7440-50-8	Copper	**4.934**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-50-8	Copper (dissolved)	**4.934**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 11:52
7439-89-6	Iron	**19.48**	**7.50**	15.0	25.0	1	J	SW6010C	4D29021	05/02/14 11:52
7439-89-6	Iron (dissolved)	**19.48**	**7.50**	15.0	25.0	1	J	SW6010C	4D29021	05/02/14 11:52
7439-92-1	Lead	**4.763**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 11:52
7439-92-1	Lead (dissolved)	**4.763**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 11:52
7439-96-5	Manganese	**8.280**	**0.750**	1.50	3.75	1		SW6010C	4D29021	05/02/14 11:52
7439-96-5	Manganese (dissolved)	**8.280**	**0.750**	1.50	3.75	1		SW6010C	4D29021	05/02/14 11:52
7439-98-7	Molybdenum	**17.12**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 11:52
7439-98-7	Molybdenum (dissolved)	**17.12**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 11:52
7440-02-0	Nickel	**9.129**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-02-0	Nickel (dissolved)	**9.129**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 11:52
7782-49-2	Selenium	**4.786**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 11:52
7782-49-2	Selenium (dissolved)	**4.786**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-22-4	Silver	**4.652**	**0.250**	0.500	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-22-4	Silver (dissolved)	**4.652**	**0.250**	0.500	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-28-0	Thallium	**4.752**	**0.750**	1.00	2.00	1		SW6010C	4D29021	05/02/14 11:52

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29021-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-28-0	Thallium (dissolved)	**4.752**	**0.750**	1.00	2.00	1		SW6010C	4D29021	05/02/14 11:52
7440-31-5	Tin	**16.87**	**2.50**	5.00	7.50	1		SW6010C	4D29021	05/02/14 11:52
7440-31-5	Tin (dissolved)	**16.87**	**2.50**	5.00	7.50	1		SW6010C	4D29021	05/02/14 11:52
7440-62-2	Vanadium	**8.961**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 11:52
7440-62-2	Vanadium (dissolved)	**8.961**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 11:52
7440-66-6	Zinc	**9.132**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 11:52
7440-66-6	Zinc (dissolved)	**9.132**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 11:52

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4E06002-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum	ND	12.5	25.0	50.0	1	U	SW6010C	4E06002	05/07/14 13:51
7429-90-5	Aluminum (dissolved)	ND	12.5	25.0	50.0	1	U	SW6010C	4E06002	05/07/14 13:51
7440-38-2	Arsenic	ND	0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-38-2	Arsenic (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-39-3	Barium	ND	1.25	2.50	10.0	1	U	SW6010C	4E06002	05/07/14 13:51
7440-39-3	Barium (dissolved)	ND	1.25	2.50	10.0	1	U	SW6010C	4E06002	05/07/14 13:51
7440-41-7	Beryllium	ND	0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 13:51
7440-41-7	Beryllium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 13:51
7440-42-8	Boron	ND	2.50	5.00	10.0	1	U	SW6010C	4E06002	05/07/14 13:51
7440-42-8	Boron (dissolved)	ND	2.50	5.00	10.0	1	U	SW6010C	4E06002	05/07/14 13:51
7440-43-9	Cadmium	ND	0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 13:51
7440-43-9	Cadmium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 13:51
7440-47-3	Chromium	ND	0.500	1.00	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-47-3	Chromium (dissolved)	ND	0.500	1.00	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-48-4	Cobalt	ND	1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 13:51
7440-48-4	Cobalt (dissolved)	ND	1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 13:51
7440-50-8	Copper	ND	1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-50-8	Copper (dissolved)	ND	1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7439-89-6	Iron	ND	7.50	15.0	25.0	1	U	SW6010C	4E06002	05/07/14 13:51
7439-89-6	Iron (dissolved)	ND	7.50	15.0	25.0	1	U	SW6010C	4E06002	05/07/14 13:51
7439-92-1	Lead	ND	0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 13:51
7439-92-1	Lead (dissolved)	ND	0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 13:51
7439-96-5	Manganese	ND	0.750	1.50	3.75	1	U	SW6010C	4E06002	05/07/14 13:51
7439-96-5	Manganese (dissolved)	ND	0.750	1.50	3.75	1	U	SW6010C	4E06002	05/07/14 13:51
7439-98-7	Molybdenum	ND	1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 13:51
7439-98-7	Molybdenum (dissolved)	ND	1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 13:51
7440-02-0	Nickel	ND	0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-02-0	Nickel (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7782-49-2	Selenium	ND	0.750	1.25	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7782-49-2	Selenium (dissolved)	ND	0.750	1.25	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-22-4	Silver	ND	0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-22-4	Silver (dissolved)	ND	0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-28-0	Thallium	ND	0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 13:51

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4E06002-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-28-0	Thallium (dissolved)	ND	0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 13:51
7440-31-5	Tin	ND	2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-31-5	Tin (dissolved)	ND	2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-62-2	Vanadium	ND	1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 13:51
7440-62-2	Vanadium (dissolved)	ND	1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 13:51
7440-66-6	Zinc	ND	1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 13:51
7440-66-6	Zinc (dissolved)	ND	1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 13:51

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E06002-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum	**36.89**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 13:55
7429-90-5	Aluminum (dissolved)	**36.89**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 13:55
7440-38-2	Arsenic	**4.380**	**0.750**	1.50	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-38-2	Arsenic (dissolved)	**4.380**	**0.750**	1.50	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-39-3	Barium	**34.62**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 13:55
7440-39-3	Barium (dissolved)	**34.62**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 13:55
7440-41-7	Beryllium	**0.8969**	**0.250**	0.500	1.25	1	J	SW6010C	4E06002	05/07/14 13:55
7440-41-7	Beryllium (dissolved)	**0.8969**	**0.250**	0.500	1.25	1	J	SW6010C	4E06002	05/07/14 13:55
7440-42-8	Boron	**18.08**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 13:55
7440-42-8	Boron (dissolved)	**18.08**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 13:55
7440-43-9	Cadmium	**2.119**	**0.250**	0.500	1.25	1		SW6010C	4E06002	05/07/14 13:55
7440-43-9	Cadmium (dissolved)	**2.119**	**0.250**	0.500	1.25	1		SW6010C	4E06002	05/07/14 13:55
7440-47-3	Chromium	**3.715**	**0.500**	1.00	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-47-3	Chromium (dissolved)	**3.715**	**0.500**	1.00	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-48-4	Cobalt	**8.880**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 13:55
7440-48-4	Cobalt (dissolved)	**8.880**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 13:55
7440-50-8	Copper	**5.203**	**1.00**	2.00	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-50-8	Copper (dissolved)	**5.203**	**1.00**	2.00	2.50	1		SW6010C	4E06002	05/07/14 13:55
7439-89-6	Iron	**19.53**	**7.50**	15.0	25.0	1	J	SW6010C	4E06002	05/07/14 13:55
7439-89-6	Iron (dissolved)	**19.53**	**7.50**	15.0	25.0	1	J	SW6010C	4E06002	05/07/14 13:55
7439-92-1	Lead	**4.453**	**0.375**	0.750	0.750	1		SW6010C	4E06002	05/07/14 13:55
7439-92-1	Lead (dissolved)	**4.453**	**0.375**	0.750	0.750	1		SW6010C	4E06002	05/07/14 13:55
7439-96-5	Manganese	**10.17**	**0.750**	1.50	3.75	1		SW6010C	4E06002	05/07/14 13:55
7439-96-5	Manganese (dissolved)	**10.17**	**0.750**	1.50	3.75	1		SW6010C	4E06002	05/07/14 13:55
7439-98-7	Molybdenum	**17.18**	**1.25**	2.50	5.00	1		SW6010C	4E06002	05/07/14 13:55
7439-98-7	Molybdenum (dissolved)	**17.18**	**1.25**	2.50	5.00	1		SW6010C	4E06002	05/07/14 13:55
7440-02-0	Nickel	**8.617**	**0.750**	1.50	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-02-0	Nickel (dissolved)	**8.617**	**0.750**	1.50	2.50	1		SW6010C	4E06002	05/07/14 13:55
7782-49-2	Selenium	**4.658**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 13:55
7782-49-2	Selenium (dissolved)	**4.658**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-22-4	Silver	**4.644**	**0.250**	0.500	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-22-4	Silver (dissolved)	**4.644**	**0.250**	0.500	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-28-0	Thallium	**4.342**	**0.750**	1.00	2.00	1		SW6010C	4E06002	05/07/14 13:55

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E06002-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-28-0	Thallium (dissolved)	**4.342**	**0.750**	1.00	2.00	1		SW6010C	4E06002	05/07/14 13:55
7440-31-5	Tin	**17.25**	**2.50**	5.00	7.50	1		SW6010C	4E06002	05/07/14 13:55
7440-31-5	Tin (dissolved)	**17.25**	**2.50**	5.00	7.50	1		SW6010C	4E06002	05/07/14 13:55
7440-62-2	Vanadium	**9.096**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 13:55
7440-62-2	Vanadium (dissolved)	**9.096**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 13:55
7440-66-6	Zinc	**8.400**	**1.25**	2.50	5.00	1		SW6010C	4E06002	05/07/14 13:55
7440-66-6	Zinc (dissolved)	**8.400**	**1.25**	2.50	5.00	1		SW6010C	4E06002	05/07/14 13:55

INITIAL AND CONTINUING CALIBRATION CHECK

SW7470A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Calibration: 4120004
Sequence: 4D12014

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D12014-ICV1	Mercury	4.000	4.186	105	ug/L	+/- 20.00%
4D12014-CCV1	Mercury	2.000	2.007	100	ug/L	+/- 20.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Calibration: 4125002
Sequence: 4E12503

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12503-ICV1	Aluminum	10000	10000	100	ug/L	+/- 10.00%
	Arsenic	1000	1081	108	ug/L	+/- 10.00%
	Barium	1000	997.2	99.7	ug/L	+/- 10.00%
	Beryllium	1000	1012	101	ug/L	+/- 10.00%
	Boron	1000	1040	104	ug/L	+/- 10.00%
	Cadmium	1000	1038	104	ug/L	+/- 10.00%
	Chromium	1000	977.1	97.7	ug/L	+/- 10.00%
	Cobalt	1000	991.0	99.1	ug/L	+/- 10.00%
	Copper	1000	997.7	99.8	ug/L	+/- 10.00%
	Iron	10000	10040	100	ug/L	+/- 10.00%
	Lead	1000	995.9	99.6	ug/L	+/- 10.00%
	Manganese	1000	932.5	93.2	ug/L	+/- 10.00%
	Molybdenum	1000	1058	106	ug/L	+/- 10.00%
	Nickel	1000	1012	101	ug/L	+/- 10.00%
	Selenium	1000	1048	105	ug/L	+/- 10.00%
	Silver	500.0	496.6	99.3	ug/L	+/- 10.00%
	Thallium	1000	1012	101	ug/L	+/- 10.00%
	Tin	1000	979.9	98.0	ug/L	+/- 10.00%
	Vanadium	1000	1027	103	ug/L	+/- 10.00%
	Zinc	1000	1047	105	ug/L	+/- 10.00%
4E12503-CCV1	Aluminum	10000	9999	100	ug/L	+/- 10.00%
	Arsenic	1000	1071	107	ug/L	+/- 10.00%
	Barium	1000	1005	101	ug/L	+/- 10.00%
	Beryllium	1000	1040	104	ug/L	+/- 10.00%
	Boron	1000	1042	104	ug/L	+/- 10.00%
	Cadmium	1000	1035	103	ug/L	+/- 10.00%
	Chromium	1000	1012	101	ug/L	+/- 10.00%
	Cobalt	1000	999.3	99.9	ug/L	+/- 10.00%
	Copper	1000	1002	100	ug/L	+/- 10.00%
	Iron	10000	10030	100	ug/L	+/- 10.00%
	Lead	1000	1017	102	ug/L	+/- 10.00%
	Manganese	1000	941.8	94.2	ug/L	+/- 10.00%
	Molybdenum	1000	1038	104	ug/L	+/- 10.00%
	Nickel	1000	1036	104	ug/L	+/- 10.00%
	Selenium	1000	1063	106	ug/L	+/- 10.00%
	Silver	500.0	493.7	98.7	ug/L	+/- 10.00%
	Thallium	1000	1014	101	ug/L	+/- 10.00%
	Tin	1000	999.6	100	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Calibration: 4125002
Sequence: 4E12503

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12503-CCV1	Vanadium	1000	1038	104	ug/L	+/- 10.00%
	Zinc	1000	1052	105	ug/L	+/- 10.00%
4E12503-CCV2	Aluminum	10000	9915	99.2	ug/L	+/- 10.00%
	Arsenic	1000	1073	107	ug/L	+/- 10.00%
	Barium	1000	1009	101	ug/L	+/- 10.00%
	Beryllium	1000	1032	103	ug/L	+/- 10.00%
	Boron	1000	1027	103	ug/L	+/- 10.00%
	Cadmium	1000	1036	104	ug/L	+/- 10.00%
	Chromium	1000	1006	101	ug/L	+/- 10.00%
	Cobalt	1000	1003	100	ug/L	+/- 10.00%
	Copper	1000	983.1	98.3	ug/L	+/- 10.00%
	Iron	10000	9962	99.6	ug/L	+/- 10.00%
	Lead	1000	1018	102	ug/L	+/- 10.00%
	Manganese	1000	930.9	93.1	ug/L	+/- 10.00%
	Molybdenum	1000	1043	104	ug/L	+/- 10.00%
	Nickel	1000	1038	104	ug/L	+/- 10.00%
	Selenium	1000	1060	106	ug/L	+/- 10.00%
	Silver	500.0	485.5	97.1	ug/L	+/- 10.00%
	Thallium	1000	1011	101	ug/L	+/- 10.00%
	Tin	1000	1005	101	ug/L	+/- 10.00%
	Vanadium	1000	1034	103	ug/L	+/- 10.00%
	Zinc	1000	1055	105	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12803-ICV1	Aluminum	10000	10150	102	ug/L	+/- 10.00%
	Arsenic	1000	1042	104	ug/L	+/- 10.00%
	Barium	1000	1004	100	ug/L	+/- 10.00%
	Beryllium	1000	1012	101	ug/L	+/- 10.00%
	Boron	1000	1019	102	ug/L	+/- 10.00%
	Cadmium	1000	996.5	99.7	ug/L	+/- 10.00%
	Chromium	1000	975.4	97.5	ug/L	+/- 10.00%
	Cobalt	1000	978.5	97.9	ug/L	+/- 10.00%
	Copper	1000	1010	101	ug/L	+/- 10.00%
	Iron	10000	10260	103	ug/L	+/- 10.00%
	Lead	1000	955.6	95.6	ug/L	+/- 10.00%
	Manganese	1000	1052	105	ug/L	+/- 10.00%
	Molybdenum	1000	1051	105	ug/L	+/- 10.00%
	Nickel	1000	971.9	97.2	ug/L	+/- 10.00%
	Selenium	1000	1046	105	ug/L	+/- 10.00%
	Silver	500.0	499.1	99.8	ug/L	+/- 10.00%
	Thallium	1000	974.1	97.4	ug/L	+/- 10.00%
	Tin	1000	976.0	97.6	ug/L	+/- 10.00%
	Vanadium	1000	1010	101	ug/L	+/- 10.00%
	Zinc	1000	1005	101	ug/L	+/- 10.00%
4E12803-CCV1	Aluminum	10000	10280	103	ug/L	+/- 10.00%
	Arsenic	1000	1007	101	ug/L	+/- 10.00%
	Barium	1000	987.8	98.8	ug/L	+/- 10.00%
	Beryllium	1000	1033	103	ug/L	+/- 10.00%
	Boron	1000	999.4	99.9	ug/L	+/- 10.00%
	Cadmium	1000	971.0	97.1	ug/L	+/- 10.00%
	Chromium	1000	992.7	99.3	ug/L	+/- 10.00%
	Cobalt	1000	979.4	97.9	ug/L	+/- 10.00%
	Copper	1000	1013	101	ug/L	+/- 10.00%
	Iron	10000	10450	104	ug/L	+/- 10.00%
	Lead	1000	954.1	95.4	ug/L	+/- 10.00%
	Manganese	1000	1040	104	ug/L	+/- 10.00%
	Molybdenum	1000	1026	103	ug/L	+/- 10.00%
	Nickel	1000	971.7	97.2	ug/L	+/- 10.00%
	Selenium	1000	1054	105	ug/L	+/- 10.00%
	Silver	500.0	485.6	97.1	ug/L	+/- 10.00%
	Thallium	1000	946.8	94.7	ug/L	+/- 10.00%
	Tin	1000	987.2	98.7	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12803-CCV1	Vanadium	1000	1001	100	ug/L	+/- 10.00%
	Zinc	1000	984.4	98.4	ug/L	+/- 10.00%
4E12803-CCV3	Aluminum	10000	10440	104	ug/L	+/- 10.00%
	Arsenic	1000	981.0	98.1	ug/L	+/- 10.00%
	Barium	1000	977.8	97.8	ug/L	+/- 10.00%
	Beryllium	1000	1035	104	ug/L	+/- 10.00%
	Boron	1000	1016	102	ug/L	+/- 10.00%
	Cadmium	1000	947.7	94.8	ug/L	+/- 10.00%
	Chromium	1000	999.5	100	ug/L	+/- 10.00%
	Cobalt	1000	986.4	98.6	ug/L	+/- 10.00%
	Copper	1000	1040	104	ug/L	+/- 10.00%
	Iron	10000	10600	106	ug/L	+/- 10.00%
	Lead	1000	949.4	94.9	ug/L	+/- 10.00%
	Manganese	1000	1065	106	ug/L	+/- 10.00%
	Molybdenum	1000	1026	103	ug/L	+/- 10.00%
	Nickel	1000	963.4	96.3	ug/L	+/- 10.00%
	Selenium	1000	1055	106	ug/L	+/- 10.00%
	Silver	500.0	485.0	97.0	ug/L	+/- 10.00%
	Thallium	1000	924.5	92.4	ug/L	+/- 10.00%
	Tin	1000	989.4	98.9	ug/L	+/- 10.00%
	Vanadium	1000	1019	102	ug/L	+/- 10.00%
	Zinc	1000	963.6	96.4	ug/L	+/- 10.00%
4E12803-CCV4	Aluminum	10000	10470	105	ug/L	+/- 10.00%
	Arsenic	1000	980.1	98.0	ug/L	+/- 10.00%
	Barium	1000	976.6	97.7	ug/L	+/- 10.00%
	Beryllium	1000	1039	104	ug/L	+/- 10.00%
	Boron	1000	1027	103	ug/L	+/- 10.00%
	Cadmium	1000	943.8	94.4	ug/L	+/- 10.00%
	Chromium	1000	1006	101	ug/L	+/- 10.00%
	Cobalt	1000	988.6	98.9	ug/L	+/- 10.00%
	Copper	1000	1054	105	ug/L	+/- 10.00%
	Iron	10000	10720	107	ug/L	+/- 10.00%
	Lead	1000	949.3	94.9	ug/L	+/- 10.00%
	Manganese	1000	1076	108	ug/L	+/- 10.00%
	Molybdenum	1000	1031	103	ug/L	+/- 10.00%
	Nickel	1000	963.8	96.4	ug/L	+/- 10.00%
	Selenium	1000	1059	106	ug/L	+/- 10.00%
	Silver	500.0	486.1	97.2	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12803-CCV4	Thallium	1000	921.3	92.1	ug/L	+/- 10.00%
	Tin	1000	994.4	99.4	ug/L	+/- 10.00%
	Vanadium	1000	1030	103	ug/L	+/- 10.00%
	Zinc	1000	959.5	95.9	ug/L	+/- 10.00%

CRDL STANDARD

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4125002
Sequence: 4E12503

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4E12503-CRL1	Aluminum	100.0	108.1	108	ug/L	80 - 120
	Barium	10.00	10.13	101	ug/L	80 - 120
	Beryllium	2.000	2.068	103	ug/L	80 - 120
	Cadmium	2.000	1.988	99.4	ug/L	80 - 120
	Chromium	4.000	4.108	103	ug/L	80 - 120
	Cobalt	10.00	9.694	96.9	ug/L	80 - 120
	Copper	8.000	9.269	116	ug/L	80 - 120
	Iron	60.00	67.40	112	ug/L	80 - 120
	Lead	3.000	3.051	102	ug/L	80 - 120
	Manganese	6.000	5.751	95.9	ug/L	80 - 120
	Molybdenum	10.00	10.08	101	ug/L	80 - 120
	Nickel	6.000	6.120	102	ug/L	80 - 120
	Silver	2.000	2.045	102	ug/L	80 - 120
	Thallium	4.000	4.358	109	ug/L	80 - 120
	Tin	20.00	18.56	92.8	ug/L	80 - 120
	Vanadium	10.00	9.919	99.2	ug/L	80 - 120
	Zinc	10.00	10.07	101	ug/L	80 - 120
4E12503-CRL2	Arsenic	5.000	4.271	85.4	ug/L	80 - 120
	Boron	30.00	32.72	109	ug/L	80 - 120
4E12503-CRL3	Selenium	5.000	5.140	103	ug/L	80 - 120

CRDL STANDARD

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4E12803-CRL1	Aluminum	100.0	87.60	87.6	ug/L	80 - 120
	Barium	10.00	9.416	94.2	ug/L	80 - 120
	Beryllium	2.000	1.881	94.0	ug/L	80 - 120
	Cadmium	2.000	1.752	87.6	ug/L	80 - 120
	Chromium	4.000	3.768	94.2	ug/L	80 - 120
	Cobalt	10.00	8.817	88.2	ug/L	80 - 120
	Copper	8.000	8.538	107	ug/L	80 - 120
	Iron	60.00	65.39	109	ug/L	80 - 120
	Lead	3.000	2.636	87.9	ug/L	80 - 120
	Manganese	6.000	6.136	102	ug/L	80 - 120
	Molybdenum	10.00	9.202	92.0	ug/L	80 - 120
	Nickel	6.000	5.323	88.7	ug/L	80 - 120
	Silver	2.000	2.018	101	ug/L	80 - 120
	Thallium	4.000	4.412	110	ug/L	80 - 120
	Tin	20.00	18.02	90.1	ug/L	80 - 120
	Vanadium	10.00	9.266	92.7	ug/L	80 - 120
	Zinc	10.00	8.915	89.2	ug/L	80 - 120
4E12803-CRL2	Arsenic	5.000	5.049	101	ug/L	80 - 120
	Boron	30.00	30.54	102	ug/L	80 - 120
	Selenium	5.000	5.759	115	ug/L	80 - 120

BLANKS
SW7470A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS
Project: Kirtland AFB (ECOS)
Sequence: 4D12014
Calibration: 4120004

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D12014-ICB1	Mercury	0.02903	0.0800	0.200	ug/L	U	SW7470A
4D29005-BLK1	Mercury	0.0282	0.0800	0.200	ug/L	U	SW7470A
	Mercury (dissolved)	0.0282	0.0800	0.200	ug/L	U	SW7470A
4D12014-CCB1	Mercury	0.0395	0.0800	0.200	ug/L	U	SW7470A

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12503
Calibration: 4125002

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12503-ICB1	Aluminum	-5.239	50.0	200	ug/L	U	SW6010C
	Arsenic	-0.06059	3.00	10.0	ug/L	U	SW6010C
	Barium	0.01796	5.00	40.0	ug/L	U	SW6010C
	Beryllium	0.05414	1.00	5.00	ug/L	U	SW6010C
	Boron	0.2512	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.04578	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.03189	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.09234	5.00	12.5	ug/L	U	SW6010C
	Copper	0.9714	4.00	10.0	ug/L	U	SW6010C
	Iron	8.159	30.0	100	ug/L	U	SW6010C
	Lead	0.3854	1.50	3.00	ug/L	U	SW6010C
	Manganese	0.01815	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.7002	5.00	20.0	ug/L	U	SW6010C
	Nickel	-0.04911	3.00	10.0	ug/L	U	SW6010C
	Selenium	2.307	3.00	10.0	ug/L	U	SW6010C
	Silver	-0.1754	1.00	10.0	ug/L	U	SW6010C
	Thallium	0.6349	3.00	8.00	ug/L	U	SW6010C
	Tin	-0.2632	10.0	30.0	ug/L	U	SW6010C
	Vanadium	0.1981	5.00	12.5	ug/L	U	SW6010C
	Zinc	-0.006710	5.00	20.0	ug/L	U	SW6010C
4E12503-CCB1	Aluminum	4.66	50.0	200	ug/L	U	SW6010C
	Arsenic	-0.494	3.00	10.0	ug/L	U	SW6010C
	Barium	0.356	5.00	40.0	ug/L	U	SW6010C
	Beryllium	0.0970	1.00	5.00	ug/L	U	SW6010C
	Boron	-0.0720	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.333	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.421	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.393	5.00	12.5	ug/L	U	SW6010C
	Copper	1.55	4.00	10.0	ug/L	U	SW6010C
	Iron	15.0	30.0	100	ug/L	U	SW6010C
	Lead	0.591	1.50	3.00	ug/L	U	SW6010C
	Manganese	0.156	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.906	5.00	20.0	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12503
Calibration: 4125002

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12503-CCB1	Nickel	0.257	3.00	10.0	ug/L	U	SW6010C
	Selenium	2.12	3.00	10.0	ug/L	U	SW6010C
	Silver	0.0172	1.00	10.0	ug/L	U	SW6010C
	Thallium	-0.225	3.00	8.00	ug/L	U	SW6010C
	Tin	-0.341	10.0	30.0	ug/L	U	SW6010C
	Vanadium	0.0206	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.285	5.00	20.0	ug/L	U	SW6010C
4D29021-BLK1	Aluminum	2.21	12.5	50.0	ug/L	U	SW6010C
	Aluminum (dissolved)	2.21	12.5	50.0	ug/L	U	SW6010C
	Arsenic	-0.239	0.750	2.50	ug/L	U	SW6010C
	Arsenic (dissolved)	-0.239	0.750	2.50	ug/L	U	SW6010C
	Barium	0.0428	1.25	10.0	ug/L	U	SW6010C
	Barium (dissolved)	0.0428	1.25	10.0	ug/L	U	SW6010C
	Beryllium	0.0241	0.250	1.25	ug/L	U	SW6010C
	Beryllium (dissolved)	0.0241	0.250	1.25	ug/L	U	SW6010C
	Boron	0.0681	2.50	10.0	ug/L	U	SW6010C
	Boron (dissolved)	0.0681	2.50	10.0	ug/L	U	SW6010C
	Cadmium	0.0297	0.250	1.25	ug/L	U	SW6010C
	Cadmium (dissolved)	0.0297	0.250	1.25	ug/L	U	SW6010C
	Chromium	0.0698	0.500	2.50	ug/L	U	SW6010C
	Chromium (dissolved)	0.0698	0.500	2.50	ug/L	U	SW6010C
	Cobalt	0.0475	1.25	3.12	ug/L	U	SW6010C
	Cobalt (dissolved)	0.0475	1.25	3.12	ug/L	U	SW6010C
	Copper	0.369	1.00	2.50	ug/L	U	SW6010C
	Copper (dissolved)	0.369	1.00	2.50	ug/L	U	SW6010C
	Iron	1.73	7.50	25.0	ug/L	U	SW6010C
	Iron (dissolved)	1.73	7.50	25.0	ug/L	U	SW6010C
	Lead	0.0434	0.375	0.750	ug/L	U	SW6010C
	Lead (dissolved)	0.0434	0.375	0.750	ug/L	U	SW6010C
	Manganese	0.0462	0.750	3.75	ug/L	U	SW6010C
	Manganese (dissolved)	0.0462	0.750	3.75	ug/L	U	SW6010C
	Molybdenum	0.0734	1.25	5.00	ug/L	U	SW6010C
	Molybdenum (dissolved)	0.0734	1.25	5.00	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12503
Calibration: 4125002

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D29021-BLK1	Nickel	0.0217	0.750	2.50	ug/L	U	SW6010C
	Nickel (dissolved)	0.0217	0.750	2.50	ug/L	U	SW6010C
	Selenium	0.358	0.750	2.50	ug/L	U	SW6010C
	Selenium (dissolved)	0.358	0.750	2.50	ug/L	U	SW6010C
	Silver	-0.0257	0.250	2.50	ug/L	U	SW6010C
	Silver (dissolved)	-0.0257	0.250	2.50	ug/L	U	SW6010C
	Thallium	-0.00544	0.750	2.00	ug/L	U	SW6010C
	Thallium (dissolved)	-0.00544	0.750	2.00	ug/L	U	SW6010C
	Tin	-0.0512	2.50	7.50	ug/L	U	SW6010C
	Tin (dissolved)	-0.0512	2.50	7.50	ug/L	U	SW6010C
	Vanadium	-0.00498	1.25	3.12	ug/L	U	SW6010C
	Vanadium (dissolved)	-0.00498	1.25	3.12	ug/L	U	SW6010C
	Zinc	0.149	1.25	5.00	ug/L	U	SW6010C
	Zinc (dissolved)	0.149	1.25	5.00	ug/L	U	SW6010C
4E12503-CCB2	Aluminum	-2.93	50.0	200	ug/L	U	SW6010C
	Arsenic	-0.721	3.00	10.0	ug/L	U	SW6010C
	Barium	0.166	5.00	40.0	ug/L	U	SW6010C
	Beryllium	0.0537	1.00	5.00	ug/L	U	SW6010C
	Boron	-0.126	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.136	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.318	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.195	5.00	12.5	ug/L	U	SW6010C
	Copper	1.01	4.00	10.0	ug/L	U	SW6010C
	Iron	13.4	30.0	100	ug/L	U	SW6010C
	Lead	0.250	1.50	3.00	ug/L	U	SW6010C
	Manganese	0.248	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.742	5.00	20.0	ug/L	U	SW6010C
	Nickel	0.0523	3.00	10.0	ug/L	U	SW6010C
	Selenium	1.72	3.00	10.0	ug/L	U	SW6010C
	Silver	-0.0813	1.00	10.0	ug/L	U	SW6010C
	Thallium	0.0500	3.00	8.00	ug/L	U	SW6010C
	Tin	-0.254	10.0	30.0	ug/L	U	SW6010C
	Vanadium	0.174	5.00	12.5	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12503
Calibration: 4125002

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12503-CCB2	Zinc	0.136	5.00	20.0	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12803
Calibration: 4128001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12803-ICB1	Aluminum	-9.207	50.0	200	ug/L	U	SW6010C
	Arsenic	0.1520	3.00	10.0	ug/L	U	SW6010C
	Barium	-0.03482	5.00	40.0	ug/L	U	SW6010C
	Beryllium	-0.05570	1.00	5.00	ug/L	U	SW6010C
	Boron	1.004	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.006030	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.1701	2.00	10.0	ug/L	U	SW6010C
	Cobalt	-0.02673	5.00	12.5	ug/L	U	SW6010C
	Copper	0.7971	4.00	10.0	ug/L	U	SW6010C
	Iron	8.534	30.0	100	ug/L	U	SW6010C
	Lead	-0.3428	1.50	3.00	ug/L	U	SW6010C
	Manganese	0.002780	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.6983	5.00	20.0	ug/L	U	SW6010C
	Nickel	0.02989	3.00	10.0	ug/L	U	SW6010C
	Selenium	0.7415	3.00	10.0	ug/L	U	SW6010C
	Silver	-0.02247	1.00	10.0	ug/L	U	SW6010C
	Thallium	0.1348	3.00	8.00	ug/L	U	SW6010C
	Tin	0.09091	10.0	30.0	ug/L	U	SW6010C
	Vanadium	-0.03970	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.2155	5.00	20.0	ug/L	U	SW6010C
4E12803-CCB1	Aluminum	-19.6	50.0	200	ug/L	U	SW6010C
	Arsenic	0.152	3.00	10.0	ug/L	U	SW6010C
	Barium	0.00199	5.00	40.0	ug/L	U	SW6010C
	Beryllium	-0.0462	1.00	5.00	ug/L	U	SW6010C
	Boron	-0.00179	10.0	40.0	ug/L	U	SW6010C
	Cadmium	-0.00624	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.0961	2.00	10.0	ug/L	U	SW6010C
	Cobalt	-0.0354	5.00	12.5	ug/L	U	SW6010C
	Copper	0.983	4.00	10.0	ug/L	U	SW6010C
	Iron	7.54	30.0	100	ug/L	U	SW6010C
	Lead	0.0478	1.50	3.00	ug/L	U	SW6010C
	Manganese	0.000600	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.627	5.00	20.0	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12803
Calibration: 4128001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12803-CCB1	Nickel	0.0901	3.00	10.0	ug/L	U	SW6010C
	Selenium	0.790	3.00	10.0	ug/L	U	SW6010C
	Silver	-0.115	1.00	10.0	ug/L	U	SW6010C
	Thallium	-0.0881	3.00	8.00	ug/L	U	SW6010C
	Tin	0.0726	10.0	30.0	ug/L	U	SW6010C
	Vanadium	0.0906	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.0935	5.00	20.0	ug/L	U	SW6010C
4E12803-CCB3	Aluminum	-7.33	50.0	200	ug/L	U	SW6010C
	Arsenic	-0.339	3.00	10.0	ug/L	U	SW6010C
	Barium	0.0636	5.00	40.0	ug/L	U	SW6010C
	Beryllium	-0.0359	1.00	5.00	ug/L	U	SW6010C
	Boron	0.129	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.00891	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.0314	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.0407	5.00	12.5	ug/L	U	SW6010C
	Copper	1.11	4.00	10.0	ug/L	U	SW6010C
	Iron	1.25	30.0	100	ug/L	U	SW6010C
	Lead	-0.557	1.50	3.00	ug/L	U	SW6010C
	Manganese	0.0225	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.718	5.00	20.0	ug/L	U	SW6010C
	Nickel	0.0702	3.00	10.0	ug/L	U	SW6010C
	Selenium	0.818	3.00	10.0	ug/L	U	SW6010C
	Silver	0.0185	1.00	10.0	ug/L	U	SW6010C
	Thallium	0.581	3.00	8.00	ug/L	U	SW6010C
	Tin	0.265	10.0	30.0	ug/L	U	SW6010C
	Vanadium	-0.117	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.224	5.00	20.0	ug/L	U	SW6010C
4E06002-BLK1	Aluminum	-1.41	12.5	50.0	ug/L	U	SW6010C
	Aluminum (dissolved)	-1.41	12.5	50.0	ug/L	U	SW6010C
	Arsenic	0.148	0.750	2.50	ug/L	U	SW6010C
	Arsenic (dissolved)	0.148	0.750	2.50	ug/L	U	SW6010C
	Barium	0.00889	1.25	10.0	ug/L	U	SW6010C
	Barium (dissolved)	0.00889	1.25	10.0	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12803
Calibration: 4128001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E06002-BLK1	Beryllium	-0.0156	0.250	1.25	ug/L	U	SW6010C
	Beryllium (dissolved)	-0.0156	0.250	1.25	ug/L	U	SW6010C
	Boron	0.158	2.50	10.0	ug/L	U	SW6010C
	Boron (dissolved)	0.158	2.50	10.0	ug/L	U	SW6010C
	Cadmium	0.0146	0.250	1.25	ug/L	U	SW6010C
	Cadmium (dissolved)	0.0146	0.250	1.25	ug/L	U	SW6010C
	Chromium	0.00912	0.500	2.50	ug/L	U	SW6010C
	Chromium (dissolved)	0.00912	0.500	2.50	ug/L	U	SW6010C
	Cobalt	-0.00887	1.25	3.12	ug/L	U	SW6010C
	Cobalt (dissolved)	-0.00887	1.25	3.12	ug/L	U	SW6010C
	Copper	0.228	1.00	2.50	ug/L	U	SW6010C
	Copper (dissolved)	0.228	1.00	2.50	ug/L	U	SW6010C
	Iron	0.225	7.50	25.0	ug/L	U	SW6010C
	Iron (dissolved)	0.225	7.50	25.0	ug/L	U	SW6010C
	Lead	0.0188	0.375	0.750	ug/L	U	SW6010C
	Lead (dissolved)	0.0188	0.375	0.750	ug/L	U	SW6010C
	Manganese	0.0504	0.750	3.75	ug/L	U	SW6010C
	Manganese (dissolved)	0.0504	0.750	3.75	ug/L	U	SW6010C
	Molybdenum	0.0961	1.25	5.00	ug/L	U	SW6010C
	Molybdenum (dissolved)	0.0961	1.25	5.00	ug/L	U	SW6010C
	Nickel	0.0165	0.750	2.50	ug/L	U	SW6010C
	Nickel (dissolved)	0.0165	0.750	2.50	ug/L	U	SW6010C
	Selenium	0.179	0.750	2.50	ug/L	U	SW6010C
	Selenium (dissolved)	0.179	0.750	2.50	ug/L	U	SW6010C
	Silver	-0.0676	0.250	2.50	ug/L	U	SW6010C
	Silver (dissolved)	-0.0676	0.250	2.50	ug/L	U	SW6010C
	Thallium	-0.0399	0.750	2.00	ug/L	U	SW6010C
	Thallium (dissolved)	-0.0399	0.750	2.00	ug/L	U	SW6010C
	Tin	0.0843	2.50	7.50	ug/L	U	SW6010C
	Tin (dissolved)	0.0843	2.50	7.50	ug/L	U	SW6010C
	Vanadium	0.00157	1.25	3.12	ug/L	U	SW6010C
	Vanadium (dissolved)	0.00157	1.25	3.12	ug/L	U	SW6010C
	Zinc	0.129	1.25	5.00	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12803
Calibration: 4128001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E06002-BLK1	Zinc (dissolved)	0.129	1.25	5.00	ug/L	U	SW6010C
4E12803-CCB4	Aluminum	-8.45	50.0	200	ug/L	U	SW6010C
	Arsenic	0.0474	3.00	10.0	ug/L	U	SW6010C
	Barium	0.181	5.00	40.0	ug/L	U	SW6010C
	Beryllium	-0.0262	1.00	5.00	ug/L	U	SW6010C
	Boron	0.191	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.148	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.172	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.161	5.00	12.5	ug/L	U	SW6010C
	Copper	1.06	4.00	10.0	ug/L	U	SW6010C
	Iron	1.32	30.0	100	ug/L	U	SW6010C
	Lead	0.0529	1.50	3.00	ug/L	U	SW6010C
	Manganese	0.0275	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.771	5.00	20.0	ug/L	U	SW6010C
	Nickel	0.135	3.00	10.0	ug/L	U	SW6010C
	Selenium	1.00	3.00	10.0	ug/L	U	SW6010C
	Silver	-0.0553	1.00	10.0	ug/L	U	SW6010C
	Thallium	-0.152	3.00	8.00	ug/L	U	SW6010C
	Tin	0.131	10.0	30.0	ug/L	U	SW6010C
	Vanadium	-0.294	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.207	5.00	20.0	ug/L	U	SW6010C

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4125002
Sequence: 4E12503

Lab Sample ID	Analyte	True	Found	%R	Units
4E12503-IFA1	Aluminum	500000	499,160.00	99.8	ug/L
	Arsenic		-2.65		ug/L
	Barium		0.97		ug/L
	Beryllium		0.07		ug/L
	Boron		31.29		ug/L
	Cadmium		-0.73		ug/L
	Chromium		-0.77		ug/L
	Cobalt		-1.17		ug/L
	Copper		-3.69		ug/L
	Iron	200000	191,080.00	95.5	ug/L
	Lead		-2.11		ug/L
	Manganese		-1.82		ug/L
	Molybdenum		1.35		ug/L
	Nickel		-2.75		ug/L
	Selenium		-0.50		ug/L
	Silver		-0.74		ug/L
	Thallium		0.35		ug/L
	Tin		-6.21		ug/L
	Vanadium		1.28		ug/L
	Zinc		-7.18		ug/L
4E12503-IFB1	Aluminum	500000	494,960.00	99.0	ug/L
	Arsenic	100.0	112.67	113	ug/L
	Barium	500.0	539.56	108	ug/L
	Beryllium	500.0	509.69	102	ug/L
	Boron		26.53		ug/L
	Cadmium	1000	1,082.10	108	ug/L
	Chromium	500.0	479.29	95.9	ug/L
	Cobalt	500.0	503.35	101	ug/L
	Copper	500.0	475.68	95.1	ug/L

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4125002
Sequence: 4E12503

Lab Sample ID	Analyte	True	Found	%R	Units
4E12503-IFB1	Iron	200000	191,770.00	95.9	ug/L
	Lead	50.00	48.53	97.1	ug/L
	Manganese	500.0	462.71	92.5	ug/L
	Molybdenum		1.19		ug/L
	Nickel	1000	1,032.00	103	ug/L
	Selenium	50.00	51.86	104	ug/L
	Silver	200.0	197.67	98.8	ug/L
	Thallium	100.0	96.28	96.3	ug/L
	Tin		-6.21		ug/L
	Vanadium	500.0	497.21	99.4	ug/L
	Zinc	1000	1,088.70	109	ug/L

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units
4E12803-IFA1	Aluminum	500000	517,430.00	103	ug/L
	Arsenic		-3.43		ug/L
	Barium		0.64		ug/L
	Beryllium		-0.03		ug/L
	Boron		2.87		ug/L
	Cadmium		-1.45		ug/L
	Chromium		-0.90		ug/L
	Cobalt		-1.04		ug/L
	Copper		-3.85		ug/L
	Iron	200000	197,040.00	98.5	ug/L
	Lead		1.86		ug/L
	Manganese		-0.96		ug/L
	Molybdenum		0.41		ug/L
	Nickel		-3.85		ug/L
	Selenium		1.18		ug/L
	Silver		-0.82		ug/L
	Thallium		-0.32		ug/L
	Tin		-2.99		ug/L
	Vanadium		1.06		ug/L
	Zinc		-7.10		ug/L
4E12803-IFB1	Aluminum	500000	511,040.00	102	ug/L
	Arsenic	100.0	106.16	106	ug/L
	Barium	500.0	535.70	107	ug/L
	Beryllium	500.0	507.72	102	ug/L
	Boron		57.94		ug/L
	Cadmium	1000	1,021.10	102	ug/L
	Chromium	500.0	478.05	95.6	ug/L
	Cobalt	500.0	494.72	98.9	ug/L
	Copper	500.0	490.37	98.1	ug/L

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units
4E12803-IFB1	Iron	200000	198,380.00	99.2	ug/L
	Lead	50.00	46.65	93.3	ug/L
	Manganese	500.0	509.30	102	ug/L
	Molybdenum		0.46		ug/L
	Nickel	1000	975.95	97.6	ug/L
	Selenium	50.00	54.28	109	ug/L
	Silver	200.0	198.62	99.3	ug/L
	Thallium	100.0	91.96	92.0	ug/L
	Tin		-3.28		ug/L
	Vanadium	500.0	491.60	98.3	ug/L
	Zinc	1000	1,025.60	103	ug/L

LCS / LCS DUPLICATE RECOVERY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D29005	Laboratory ID:	4D29005-BS1
Preparation:	pMercury-W SW 7470A	Initial/Final:	30 mL / 30 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Mercury	2.000	2.098	105	80 - 120
Mercury (dissolved)	2.000	2.098	105	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D29021	Laboratory ID:	4D29021-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Aluminum	40.00	40.30	101	80 - 120
Aluminum (dissolved)	40.00	40.30	101	80 - 120
Arsenic	5.000	4.390	87.8	80 - 120
Arsenic (dissolved)	5.000	4.390	87.8	80 - 120
Barium	40.00	34.96	87.4	80 - 120
Barium (dissolved)	40.00	34.96	87.4	80 - 120
Beryllium	1.000	0.9114	91.1	80 - 120
Beryllium (dissolved)	1.000	0.9114	91.1	80 - 120
Boron	20.00	18.00	90.0	80 - 120
Boron (dissolved)	20.00	18.00	90.0	80 - 120
Cadmium	2.500	2.318	92.7	80 - 120
Cadmium (dissolved)	2.500	2.318	92.7	80 - 120
Chromium	4.000	3.624	90.6	80 - 120
Chromium (dissolved)	4.000	3.624	90.6	80 - 120
Cobalt	10.00	8.840	88.4	80 - 120
Cobalt (dissolved)	10.00	8.840	88.4	80 - 120
Copper	5.000	4.934	98.7	80 - 120
Copper (dissolved)	5.000	4.934	98.7	80 - 120
Iron	20.00	19.48	97.4	80 - 120
Iron (dissolved)	20.00	19.48	97.4	80 - 120
Lead	5.000	4.763	95.3	80 - 120
Lead (dissolved)	5.000	4.763	95.3	80 - 120
Manganese	10.00	8.280	82.8	80 - 120
Manganese (dissolved)	10.00	8.280	82.8	80 - 120
Molybdenum	20.00	17.12	85.6	80 - 120
Molybdenum (dissolved)	20.00	17.12	85.6	80 - 120
Nickel	10.00	9.129	91.3	80 - 120
Nickel (dissolved)	10.00	9.129	91.3	80 - 120
Selenium	5.000	4.786	95.7	80 - 120
Selenium (dissolved)	5.000	4.786	95.7	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D29021	Laboratory ID:	4D29021-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Silver	5.000	4.652	93.0	80 - 120
Silver (dissolved)	5.000	4.652	93.0	80 - 120
Thallium	5.000	4.752	95.0	80 - 120
Thallium (dissolved)	5.000	4.752	95.0	80 - 120
Tin	20.00	16.87	84.4	80 - 120
Tin (dissolved)	20.00	16.87	84.4	80 - 120
Vanadium	10.00	8.961	89.6	80 - 120
Vanadium (dissolved)	10.00	8.961	89.6	80 - 120
Zinc	10.00	9.132	91.3	80 - 120
Zinc (dissolved)	10.00	9.132	91.3	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E06002	Laboratory ID:	4E06002-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Aluminum	40.00	36.89	92.2	80 - 120
Aluminum (dissolved)	40.00	36.89	92.2	80 - 120
Arsenic	5.000	4.380	87.6	80 - 120
Arsenic (dissolved)	5.000	4.380	87.6	80 - 120
Barium	40.00	34.62	86.5	80 - 120
Barium (dissolved)	40.00	34.62	86.5	80 - 120
Beryllium	1.000	0.8969	89.7	80 - 120
Beryllium (dissolved)	1.000	0.8969	89.7	80 - 120
Boron	20.00	18.08	90.4	80 - 120
Boron (dissolved)	20.00	18.08	90.4	80 - 120
Cadmium	2.500	2.119	84.8	80 - 120
Cadmium (dissolved)	2.500	2.119	84.8	80 - 120
Chromium	4.000	3.715	92.9	80 - 120
Chromium (dissolved)	4.000	3.715	92.9	80 - 120
Cobalt	10.00	8.880	88.8	80 - 120
Cobalt (dissolved)	10.00	8.880	88.8	80 - 120
Copper	5.000	5.203	104	80 - 120
Copper (dissolved)	5.000	5.203	104	80 - 120
Iron	20.00	19.53	97.6	80 - 120
Iron (dissolved)	20.00	19.53	97.6	80 - 120
Lead	5.000	4.453	89.1	80 - 120
Lead (dissolved)	5.000	4.453	89.1	80 - 120
Manganese	10.00	10.17	102	80 - 120
Manganese (dissolved)	10.00	10.17	102	80 - 120
Molybdenum	20.00	17.18	85.9	80 - 120
Molybdenum (dissolved)	20.00	17.18	85.9	80 - 120
Nickel	10.00	8.617	86.2	80 - 120
Nickel (dissolved)	10.00	8.617	86.2	80 - 120
Selenium	5.000	4.658	93.2	80 - 120
Selenium (dissolved)	5.000	4.658	93.2	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E06002	Laboratory ID:	4E06002-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Silver	5.000	4.644	92.9	80 - 120
Silver (dissolved)	5.000	4.644	92.9	80 - 120
Thallium	5.000	4.342	86.8	80 - 120
Thallium (dissolved)	5.000	4.342	86.8	80 - 120
Tin	20.00	17.25	86.2	80 - 120
Tin (dissolved)	20.00	17.25	86.2	80 - 120
Vanadium	10.00	9.096	91.0	80 - 120
Vanadium (dissolved)	10.00	9.096	91.0	80 - 120
Zinc	10.00	8.400	84.0	80 - 120
Zinc (dissolved)	10.00	8.400	84.0	80 - 120

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_012

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Al	Ca	Fe	Mg	Ag
Aluminum	396.152	0.000000	0.560011	0.000043	0.000000	0.000000
Arsenic	189.042	-0.000011	0.000000	-0.00004	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000005	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Boron	249.678	0.000000	0.000000	-0.00054	0.000000	0.000000
Cadmium	214.438	0.000008	0.003803	0.000029	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000003	0.005608	0.000000
Cobalt	228.616	0.000000	0.000000	0.000042	0.000000	0.000000
Copper	324.754	0.000001	0.000000	-0.000028	0.001001	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	-0.000132	0.000000	0.000026	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000025	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	-0.000011	0.000000	0.000000
Nickel	231.604	0.000001	0.000009	0.000029	0.002042	0.000000
Selenium	196.09	0.000015	-0.007295	0.000025	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000004	0.000000	0.000000
Thallium	190.8	0.000004	0.000000	0.000008	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	0.000000	0.000000	-0.000008	0.000000	0.000000
Zinc	206.2	0.000014	0.000827	-0.000001	0.000000	0.000000

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_012

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: As	B	Ba	Be	Cd
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Boron	249.678	0.000000	0.000000	0.000000	0.000000	0.000467
Cadmium	214.438	-0.000313	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000043
Cobalt	228.616	0.000000	0.000000	0.000000	0.000000	0.000000
Copper	324.754	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	-0.000039	0.000000
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.000000
Thallium	190.8	0.000000	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	0.000000	0.000000	0.000000	0.000000	0.000000
Zinc	206.2	0.000000	0.000000	0.000000	0.001494	0.000425

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_012

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Co	Cr	Cu	K	Mn
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000195	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Boron	249.678	0.002404	0.001624	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	-0.000301	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000088
Cobalt	228.616	0.000000	-0.000032	0.000000	0.000000	0.000000
Copper	324.754	0.000000	0.000000	0.000000	0.000000	0.000002
Iron	261.187	0.000000	-0.000701	0.000000	0.000000	-0.000794
Lead	220.3	-0.000003	0.000000	0.001073	0.000000	0.000116
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	-0.000048	-0.000079	0.000000	0.000000	0.000000
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.00061
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.00014
Thallium	190.8	0.001892	0.000203	0.000000	0.000000	0.001269
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	0.000000	-0.009179	0.000000	0.000000	-0.00088
Zinc	206.2	0.000000	0.000078	0.000001	0.000000	0.000673

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_012

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Mo	Na	Ni	Pb	Sb
Aluminum	396.152	0.042196	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000577	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	-0.000025	0.000000	0.000000	0.000000	0.000000
Boron	249.678	-0.001476	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000105	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000000
Cobalt	228.616	-0.000748	0.000000	0.000049	0.000000	0.000000
Copper	324.754	0.0012	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	-0.000317	0.000000	0.000224	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	-0.000223	0.000000	0.000000	0.000017	-0.00003
Selenium	196.09	0.000166	0.000000	0.000039	0.000000	0.000000
Silver	328.068	-0.000046	0.000000	0.000000	0.000000	0.000000
Thallium	190.8	0.000023	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	-0.000106	0.000000	0.000000	0.000000	0.000000
Zinc	206.2	0.000173	0.000000	0.000200	0.000000	0.000004

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_012

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Se	Sn	Ti	Tl	V
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	0.000075	0.000000	0.000084
Barium	233.527	0.000000	0.000000	0.000000	0.000000	-0.002594
Beryllium	313.042	0.000000	0.000000	-0.000485	0.000000	0.000417
Boron	249.678	0.000000	0.000000	0.000000	0.000000	-0.00024
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000	0.00003
Chromium	267.716	0.000000	0.000000	0.000123	0.000000	-0.000018
Cobalt	228.616	0.000000	0.000000	0.002252	0.000000	0.000000
Copper	324.754	0.000000	0.000000	-0.000409	0.000000	-0.000006
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	0.000000	0.000000	-0.000006	0.000000	-0.00007
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	-0.000155
Nickel	231.604	0.000000	0.000000	0.000001	0.000281	0.000002
Selenium	196.09	0.000000	0.000000	0.000022	0.000000	0.000180
Silver	328.068	0.000000	0.000000	0.000000	0.000000	-0.002831
Thallium	190.8	0.000000	0.000000	-0.001194	0.000000	-0.008687
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000251
Vanadium	292.4	0.000000	0.000000	-0.000197	0.000000	0.000000
Zinc	206.2	-0.000008	0.000000	0.000000	0.000000	0.000226

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_012

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: Zn				
Aluminum	396.152	0.000000				
Arsenic	189.042	-0.000011				
Barium	233.527	0.000000				
Beryllium	313.042	0.000000				
Boron	249.678	0.000000				
Cadmium	214.438	0.000000				
Chromium	267.716	0.000000				
Cobalt	228.616	0.000000				
Copper	324.754	0.000000				
Iron	261.187	0.000000				
Lead	220.3	0.000000				
Manganese	257.61	0.000000				
Molybdenum	202.03	-0.000269				
Nickel	231.604	-0.000003				
Selenium	196.09	0.000000				
Silver	328.068	0.000000				
Thallium	190.8	0.000000				
Tin	189.989	0.000000				
Vanadium	292.4	0.000000				
Zinc	206.2	0.000000				

Comments:

FORM XA-IN

ICP-AES AND ICP-MS LINEAR RANGES

Lab Name: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc. SDG: KirtlandECOS_012

Project: Kirtland AFB (ECOS)

ICP Instrument ID: ME-ICP Date: 12/27/2013

Analyte	Integ. Time (Sec.)	Concentration ug/L	M
Aluminum	15	500000	P
Arsenic	15	10000	P
Barium	15	5000	P
Beryllium	15	10000	P
Boron	15	50000	P
Cadmium	15	10000	P
Chromium	15	10000	P
Cobalt	15	10000	P
Copper	15	25000	P
Iron	15	500000	P
Lead	15	25000	P
Manganese	15	15000	P
Molybdenum	15	10000	P
Nickel	15	50000	P
Selenium	15	10000	P
Silver	15	2000	P
Thallium	15	10000	P
Tin	15	25000	P
Vanadium	15	30000	P
Zinc	15	20000	P

PREPARATION BATCH SUMMARY

SW7470A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D29005 Batch Matrix: Water Preparation: pMercury-W SW 7470A

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30001	1404127-01	04/29/14 07:55	30.00	30.00
LF008-30001	1404127-02	04/29/14 07:55	30.00	30.00
LF008-30003	1404127-03	04/29/14 07:55	30.00	30.00
LF008-30003	1404127-04	04/29/14 07:55	30.00	30.00
LF008-80001	1404127-05	04/29/14 07:55	30.00	30.00
Blank	4D29005-BLK1	04/29/14 07:55	30.00	30.00
Blank	4D29005-BLK1	04/29/14 07:55	30.00	30.00
LCS	4D29005-BS1	04/29/14 07:55	30.00	30.00
LCS	4D29005-BS1	04/29/14 07:55	30.00	30.00

PREPARATION BATCH SUMMARY

SW6010C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D29021 Batch Matrix: Water Preparation: MET_3005A_LOW

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30001	1404127-01	04/29/14 16:34	100.00	25.00
LF008-30001	1404127-02	04/29/14 16:34	100.00	25.00
LF008-30003	1404127-03	04/29/14 16:34	100.00	25.00
Blank	4D29021-BLK1	04/29/14 16:34	100.00	25.00
LCS	4D29021-BS1	04/29/14 16:34	100.00	25.00

PREPARATION BATCH SUMMARY

SW6010C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E06002 Batch Matrix: Water Preparation: MET_3005A_LOW

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30003	1404127-04	05/06/14 08:06	100.00	25.00
LF008-80001	1404127-05	05/06/14 08:06	100.00	25.00
Blank	4E06002-BLK1	05/06/14 08:06	100.00	25.00
LCS	4E06002-BS1	05/06/14 08:06	100.00	25.00

ANALYSIS SEQUENCE SUMMARY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D12014	Instrument:	ME-FIMS
Calibration:	4120004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4D12014-CAL1	043014W-001	04/29/14 10:52
Cal Standard	4D12014-CAL2	043014W-002	04/29/14 10:53
Cal Standard	4D12014-CAL3	043014W-003	04/29/14 10:54
Cal Standard	4D12014-CAL4	043014W-004	04/29/14 10:55
Cal Standard	4D12014-CAL5	043014W-005	04/29/14 10:56
Cal Standard	4D12014-CAL6	043014W-006	04/29/14 10:57
Cal Standard	4D12014-CAL7	043014W-007	04/29/14 10:59
Cal Standard	4D12014-CAL8	043014W-008	04/29/14 11:00
Initial Cal Check	4D12014-ICV1	043014W-009	04/29/14 11:02
Initial Cal Blank	4D12014-ICB1	043014W-010	04/29/14 11:03
Blank	4D29005-BLK1	043014W-011	04/29/14 11:06
Blank	4D29005-BLK1	043014W-011	04/29/14 11:06
LCS	4D29005-BS1	043014W-012	04/29/14 11:07
LCS	4D29005-BS1	043014W-012	04/29/14 11:07
LF008-30001	1404127-01	043014W-013	04/29/14 11:09
LF008-30001	1404127-02	043014W-014	04/29/14 11:10
LF008-30003	1404127-03	043014W-015	04/29/14 11:11
LF008-30003	1404127-04	043014W-016	04/29/14 11:12
LF008-80001	1404127-05	043014W-017	04/29/14 11:14
Calibration Check	4D12014-CCV1	043014W-025	04/29/14 11:23
Calibration Blank	4D12014-CCB1	043014W-026	04/29/14 11:24

ANALYSIS SEQUENCE SUMMARY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12503	Instrument:	ME-ICP
Calibration:	4125002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E12503-CAL1	5-02-14A-001	05/02/14 09:53
Cal Standard	4E12503-CAL2	5-02-14A-002	05/02/14 09:57
Cal Standard	4E12503-CAL3	5-02-14A-003	05/02/14 10:02
Cal Standard	4E12503-CAL4	5-02-14A-004	05/02/14 10:06
Cal Standard	4E12503-CAL5	5-02-14A-005	05/02/14 10:10
Cal Standard	4E12503-CAL6	5-02-14A-006	05/02/14 10:14
Initial Cal Check	4E12503-ICV1	5-02-14B-001	05/02/14 10:53
Initial Cal Blank	4E12503-ICB1	5-02-14B-002	05/02/14 11:00
Instrument RL Check	4E12503-CRL1	5-02-14B-003	05/02/14 11:05
Instrument RL Check	4E12503-CRL2	5-02-14B-004	05/02/14 11:10
Instrument RL Check	4E12503-CRL3	5-02-14B-005	05/02/14 11:14
Interference Check A	4E12503-IFA1	5-02-14B-006	05/02/14 11:19
Interference Check B	4E12503-IFB1	5-02-14B-007	05/02/14 11:25
Calibration Check	4E12503-CCV1	5-02-14B-009	05/02/14 11:34
Calibration Blank	4E12503-CCB1	5-02-14B-010	05/02/14 11:41
Blank	4D29021-BLK1	5-02-14C-001	05/02/14 11:48
LCS	4D29021-BS1	5-02-14C-002	05/02/14 11:52
LF008-30001	1404127-01	5-02-14C-003	05/02/14 11:58
LF008-30001	1404127-02	5-02-14C-004	05/02/14 12:02
LF008-30003	1404127-03	5-02-14C-005	05/02/14 12:06
Calibration Check	4E12503-CCV2	5-02-14C-013	05/02/14 12:43
Calibration Blank	4E12503-CCB2	5-02-14C-014	05/02/14 12:50

ANALYSIS SEQUENCE SUMMARY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12803	Instrument:	ME-ICP
Calibration:	4128001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E12803-CAL1	5-07-14A-001	05/07/14 09:23
Cal Standard	4E12803-CAL2	5-07-14A-002	05/07/14 09:27
Cal Standard	4E12803-CAL3	5-07-14A-003	05/07/14 09:30
Cal Standard	4E12803-CAL4	5-07-14A-004	05/07/14 09:35
Cal Standard	4E12803-CAL5	5-07-14A-005	05/07/14 09:39
Cal Standard	4E12803-CAL6	5-07-14A-006	05/07/14 09:44
Initial Cal Check	4E12803-ICV1	5-07-14B-001	05/07/14 10:22
Initial Cal Blank	4E12803-ICB1	5-07-14B-002	05/07/14 10:30
Instrument RL Check	4E12803-CRL1	5-07-14B-004	05/07/14 10:41
Instrument RL Check	4E12803-CRL2	5-07-14B-005	05/07/14 10:45
Interference Check A	4E12803-IFA1	5-07-14B-006	05/07/14 10:50
Interference Check B	4E12803-IFB1	5-07-14B-007	05/07/14 10:55
Calibration Check	4E12803-CCV1	5-07-14B-009	05/07/14 11:04
Calibration Blank	4E12803-CCB1	5-07-14B-010	05/07/14 11:11
Calibration Check	4E12803-CCV3	5-07-14B-043	05/07/14 13:39
Calibration Blank	4E12803-CCB3	5-07-14B-044	05/07/14 13:46
Blank	4E06002-BLK1	5-07-14B-045	05/07/14 13:51
LCS	4E06002-BS1	5-07-14B-046	05/07/14 13:55
LF008-30003	1404127-04	5-07-14B-047	05/07/14 14:00
LF008-80001	1404127-05	5-07-14B-048	05/07/14 14:05
Calibration Check	4E12803-CCV4	5-07-14B-061	05/07/14 15:02
Calibration Blank	4E12803-CCB4	5-07-14B-062	05/07/14 15:09

INITIAL CALIBRATION DATA

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4120004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/29/14 10:52	4/29/14 11:00

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	0	0	0.2	0.004165	0.5	0.004232	1	0.004268	2	0.004099	4	0.0040675
Mercury	0	0	0.2	0.004165	0.5	0.004232	1	0.004268	2	0.004099	4	0.0040675

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4120004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/29/14 10:52	4/29/14 11:00

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	6	0.0039545	10	0.0041279								
Mercury	6	0.0039545	10	0.0041279								

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4120004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/29/14 10:52	4/29/14 11:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Mercury	3.614237E-03	40.49579	0	0	0.9994128		0.995	
Mercury	3.614237E-03	40.49579	0	0	0.9994128		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4125002	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/2/14 9:53 5/2/14 10:24

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum	0	0	5000	1.5532E-05	10000	1.5926E-05			500000	1.5554E-05		
Antimony	0	0	100	0.0006676	1000	7.404501E-04					10000	7.3726E-04
Arsenic	0	0	100	0.0003621	1000	4.1845E-04					10000	4.0594E-04
Barium	0	0	50	0.0118232	1000	0.011464	5000	0.0123258				
Beryllium	0	0	100	0.002344	1000	0.0024082					10000	0.00236
Boron	0	0	50	0.0000144	1000	1.393E-05					5000	1.4258E-05
Cadmium	0	0	100	0.020763	1000	0.020422					10000	0.020223
Calcium	0	0	1100	6.667273E-05	50000	5.902E-05					10000	
Chromium	0	0	100	0.0000508	1000	5.055E-05					10000	0.0000502
Cobalt	0	0	100	0.0046574	1000	0.0046568					10000	0.0047874
Copper	0	0	100	0.0000623	1000	5.613E-05					10000	5.6342E-05
Iron	0	0	5100	1.371373E-05	10000	1.3428E-05			500000	1.30442E-05	10000	
Lead	0	0	100	0.0013115	1000	0.0013379					10000	0.0014084
Magnesium	0	0	5100		50000	2.2802E-06			500000	2.2568E-06	10000	
Manganese	0	0	100	0.0001746	1000	1.6977E-04	10000	1.6515E-04			10000	
Molybdenum	0	0	100	0.0033553	1000	0.0035906					10000	0.0035183
Nickel	0	0	100	0.0036593	1000	0.0037173					10000	0.0038273
Potassium	0	0	1000	1.095E-05	10000	1.3962E-05						
Selenium	0	0	100	0.0003684	1000	3.5026E-04					10000	3.3112E-04
Silver	0	0	20	0.000061	500	5.408E-05	2000	5.6215E-05				
Sodium	0	0	1000		50000	4.9806E-05						
Thallium	0	0	100	0.0007759	1000	7.7553E-04					10000	8.0347E-04
Tin	0	0	50	0.0012396	1000	0.001297					5000	1.31956E-03
Titanium	0	0	100	0.0001479	1000	1.4491E-04					10000	1.4329E-04
Vanadium	0	0	100	0.0000484	1000	4.911E-05					10000	4.9863E-05
Zinc	0	0	100	0.007933	1000	0.0083195					10000	0.0080923
Strontium	0	0	100	0.00089	1000	0.0009096					10000	0.0009016
Lithium (outside certification)	0	0	100	0.0000111	1000	0.0000115					10000	1.0702E-05
Aluminum	0	0	5000	1.5532E-05	10000	1.5926E-05			500000	1.5554E-05		
Antimony	0	0	100	0.0006676	1000	7.404501E-04					10000	7.3726E-04
Arsenic	0	0	100	0.0003621	1000	4.1845E-04					10000	4.0594E-04

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4125002	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/2/14 9:53 5/2/14 10:24

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Barium	0	0	50	0.0118232	1000	0.011464	5000	0.0123258				
Beryllium	0	0	100	0.002344	1000	0.0024082					10000	0.00236
Boron	0	0	50	0.0000144	1000	1.393E-05					5000	1.4258E-05
Cadmium	0	0	100	0.020763	1000	0.020422					10000	0.020223
Calcium	0	0	1100	6.667273E-05	50000	5.902E-05					10000	
Chromium	0	0	100	0.0000508	1000	5.055E-05					10000	0.0000502
Cobalt	0	0	100	0.0046574	1000	0.0046568					10000	0.0047874
Copper	0	0	100	0.0000623	1000	5.613E-05					10000	5.6342E-05
Iron	0	0	5100	1.371373E-05	10000	1.3428E-05			500000	1.30442E-05	10000	
Lead	0	0	100	0.0013115	1000	0.0013379					10000	0.0014084
Magnesium	0	0	5100		50000	2.2802E-06			500000	2.2568E-06	10000	
Manganese	0	0	100	0.0001746	1000	1.6977E-04	10000	1.6515E-04			10000	
Molybdenum	0	0	100	0.0033553	1000	0.0035906					10000	0.0035183
Nickel	0	0	100	0.0036593	1000	0.0037173					10000	0.0038273
Potassium	0	0	1000	1.095E-05	10000	1.3962E-05						
Selenium	0	0	100	0.0003684	1000	3.5026E-04					10000	3.3112E-04
Silver	0	0	20	0.000061	500	5.408E-05	2000	5.6215E-05				
Sodium	0	0	1000		50000	4.9806E-05						
Thallium	0	0	100	0.0007759	1000	7.7553E-04					10000	8.0347E-04
Tin	0	0	50	0.0012396	1000	0.001297					5000	1.31956E-03
Titanium	0	0	100	0.0001479	1000	1.4491E-04					10000	1.4329E-04
Vanadium	0	0	100	0.0000484	1000	4.911E-05					10000	4.9863E-05
Zinc	0	0	100	0.007933	1000	0.0083195					10000	0.0080923
Strontium	0	0	100	0.00089	1000	0.0009096					10000	0.0009016
Lithium (outside certification)	0	0	100	0.0000111	1000	0.0000115					10000	1.0702E-05

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4125002	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/2/14 9:53 5/2/14 10:24

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum												
Antimony												
Arsenic												
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	5.7652E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.208E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4184E-05										
Selenium												
Silver												
Sodium	100000	4.9537E-05	500000	4.8128E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												
Aluminum												
Antimony												
Arsenic												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4125002	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/2/14 9:53 5/2/14 10:24

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	5.7652E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.208E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4184E-05										
Selenium												
Silver												
Sodium	100000	4.9537E-05	500000	4.8128E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_012	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Calibration:	4125002		Instrument:	ME-ICP	
Matrix:	Water		Calibration Dates:	5/2/14 9:53	5/2/14 10:24

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Aluminum	1.1753E-05	66.68441	4.453125	181.2344	0.9999997		0.998	
Antimony	5.363275E-04	66.96065	1.885485	91.47448	0.9999984		0.998	
Arsenic	2.966225E-04	67.16243	3.874625	149.7802	0.9999849		0.998	
Barium	8.90325E-03	66.78476	1.344348	114.111	0.999791		0.998	
Beryllium	1.77805E-03	66.68433	8.93909	191.617	0.9999957		0.998	
Boron	1.0647E-05	66.69229	3.12034	135.8106	0.9999741		0.998	
Cadmium	0.015352	66.68249	2.22751	144.0493	0.9999992		0.998	
Calcium	4.583618E-05	67.2268	2.436328	169.14	0.9999951		0.998	
Chromium	3.78875E-05	66.66983	10.12687	184.1501	0.9999996		0.998	
Cobalt	0.0035254	66.68943	5.012183	168.3491	0.9999929		0.998	
Copper	4.3693E-05	66.98722	1.000443	58.76233	0.9999983		0.998	
Iron	1.004648E-05	66.72256	49.03922	198.2781	0.9999997		0.998	
Lead	1.01445E-03	66.78848	5.226315	159.8307	0.999978		0.998	
Magnesium	1.68625E-06	66.69052	6.76749	190.1046	0.999973		0.998	
Manganese	1.2738E-04	66.73544	2.544195	127.6022	0.9999933		0.998	
Molybdenum	2.61605E-03	66.77272	8.705185	180.3231	0.9999947		0.998	
Nickel	2.800975E-03	66.71305	25.58264	193.2519	0.9999927		0.998	
Potassium	9.774E-06	68.35334	2.389	128.2748	0.9999998		0.998	
Selenium	2.62445E-04	66.91847	2.94553	134.5351	0.9999761		0.998	
Silver	4.282375E-05	67.00815	3.1479	130.0155	0.9998849		0.998	
Sodium	3.686775E-05	66.69654	0.9286425	140.191	0.9999652		0.998	
Thallium	5.88725E-04	66.70371	1.91366	123.3887	0.9999896		0.998	
Tin	9.6404E-04	66.75804	2.944588	137.7886	0.9999897		0.998	
Titanium	1.09025E-04	66.68967	6.041747	186.8867	0.9999993		0.998	
Vanadium	3.684325E-05	66.68638	2.870325	123.4781	0.9999977		0.998	
Zinc	0.0060862	66.71757	13.8521	187.1627	0.9999916		0.998	
Strontium	0.0006753	66.67731	1.624675	137.9431	0.9999988		0.998	
Lithium (outside certification)	8.3255E-06	66.78141	18.74964	185.5537	0.9999483		0.998	
Aluminum	1.1753E-05	66.68441	4.453125	181.2344	0.9999997		0.998	
Antimony	5.363275E-04	66.96065	1.885485	91.47448	0.9999984		0.998	
Arsenic	2.966225E-04	67.16243	3.874625	149.7802	0.9999849		0.998	
Barium	8.90325E-03	66.78476	1.344348	114.111	0.999791		0.998	

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012		
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)		
Calibration:	4125002	Instrument:	ME-ICP		
Matrix:	Water	Calibration Dates:	5/2/14 9:53	5/2/14 10:24	

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Beryllium	1.77805E-03	66.68433	8.93909	191.617	0.9999957		0.998	
Boron	1.0647E-05	66.69229	3.12034	135.8106	0.9999741		0.998	
Cadmium	0.015352	66.68249	2.22751	144.0493	0.9999992		0.998	
Calcium	4.583618E-05	67.2268	2.436328	169.14	0.9999951		0.998	
Chromium	3.78875E-05	66.66983	10.12687	184.1501	0.9999996		0.998	
Cobalt	0.0035254	66.68943	5.012183	168.3491	0.9999929		0.998	
Copper	4.3693E-05	66.98722	1.000443	58.76233	0.9999983		0.998	
Iron	1.004648E-05	66.72256	49.03922	198.2781	0.9999997		0.998	
Lead	1.01445E-03	66.78848	5.226315	159.8307	0.999978		0.998	
Magnesium	1.68625E-06	66.69052	6.76749	190.1046	0.999973		0.998	
Manganese	1.2738E-04	66.73544	2.544195	127.6022	0.9999933		0.998	
Molybdenum	2.61605E-03	66.77272	8.705185	180.3231	0.9999947		0.998	
Nickel	2.800975E-03	66.71305	25.58264	193.2519	0.9999927		0.998	
Potassium	9.774E-06	68.35334	2.389	128.2748	0.9999998		0.998	
Selenium	2.62445E-04	66.91847	2.94553	134.5351	0.9999761		0.998	
Silver	4.282375E-05	67.00815	3.1479	130.0155	0.9998849		0.998	
Sodium	3.686775E-05	66.69654	0.9286425	140.191	0.9999652		0.998	
Thallium	5.88725E-04	66.70371	1.91366	123.3887	0.9999896		0.998	
Tin	9.6404E-04	66.75804	2.944588	137.7886	0.9999897		0.998	
Titanium	1.09025E-04	66.68967	6.041747	186.8867	0.9999993		0.998	
Vanadium	3.684325E-05	66.68638	2.870325	123.4781	0.9999977		0.998	
Zinc	0.0060862	66.71757	13.8521	187.1627	0.9999916		0.998	
Strontium	0.0006753	66.67731	1.624675	137.9431	0.9999988		0.998	
Lithium (outside certification)	8.3255E-06	66.78141	18.74964	185.5537	0.9999483		0.998	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum	0	0	5000	2.1074E-05	10000	2.1332E-05			500000	2.1096E-05		
Antimony	0	0	100	0.0003776	1000	5.5108E-04					10000	5.6365E-04
Arsenic	0	0	100	0.0002756	1000	3.1564E-04					10000	3.0724E-04
Barium	0	0	50	0.0090234	1000	0.0087075	5000	8.780001E-03				
Beryllium	0	0	100	0.0024482	1000	0.0024698					10000	0.0024048
Boron	0	0	50	0.0000154	1000	1.437E-05					5000	1.4884E-05
Cadmium	0	0	100	0.015803	1000	0.015448					10000	0.015329
Calcium	0	0	1100	7.271818E-05	50000	6.2052E-05					10000	
Chromium	0	0	100	0.0000518	1000	5.031E-05					10000	5.1006E-05
Cobalt	0	0	100	0.0042696	1000	0.0042343					10000	0.0043962
Copper	0	0	100	0.0000771	1000	7.199E-05					10000	7.433999E-05
Iron	0	0	5100	1.667843E-05	10000	1.629E-05			500000	1.61694E-05	10000	
Lead	0	0	100	0.0010095	1000	0.0010308					10000	0.0010825
Magnesium	0	0	5100		50000	2.6516E-06			500000	2.6454E-06	10000	
Manganese	0	0	100	0.0003009	1000	2.8321E-04	10000	2.8201E-04			10000	
Molybdenum	0	0	100	0.0030431	1000	0.003248					10000	0.0032082
Nickel	0	0	100	0.0028371	1000	0.0028679					10000	0.0029433
Potassium	0	0	1000	1.014E-05	10000	1.3936E-05						
Selenium	0	0	100	0.0004169	1000	4.0877E-04					10000	3.9325E-04
Silver	0	0	20	0.000062	500	5.354E-05	2000	5.5595E-05				
Sodium	0	0	1000		50000	5.058E-05						
Thallium	0	0	100	0.0005846	1000	5.8617E-04					10000	6.0885E-04
Tin	0	0	50	0.0012888	1000	0.0013353					5000	1.37078E-03
Titanium	0	0	100	0.0001882	1000	1.8362E-04					10000	1.8579E-04
Vanadium	0	0	100	0.0000526	1000	0.0000511					10000	5.2254E-05
Zinc	0	0	100	0.0060674	1000	0.0063326					10000	0.0061699
Strontium	0	0	100	0.001249	1000	0.001284					10000	0.001292
Lithium (outside certification)	0	0	100	0.0000109	1000	1.103E-05					10000	1.0527E-05
Aluminum	0	0	5000	2.1074E-05	10000	2.1332E-05			500000	2.1096E-05		
Antimony	0	0	100	0.0003776	1000	5.5108E-04					10000	5.6365E-04
Arsenic	0	0	100	0.0002756	1000	3.1564E-04					10000	3.0724E-04

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Barium	0	0	50	0.0090234	1000	0.0087075	5000	8.780001E-03				
Beryllium	0	0	100	0.0024482	1000	0.0024698					10000	0.0024048
Boron	0	0	50	0.0000154	1000	1.437E-05					5000	1.4884E-05
Cadmium	0	0	100	0.015803	1000	0.015448					10000	0.015329
Calcium	0	0	1100	7.271818E-05	50000	6.2052E-05					10000	
Chromium	0	0	100	0.0000518	1000	5.031E-05					10000	5.1006E-05
Cobalt	0	0	100	0.0042696	1000	0.0042343					10000	0.0043962
Copper	0	0	100	0.0000771	1000	7.199E-05					10000	7.433999E-05
Iron	0	0	5100	1.667843E-05	10000	1.629E-05			500000	1.61694E-05	10000	
Lead	0	0	100	0.0010095	1000	0.0010308					10000	0.0010825
Magnesium	0	0	5100		50000	2.6516E-06			500000	2.6454E-06	10000	
Manganese	0	0	100	0.0003009	1000	2.8321E-04	10000	2.8201E-04			10000	
Molybdenum	0	0	100	0.0030431	1000	0.003248					10000	0.0032082
Nickel	0	0	100	0.0028371	1000	0.0028679					10000	0.0029433
Potassium	0	0	1000	1.014E-05	10000	1.3936E-05						
Selenium	0	0	100	0.0004169	1000	4.0877E-04					10000	3.9325E-04
Silver	0	0	20	0.000062	500	5.354E-05	2000	5.5595E-05				
Sodium	0	0	1000		50000	5.058E-05						
Thallium	0	0	100	0.0005846	1000	5.8617E-04					10000	6.0885E-04
Tin	0	0	50	0.0012888	1000	0.0013353					5000	1.37078E-03
Titanium	0	0	100	0.0001882	1000	1.8362E-04					10000	1.8579E-04
Vanadium	0	0	100	0.0000526	1000	0.0000511					10000	5.2254E-05
Zinc	0	0	100	0.0060674	1000	0.0063326					10000	0.0061699
Strontium	0	0	100	0.001249	1000	0.001284					10000	0.001292
Lithium (outside certification)	0	0	100	0.0000109	1000	1.103E-05					10000	1.0527E-05

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum												
Antimony												
Arsenic												
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	6.1126E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.6119E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4337E-05										
Selenium												
Silver												
Sodium	100000	5.0209E-05	500000	4.9758E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												
Aluminum												
Antimony												
Arsenic												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	6.1126E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.6119E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4337E-05										
Selenium												
Silver												
Sodium	100000	5.0209E-05	500000	4.9758E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Aluminum	1.58755E-05	66.67073	5.341285	171.1342	0.9999999		0.998	
Antimony	3.730825E-04	70.44333	1.049328	84.74972	0.9999995		0.998	
Arsenic	2.2462E-04	67.10701	2.510175	147.4915	0.9999874		0.998	
Barium	6.627725E-03	66.69783	1.751388	160.0947	0.9999964		0.998	
Beryllium	0.0018307	66.68301	3.045325	151.0269	0.9999931		0.998	
Boron	1.11635E-05	66.77299	2.528898	154.3611	0.9999435		0.998	
Cadmium	0.011645	66.68908	1.751595	156.8435	0.9999996		0.998	
Calcium	4.897405E-05	67.52627	4.154097	162.7174	0.9999981		0.998	
Chromium	3.8279E-05	66.68563	25.97471	196.6664	0.9999979		0.998	
Cobalt	3.225025E-03	66.7015	2.919932	174.8662	0.9999869		0.998	
Copper	5.58575E-05	66.77142	1.786297	146.846	0.9999884		0.998	
Iron	1.228446E-05	66.69009	1.65327	152.726	0.9999999		0.998	
Lead	0.0007807	66.78218	38.16132	197.4058	0.9999799		0.998	
Magnesium	1.977225E-06	66.6725	58.33184	198.9059	0.999992		0.998	
Manganese	2.1653E-04	66.78586	32.40826	194.6078	0.9999997		0.998	
Molybdenum	2.374825E-03	66.77123	22.90258	196.2993	0.9999976		0.998	
Nickel	2.162075E-03	66.69859	37.18229	198.049	0.9999942		0.998	
Potassium	9.60325E-06	69.51415	1.508205	133.2365	1		0.998	
Selenium	3.0473E-04	66.74436	2.057898	158.6735	0.9999882		0.998	
Silver	4.278375E-05	67.19639	3.19233	163.1227	0.9998872		0.998	
Sodium	3.763675E-05	66.67265	1.563753	133.564	0.9999956		0.998	
Thallium	4.44905E-04	66.71317	4.100762	168.192	0.9999881		0.998	
Tin	9.987199E-04	66.75135	1.392455	132.4883	0.9999745		0.998	
Titanium	1.394025E-04	66.68017	5.638302	188.4323	0.999998		0.998	
Vanadium	3.89885E-05	66.68696	1.113378	77.08849	0.9999946		0.998	
Zinc	4.642475E-03	66.70815	303.8636	199.6371	0.9999926		0.998	
Strontium	9.5625E-04	66.69526	1.01255	148.1771	0.9999998		0.998	
Lithium (outside certification)	8.11425E-06	66.71842	11.61073	184.3816	0.9999801		0.998	
Aluminum	1.58755E-05	66.67073	5.341285	171.1342	0.9999999		0.998	
Antimony	3.730825E-04	70.44333	1.049328	84.74972	0.9999995		0.998	
Arsenic	2.2462E-04	67.10701	2.510175	147.4915	0.9999874		0.998	
Barium	6.627725E-03	66.69783	1.751388	160.0947	0.9999964		0.998	

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012		
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)		
Calibration:	4128001	Instrument:	ME-ICP		
Matrix:	Water	Calibration Dates:	5/7/14 9:23	5/7/14 9:53	

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Beryllium	0.0018307	66.68301	3.045325	151.0269	0.9999931		0.998	
Boron	1.11635E-05	66.77299	2.528898	154.3611	0.9999435		0.998	
Cadmium	0.011645	66.68908	1.751595	156.8435	0.9999996		0.998	
Calcium	4.897405E-05	67.52627	4.154097	162.7174	0.9999981		0.998	
Chromium	3.8279E-05	66.68563	25.97471	196.6664	0.9999979		0.998	
Cobalt	3.225025E-03	66.7015	2.919932	174.8662	0.9999869		0.998	
Copper	5.58575E-05	66.77142	1.786297	146.846	0.9999884		0.998	
Iron	1.228446E-05	66.69009	1.65327	152.726	0.9999999		0.998	
Lead	0.0007807	66.78218	38.16132	197.4058	0.9999799		0.998	
Magnesium	1.977225E-06	66.6725	58.33184	198.9059	0.999992		0.998	
Manganese	2.1653E-04	66.78586	32.40826	194.6078	0.9999997		0.998	
Molybdenum	2.374825E-03	66.77123	22.90258	196.2993	0.9999976		0.998	
Nickel	2.162075E-03	66.69859	37.18229	198.049	0.9999942		0.998	
Potassium	9.60325E-06	69.51415	1.508205	133.2365	1		0.998	
Selenium	3.0473E-04	66.74436	2.057898	158.6735	0.9999882		0.998	
Silver	4.278375E-05	67.19639	3.19233	163.1227	0.9998872		0.998	
Sodium	3.763675E-05	66.67265	1.563753	133.564	0.9999956		0.998	
Thallium	4.44905E-04	66.71317	4.100762	168.192	0.9999881		0.998	
Tin	9.987199E-04	66.75135	1.392455	132.4883	0.9999745		0.998	
Titanium	1.394025E-04	66.68017	5.638302	188.4323	0.999998		0.998	
Vanadium	3.89885E-05	66.68696	1.113378	77.08849	0.9999946		0.998	
Zinc	4.642475E-03	66.70815	303.8636	199.6371	0.9999926		0.998	
Strontium	9.5625E-04	66.69526	1.01255	148.1771	0.9999998		0.998	
Lithium (outside certification)	8.11425E-06	66.71842	11.61073	184.3816	0.9999801		0.998	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

PREPARATION BENCH SHEET

4D29005

Empirical Laboratories, LLC

Printed: 5/9/2014 12:24:45PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404127-01	F	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404127-02	A	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	
1404127-03	F	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404127-04	A	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	
1404127-05	D	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404133-02	M	MET_7470A_MERCURY	04/29/2014	30	30					NA	MS/MSD
1404133-02	M	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	Added for BatchQC in: 4D29005
1404133-03	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404133-04	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404133-05	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404133-06	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404149-06	A	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	
1404151-02	F	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-02	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-03	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-04	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-05	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-06	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-07	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-08	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-09	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
4D29005-BLK1		QC	04/29/2014	30	30					NA	

PREPARATION BENCH SHEET

4D29005

Empirical Laboratories, LLC

Printed: 5/9/2014 12:24:45PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D29005-BS1		QC	04/29/2014	30	30	14D0359		300		NA	
4D29005-MS1		QC	04/29/2014	30	30	14D0359	1404133-02	300		NA	
4D29005-MSD1		QC	04/29/2014	30	30	14D0359	1404133-02	300		NA	

Reagents Used:

Standard	Description
13D0424	Sulfuric Acid
14A0613	Nitric acid
14D0101	Mercury Digestion Flip-Top Tubes
14D0372	NAC L-Hydroxylamine Hydrochloride (HG Reagent)
14D0461	KMNO4 Reagent
14D0462	Potassuim Persulfate (K2S2O8)
14D0941	Stannous Chloride Mercury Reagent
14D0942	3% HCL Mercury Carrier

PREPARATION BENCH SHEET

4D29021

Empirical Laboratories, LLC **Printed: 5/9/2014 12:25:15PM**

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404127-01	F	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404127-02	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404127-03	F	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404149-01	F	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	see versions
1404149-02	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	see versions
1404149-04	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	see versions
1404149-06	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	see versions
1404149-06RE1	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	Ca OLR IEC impacts Al, Zn
1404165-12	E	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	Good CCVs!
1404165-13	E	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	Good CCVs!
1404165-15	E	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	Good CCVs!
1404165-16	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	
1404165-17	A	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	Good CCVs!
1404168-01	M	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	MS/MSD
1404168-01	M	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	Added for BatchQC in: 4D29021
1404168-02	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	MS/MSD
1404168-03	F	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	see versions
1404168-04	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	see versions
4D29021-BLK1		QC	04/29/2014	100	25					NA	
4D29021-BS1		QC	04/29/2014	100	25	14D0673		2000		NA	
4D29021-DUP1		QC	04/29/2014	100	25		1404168-01			NA	
4D29021-MS1		QC	04/29/2014	100	25	14D0674	1404168-01	25		NA	

PREPARATION BENCH SHEET

4D29021

Empirical Laboratories, LLC

Printed: 5/9/2014 12:25:15PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D29021-MSD1		QC	04/29/2014	100	25	14D0674	1404168-01	25		NA	
4D29021-PS1		QC	04/29/2014	100	25	14D0674	1404168-01	25		NA	

Reagents Used:

Standard	Description
14A0613	Nitric acid
14A0614	Hydrochloric Acid
14B0029	Metals 50mL Digestion Vessel- DigiTUBE

PREPARATION BENCH SHEET

4E06002

Empirical Laboratories, LLC

Printed: 5/9/2014 12:25:41PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404127-04	A	MET_ICP_LOW6010C_FULL_I	05/06/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404127-05	D	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404149-03	F	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
1404149-05	F	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
1404182-01	A	MET_ICP_LOW6010C_FULL_I	05/06/2014	100	25					NA	Added for BatchQC in: 4E06002
1404182-01	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	MS/MSD
1404182-03	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-05	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-07	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-09	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-11	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-12	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-15	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-17	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-19	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-21	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-23	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404203-01	G	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
1404203-02	A	MET_ICP_LOW6010C_FULL_I	05/06/2014	100	25					NA	see versions
1404205-01	D	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
4E06002-BLK1		QC	05/06/2014	100	25					NA	
4E06002-BS1		QC	05/06/2014	100	25	14D0673		2000		NA	

PREPARATION BENCH SHEET

4E06002

Empirical Laboratories, LLC

Printed: 5/9/2014 12:25:41PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E06002-DUP1		QC	05/06/2014	100	25		1404182-01			NA	
4E06002-MS1		QC	05/06/2014	100	25	14D0674	1404182-01	25		NA	
4E06002-MSD1		QC	05/06/2014	100	25	14D0674	1404182-01	25		NA	
4E06002-PS1		QC	05/06/2014	100	25	14D0674	1404182-01	25		NA	

Reagents Used:

Standard	Description
14A0613	Nitric acid
14A0614	Hydrochloric Acid
14E0086	Metals 50mL Digestion Vessel- DigiTUBE

Data for Wet Chemistry Forms

Sample Extraction Data

Prep Method: pNone-SM2320B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404127-01 [LF008-30001]	4D22006	25.00/25.00	25.0	25.0	1.00			04/22/14
1404127-03 [LF008-30003]	4D22006	25.00/25.00	25.0	25.0	1.00			04/22/14

Sample Extraction Data

Prep Method: WC_PREP_ANIONS_W-SW9056A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404127-01 [LF008-30001]	4D22010	5.00/5.00	5.00	5.00	1.00			04/22/14
1404127-03 [LF008-30003]	4D22010	5.00/5.00	5.00	5.00	1.00			04/22/14

Sample Extraction Data

Prep Method: pNone-SM2540C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404127-01 [LF008-30001]	4D23015	100.00/100.00	100	100	1.00			04/23/14
1404127-03 [LF008-30003]	4D23015	100.00/100.00	100	100	1.00			04/23/14

Sample Extraction Data

Prep Method: pNone-E353.2

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404127-01 [LF008-30001]	4E06011	20.00/20.00	4.00	20.0	1.00			05/06/14
1404127-03 [LF008-30003]	4E06011	20.00/20.00	4.00	20.0	1.00			05/06/14

ANALYSIS DATA SHEET

LF008-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-01
Sampled:	04/17/14 12:39	Received:	04/18/14 09:00

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**398**	**20.0**	20.0	20.0	1	BQ	SM2540C	4D23015	04/23/14 15:51
16887-00-6	Chloride	**58.1**	**0.170**	0.330	0.500	1		SW9056A	4D22010	04/23/14 01:42
NA	Nitrate/Nitrite as N	**7.94**	**0.250**	0.750	1.50	1		E353.2	4E06011	05/06/14 16:33
16984-48-8	Fluoride	**0.357**	**0.0330**	0.100	0.250	1		SW9056A	4D22010	04/23/14 01:42
471-34-1	Alkalinity, Total (as CACO3)	**132**	**1.00**	1.00	1.00	1		SM2320B	4D22006	04/22/14 15:37
14808-79-8	Sulfate as SO4	**39.2**	**0.330**	1.00	2.50	1		SW9056A	4D22010	04/23/14 01:42

ANALYSIS DATA SHEET

LF008-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-03
Sampled:	04/16/14 13:32	Received:	04/18/14 09:00

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**332**	**20.0**	20.0	20.0	1	BQ	SM2540C	4D23015	04/23/14 15:51
16887-00-6	Chloride	**18.5**	**0.170**	0.330	0.500	1		SW9056A	4D22010	04/23/14 01:59
NA	Nitrate/Nitrite as N	**8.80**	**0.250**	0.750	1.50	1		E353.2	4E06011	05/06/14 16:35
16984-48-8	Fluoride	**0.376**	**0.0330**	0.100	0.250	1		SW9056A	4D22010	04/23/14 01:59
471-34-1	Alkalinity, Total (as CACO3)	**144**	**1.00**	1.00	1.00	1		SM2320B	4D22006	04/22/14 15:47
14808-79-8	Sulfate as SO4	**35.3**	**0.330**	1.00	2.50	1		SW9056A	4D22010	04/23/14 01:59

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D22006-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	ND	1.00	1.00	1.00	1	U	SM2320B	4D22006	04/22/14 10:25

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_012

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D22006-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	**1102**	**5.00**	5.00	5.00	1		SM2320B	4D22006	04/22/14 10:30

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D22010-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	ND	0.170	0.330	0.500	1	U	SW9056A	4D22010	04/23/14 01:07
16984-48-8	Fluoride	ND	0.0330	0.100	0.250	1	U	SW9056A	4D22010	04/23/14 01:07
14808-79-8	Sulfate as SO4	ND	0.330	1.00	2.50	1	U	SW9056A	4D22010	04/23/14 01:07

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_012

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D22010-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**4.093**	**0.170**	0.330	0.500	1		SW9056A	4D22010	04/23/14 01:24
16984-48-8	Fluoride	**2.691**	**0.0330**	0.100	0.250	1		SW9056A	4D22010	04/23/14 01:24
14808-79-8	Sulfate as SO4	**20.54**	**0.330**	1.00	2.50	1		SW9056A	4D22010	04/23/14 01:24

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D23015-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**42.0**	**20.0**	20.0	20.0	1	Q	SM2540C	4D23015	04/23/14 15:51

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D23015-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**1110**	**20.0**	20.0	20.0	1		SM2540C	4D23015	04/23/14 15:51

ANALYSIS DATA SHEET

LCS Dup

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_012

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D23015-BSD1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**1180**	**20.0**	20.0	20.0	1		SM2540C	4D23015	04/23/14 15:51

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E06011-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	ND	0.0500	0.150	0.300	1	U	E353.2	4E06011	05/06/14 16:24

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E06011-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	**15.56**	**0.500**	1.50	3.00	1		E353.2	4E06011	05/06/14 16:26

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Calibration: 3351002
Sequence: 3L35106

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
3L35106-ICV1	Chloride	4.200	4.193	99.8	mg/L	+/- 10.00%
	Fluoride	2.800	2.803	100	mg/L	+/- 10.00%
	Sulfate as SO4	21.00	21.05	100	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Calibration: 3351002
Sequence: 4D11401

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D11401-CCV1	Chloride	25.00	25.35	101	mg/L	+/- 10.00%
	Fluoride	2.500	2.465	98.6	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.07	100	mg/L	+/- 10.00%
4D11401-CCV2	Chloride	25.00	25.05	100	mg/L	+/- 10.00%
	Fluoride	2.500	2.505	100	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	24.79	99.2	mg/L	+/- 10.00%
4D11401-CCV3	Chloride	25.00	24.75	99.0	mg/L	+/- 10.00%
	Fluoride	2.500	2.440	97.6	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	24.59	98.4	mg/L	+/- 10.00%
4D11401-CCV4	Chloride	25.00	24.96	99.8	mg/L	+/- 10.00%
	Fluoride	2.500	2.430	97.2	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	24.38	97.5	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

E353.2

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-Lachat

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Calibration: 4126003
Sequence: 4E12614

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12614-ICV1	Nitrate/Nitrite as N	1.200	1.277	106	mg/L	+/- 10.00%
4E12614-CCV1	Nitrate/Nitrite as N	1.200	1.225	102	mg/L	+/- 10.00%

CRDL STANDARD

SW9056A

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: WC-IC

Calibration: 3351002

Sequence: 4D11401

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4D11401-CRL1	Chloride	0.5000	0.4350	87.0	mg/L	50 - 150
	Sulfate as SO4	0.5000	0.5210	104	mg/L	50 - 150
4D11401-CRL2	Fluoride	0.1000	0.08000	80.0	mg/L	50 - 150

METHOD BLANKS
SM2320B

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D22006

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D22006-BLK1	Alkalinity, Total (as CACO3)	-0.428	1.00	1.00	mg/L	U	SM2320B

METHOD BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D22010

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D22010-BLK1	Chloride	0.0620	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.0290	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.0470	0.330	2.50	mg/L	U	SW9056A

METHOD BLANKS
SM2540C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D23015

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D23015-BLK1	Total Dissolved Solids	42.0	20.0	20.0	mg/L		SM2540C

METHOD BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E06011

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E06011-BLK1	Nitrate/Nitrite as N	-0.0191	0.0500	0.300	mg/L	U	E353.2

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 3L35106
Calibration: 3351002
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
3L35106-ICB1	Chloride	0.000	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.000	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.000	0.330	2.50	mg/L	U	SW9056A

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4D11401
Calibration: 3351002
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D11401-CCB1	Chloride	0.102	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.0210	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A
4D11401-CCB2	Chloride	0.0490	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.0170	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.0340	0.330	2.50	mg/L	U	SW9056A
4D11401-CCB3	Chloride	0.0450	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.0180	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.0550	0.330	2.50	mg/L	U	SW9056A
4D11401-CCB4	Chloride	0.0730	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.0430	0.0330	0.250	mg/L	J	SW9056A
	Sulfate as SO4	0.0430	0.330	2.50	mg/L	U	SW9056A

BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_012
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E12614
Calibration: 4126003
Instrument ID: WC-Lachat

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12614-ICB1	Nitrate/Nitrite as N	-0.01870	0.0500	0.300	mg/L	U	E353.2
4E12614-CCB1	Nitrate/Nitrite as N	-0.0172	0.0500	0.300	mg/L	U	E353.2

LCS / LCS DUPLICATE RECOVERY

SM2320B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D22006	Laboratory ID:	4D22006-BS1
Preparation:	pNone	Initial/Final:	5 mL / 25 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Alkalinity, Total (as CACO3)	1000	1102	110	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D22010	Laboratory ID:	4D22010-BS1
Preparation:	WC_PREP_ANIONS_W	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Chloride	4.200	4.093	97.5	80 - 120
Fluoride	2.800	2.691	96.1	80 - 120
Sulfate as SO4	21.00	20.54	97.8	80 - 120

LCS / LCS DUPLICATE RECOVERY

SM2540C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D23015	Laboratory ID:	4D23015-BS1
Preparation:	pNone	Initial/Final:	20 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Total Dissolved Solids	973.0	1110	114	80 - 120

ANALYTE	SPIKE ADDED (mg/L)	LCSD CONCENTRATION (mg/L)	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Total Dissolved Solids	**973.0**	**1180**	**121 ***	**6.11**	**20**	**80 - 120**

LCS / LCS DUPLICATE RECOVERY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E06011	Laboratory ID:	4E06011-BS1
Preparation:	pNone	Initial/Final:	2 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Nitrate/Nitrite as N	14.80	15.56	105	90 - 110

PREPARATION BATCH SUMMARY

SM2320B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D22006 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30001	1404127-01	04/22/14 09:08	25.00	25.00
LF008-30003	1404127-03	04/22/14 09:08	25.00	25.00
Blank	4D22006-BLK1	04/22/14 09:08	25.00	25.00
LCS	4D22006-BS1	04/22/14 09:08	5.00	25.00

PREPARATION BATCH SUMMARY

SW9056A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D22010 Batch Matrix: Water Preparation: WC_PREP_ANIONS_W

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30001	1404127-01	04/22/14 11:34	5.00	5.00
LF008-30003	1404127-03	04/22/14 11:34	5.00	5.00
Blank	4D22010-BLK1	04/22/14 11:34	5.00	5.00
LCS	4D22010-BS1	04/22/14 11:34	5.00	5.00

PREPARATION BATCH SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D23015 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30001	1404127-01	04/23/14 10:00	100.00	100.00
LF008-30003	1404127-03	04/23/14 10:00	100.00	100.00
Blank	4D23015-BLK1	04/23/14 10:00	100.00	100.00
LCS	4D23015-BS1	04/23/14 10:00	20.00	20.00
LCS Dup	4D23015-BSD1	04/23/14 10:00	20.00	20.00

PREPARATION BATCH SUMMARY

E353.2

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E06011 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30001	1404127-01	05/06/14 14:11	4.00	20.00
LF008-30003	1404127-03	05/06/14 14:11	4.00	20.00
Blank	4E06011-BLK1	05/06/14 14:11	20.00	20.00
LCS	4E06011-BS1	05/06/14 14:11	2.00	20.00

ANALYSIS SEQUENCE SUMMARY

SM2320B

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Sequence:

Instrument:

Calibration:

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Blank	4D22006-BLK1	042214-003	04/22/14 10:25
LCS	4D22006-BS1	042214-002	04/22/14 10:30

ANALYSIS SEQUENCE SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Sequence:

Instrument:

Calibration:

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
LCS Dup	4D23015-BSD1	042314-003	04/23/14 15:51
LCS	4D23015-BS1	042314-002	04/23/14 15:51
Blank	4D23015-BLK1	042314-001	04/23/14 15:51

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	3L35106	Instrument:	WC-IC
Calibration:	3351002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	3L35106-CAL1	121013-007	12/10/13 16:44
Cal Standard	3L35106-CAL2	121013-008	12/10/13 17:02
Cal Standard	3L35106-CAL3	121013-009	12/10/13 17:19
Cal Standard	3L35106-CAL4	121013-010	12/10/13 17:37
Cal Standard	3L35106-CAL5	121013-011	12/10/13 17:54
Cal Standard	3L35106-CAL6	121013-012	12/10/13 18:11
Cal Standard	3L35106-CAL7	121013-013	12/10/13 18:29
Cal Standard	3L35106-CAL8	121013-014	12/10/13 18:46
Initial Cal Check	3L35106-ICV1	121013-015	12/10/13 19:04
Initial Cal Blank	3L35106-ICB1	121013-016	12/10/13 19:21

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D11401	Instrument:	WC-IC
Calibration:	3351002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4D11401-CCV1	042214-003	04/22/14 12:21
Calibration Blank	4D11401-CCB1	042214-004	04/22/14 12:39
Instrument RL Check	4D11401-CRL1	042214-005	04/22/14 12:56
Instrument RL Check	4D11401-CRL2	042214-006	04/22/14 13:13
Calibration Check	4D11401-CCV2	042214-024	04/22/14 18:27
Calibration Blank	4D11401-CCB2	042214-025	04/22/14 18:44
Calibration Check	4D11401-CCV3	042214-039	04/22/14 22:48
Calibration Blank	4D11401-CCB3	042214-040	04/22/14 23:05
Blank	4D22010-BLK1	042214-047	04/23/14 01:07
LCS	4D22010-BS1	042214-048	04/23/14 01:24
LF008-30001	1404127-01	042214-049	04/23/14 01:42
LF008-30003	1404127-03	042214-050	04/23/14 01:59
Calibration Check	4D11401-CCV4	042214-053	04/23/14 02:52
Calibration Blank	4D11401-CCB4	042214-054	04/23/14 03:09

ANALYSIS SEQUENCE SUMMARY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12614	Instrument:	WC-Lachat
Calibration:	4126003		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E12614-CAL1	)M_5-6-2014_04-06-55PM-00	05/06/14 16:09
Cal Standard	4E12614-CAL2	)M_5-6-2014_04-06-55PM-00	05/06/14 16:10
Cal Standard	4E12614-CAL3	)M_5-6-2014_04-06-55PM-00	05/06/14 16:11
Cal Standard	4E12614-CAL4	)M_5-6-2014_04-06-55PM-00	05/06/14 16:13
Cal Standard	4E12614-CAL5	)M_5-6-2014_04-06-55PM-00	05/06/14 16:14
Cal Standard	4E12614-CAL6	)M_5-6-2014_04-06-55PM-00	05/06/14 16:16
Cal Standard	4E12614-CAL7	)M_5-6-2014_04-06-55PM-00	05/06/14 16:17
Cal Standard	4E12614-CAL8	)M_5-6-2014_04-06-55PM-00	05/06/14 16:19
Initial Cal Check	4E12614-ICV1	)M_5-6-2014_04-06-55PM-00	05/06/14 16:20
Initial Cal Blank	4E12614-ICB1	)M_5-6-2014_04-06-55PM-01	05/06/14 16:22
Blank	4E06011-BLK1	)M_5-6-2014_04-06-55PM-01	05/06/14 16:24
LCS	4E06011-BS1	)M_5-6-2014_04-06-55PM-01	05/06/14 16:26
LF008-30001	1404127-01	)M_5-6-2014_04-06-55PM-01	05/06/14 16:33
LF008-30003	1404127-03	)M_5-6-2014_04-06-55PM-01	05/06/14 16:35
Calibration Check	4E12614-CCV1	)M_5-6-2014_04-06-55PM-02	05/06/14 16:41
Calibration Blank	4E12614-CCB1	)M_5-6-2014_04-06-55PM-02	05/06/14 16:42

INITIAL CALIBRATION DATA

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	3351002	Instrument:	WC-IC
Matrix:	Water	Calibration Dates:	12/10/13 16:44 12/10/13 18:46

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate as N	0.05	813540	0.1	853290	0.25	905720	0.5	956456	2.5	1018020	5	1028788
Nitrite as N	0.05	965740	0.1	944100	0.25	912864	0.5	952380	2.5	889644.8	5	849190.4
Bromide	0.126	134238.1	0.252	137654.8	0.63	145555.6	1.26	160582.5	6.3	175999.5	12.6	179760.6
Chloride	0.5	386028	1	399602	2.5	397485.6	5	405301.8	25	410491.2	50	411932.8
Fluoride	0.05	638320	0.1	659420	0.25	670580	0.5	671448	2.5	665322.8	5	630216.2
Sulfate as SO4	0.5	365110	1	353321	2.5	332900	5	313738.2	25	308262.3	50	308796.8

INITIAL CALIBRATION DATA (Continued)

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	3351002	Instrument:	WC-IC
Matrix:	Water	Calibration Dates:	12/10/13 16:44 12/10/13 18:46

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate as N	12.5	1017034	25	1032948								
Nitrite as N	12.5	743872.1	25	627085.2								
Bromide	31.5	178666.7	63	182048.9								
Chloride	125	404190.3	250	404326.4								
Fluoride	12.5	~~559804.6~~	25	~~506008.4~~								
Sulfate as SO4	125	300572.3	250	300597.6								

INITIAL CALIBRATION DATA (Continued)

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	3351002	Instrument:	WC-IC
Matrix:	Water	Calibration Dates:	12/10/13 16:44 12/10/13 18:46

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Nitrate as N	953224.6	9.050688	9.2925	2.89029				*
Nitrite as N	860609.6	13.77032	5.41	1.226206				*
Bromide	161813.3	12.41877	7.8425	1.187843	0.9998959		0.995	
Chloride	402419.8	2.039875	4.46125	0.5546317	0.9999818		0.995	
Fluoride	655884.5	2.664565	3.07	2.432736E-02	0.9991903		0.995	
Sulfate as SO4	322912.3	7.675524	5.99	2.923035	0.9999575		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4126003	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/6/14 16:09	5/6/14 16:19

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	2	3.753	1.6	3.95	1.2	3.9175	0.8	3.96875	0.4	4.165	0.2	4.238

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4126003	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/6/14 16:09	5/6/14 16:19

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	0.1	4.316	0	0								

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4126003	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/6/14 16:09	5/6/14 16:19

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Nitrate/Nitrite as N	3.538531	40.74555	32.00625	0.6631632	0.9987679		0.99	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

PREPARATION BENCH SHEET

4D22006

Empirical Laboratories, LLC

Printed: 5/4/2014 10:30:20AM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404109-01	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404109-02	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404109-03	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404109-04	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404109-05	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404109-06	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404109-07	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404116-01	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404116-02	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404116-03	P	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	MS/MSD
1404116-04	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404116-05	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404117-01	P	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	MS/MSD
1404124-01	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404124-02	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404124-03	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404125-05	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404126-01	F	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404127-01	D	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
1404127-03	D	WC_ALKALINITY_2320B	04/22/2014	25	25					NA	
4D22006-BLK1		QC	04/22/2014	25	25					NA	
4D22006-BS1		QC	04/22/2014	5	25	13L0375		5000		NA	

PREPARATION BENCH SHEET

4D22006

Empirical Laboratories, LLC

Printed: 5/4/2014 10:30:20AM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D22006-MS1		QC	04/22/2014	22.5	25	13L0375	1404116-03	2500		NA	
4D22006-MS2		QC	04/22/2014	22.5	25	13L0375	1404117-01	2500		NA	
4D22006-MS3		QC	04/22/2014	22.5	25	13L0375	1404126-01	2500		NA	
4D22006-MSD1		QC	04/22/2014	22.5	25	13L0375	1404116-03	2500		NA	
4D22006-MSD2		QC	04/22/2014	22.5	25	13L0375	1404117-01	2500		NA	
4D22006-MSD3		QC	04/22/2014	22.5	25	13L0375	1404126-01	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4D22010

Empirical Laboratories, LLC

Printed: 5/8/2014 2:25:59PM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404127-01	D	WC_ANIONS_9056A (Regular)	04/22/2014	5	5					NA	see versions
1404127-03	D	WC_ANIONS_9056A (Regular)	04/22/2014	5	5					NA	see versions
1404128-01	I	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	Cl, SO4
1404128-03	I	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	Cl, SO4
1404128-05	I	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	Cl, SO4
1404128-07	AA	WC_ANIONS_9056A (Regular)	04/22/2014	5	5					NA	Added for BatchQC in: 4D22010
1404128-07	AA	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	MS/MSD; Cl, SO4
1404128-09	I	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	Cl, SO4
1404128-11	I	WC_ANIONS_300.0 (Regular)	04/22/2014	5	5					NA	Cl, SO4
4D22010-BLK1		QC	04/22/2014	5	5					NA	
4D22010-BS1		QC	04/22/2014	5	5	14D0348		5000		NA	
4D22010-DUP1		QC	04/22/2014	5	5		1404128-07			NA	
4D22010-MS1		QC	04/22/2014	22.5	25	14C0398	1404128-07	2500		NA	
4D22010-MSD1		QC	04/22/2014	22.5	25	14C0398	1404128-07	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4D23015

Empirical Laboratories, LLC

Printed: 5/9/2014 12:33:12PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404119-02	D	WC_TOTAL_DISS_SOLIDS_25	04/23/2014	100	100					NA	
1404119-05	D	WC_TOTAL_DISS_SOLIDS_25	04/23/2014	100	100					NA	
1404119-07	D	WC_TOTAL_DISS_SOLIDS_25	04/23/2014	100	100					NA	
1404127-01	D	WC_TOTAL_DISS_SOLIDS_25	04/23/2014	100	100					NA	
1404127-03	D	WC_TOTAL_DISS_SOLIDS_25	04/23/2014	100	100					NA	
1404149-01	D	WC_TOTAL_DISS_SOLIDS_25	04/24/2014	100	100					NA	
1404149-03	D	WC_TOTAL_DISS_SOLIDS_25	04/24/2014	100	100					NA	
1404149-05	D	WC_TOTAL_DISS_SOLIDS_25	04/24/2014	100	100					NA	
4D23015-BLK1		QC	04/23/2014	100	100					NA	
4D23015-BS1		QC	04/23/2014	20	20	14B0390		20000		NA	
4D23015-BSD1		QC	04/23/2014	20	20	14B0390		20000		NA	

Reagents Used:

Standard	Description
13L0250	Syringe Filters - Glass Fiber, 25mm, 1.5um, 200pk

PREPARATION BENCH SHEET

4E06011

Empirical Laboratories, LLC

Printed: 5/8/2014 2:32:00PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404111-01	J	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404111-03	J	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404111-05	J	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404111-07	J	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404127-01	E	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404127-03	E	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404128-01	J	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404128-03	J	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404128-05	J	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404128-07	AB	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	MS/MSD
1404128-09	J	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404128-11	J	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404184-01	C	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1404184-03	C	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
1405006-01	A	WC_NO3NO2_N_353.2	05/06/2014	4	20					NA	
4E06011-BLK1		QC	05/06/2014	20	20					NA	
4E06011-BS1		QC	05/06/2014	2	20	14A0409		2000		NA	
4E06011-MS1		QC	05/06/2014	4	20	14B0358	1404128-07	500		NA	
4E06011-MSD1		QC	05/06/2014	4	20	14B0358	1404128-07	500		NA	

PREPARATION BENCH SHEET

4E06011

Empirical Laboratories, LLC

Printed: 5/8/2014 2:32:00PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description
14D0740	NO2/NO3 Sulfanilimide Color Reagent
14D0864	NO2/NO3 Buffer
14E0119	NO3/NO2 Carrier (Acid DI)

Subcontractor Data Package

Wednesday, April 30, 2014

Ms. Maryanne Walker
Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228

Re: ALS Workorder: 1404329
Project Name: Kirtland AFB
Project Number: 150577

Dear Ms. Walker:

Two water samples were received from Empirical Laboratories, LLC, on 4/18/2014. The samples were scheduled for the following analyses:

Radium-226	pages 1-19
Radium-228	pages 1-19
Gross Alpha/Beta	pages 1-19

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Julie Ellingson
Project Manager

JME/mlc
Enclosure(s): Report

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404329
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30001	1404329-1		WATER	17-Apr-14	12:39
LF008-30003	1404329-2		WATER	16-Apr-14	13:32

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404329

Reference Document No: 150577-311

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 17 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371003

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) Roger Shaw	Date: 4/17/14 Time: 1600	1. Received By (Signature/Affiliation) C Trimble / ALS	Date: 4-18-14 Time: 0940
2. Relinquished By (Signature/Affiliation)	Date: Time:	2. Received By (Signature/Affiliation)	Date: Time:
3. Relinquished By (Signature/Affiliation)	Date: Time:	3. Received By (Signature/Affiliation)	Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF008-30001	KAFB0307-GW-LF008-30001-REG	17 APR 2014	12:39	1 L HDPE	4 TN ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
2	LF008-30003	KAFB0311-GW-LF008-30003-REG	16 APR 2014	13:32	1 L HDPE	4 TN ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ~~SHAW E&I~~ Empirical 4/18/14 Workorder No: 1404329

Project Manager: JE Initials: CDT Date: 4-18-14

1.	Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2.	Are custody seals on shipping containers intact?	~~NONE~~	(YES)	NO
3.	Are Custody seals on sample containers intact?	(NONE)	YES	NO
4.	Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5.	Are the COC and bottle labels complete and legible?		(YES)	NO
6.	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7.	Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8.	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9.	Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10.	Is there sufficient sample for the requested analyses?		(YES)	NO
11.	Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12.	Are all samples within holding times for the requested analyses?		(YES)	NO
13.	Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____> green pea	(N/A)	YES	NO
15.	Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____heavy	N/A	YES	(NO)
16.	Were the samples shipped on ice?		(YES)	NO
17.	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: (#2) #4	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	3.4							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	11							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/18/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

SHIP TO: (970) 490-1511 BILL S[illegible]R

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

Bar Code

1404329

11

FRI - 18 APR
PRIORITY OVERNIG

TRK# 5651 1937 1003

0201

XH FTCA 3.40

805

DI

512C1/04FFA2HD

RAD

Gross Alpha/Beta

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404329

1. This report consists of the analytical results for two water samples received by ALS on 04/18/2014.

2. These samples were prepared according to the current revision of SOP 702. This SOP is compliant with method SW-846 9310.

3. The samples were analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. This SOP is compliant with method SW-846 9310. The analyses were completed on 04/24/2014. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. No anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Jean Anderson — 4/28/14

Jean Anderson
Radiochemistry Primary Data Reviewer

Date

Julie Ellis — 4/30/14

Radiochemistry Final Data Reviewer

Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404329
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30001	1404329-1		WATER	17-Apr-14	12:39
LF008-30003	1404329-2		WATER	16-Apr-14	13:32

RAD

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404329

Reference Document No: 150577-311

Page 1 of 1

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 17 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371003

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:

Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:

Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) T Nagel/Shaw — Date: 4/17/14 Time: 1600
1. Received By (Signature/Affiliation) C Trimble/ALS — Date: 4-18-14 Time: 0940
2. Relinquished By (Signature/Affiliation) — Date: Time:
2. Received By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1 LF008-30001	KAFB0307-GW-LF008-30001-REG	17 APR 2014	12:39	1 L HDPE	4 TN ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
2 LF008-30003	KAFB0311-GW-LF008-30003-REG	16 APR 2014	13:32	1 L HDPE	4 TN ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins

CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Empirical ~~SHAW E&I~~ 4/18/14 Workorder No: 1404329

Project Manager: JF Initials: CDT Date: 4-18-14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	~~NONE~~	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: (#2) #4	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	3.4							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	11							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/18/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

Delivery Address Bar Code

1404329

11

PRI - 18 APR
PRIORITY OVERNIG

TRK# 5651 1937 1003

XH FTCA 3.40

805

DI

RAD

Section 2

❷

SAMPLE RESULTS SUMMARY

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404329

Reported on: Monday, April 28, 2014
10:01:00 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404329-1	LF008-30001	Sample	GROSS ALPHA	2.15 +/- 0.87	1.17	pCi/l	WATER	AB140421-3	4/24/2014	LT
1404329-1	LF008-30001	Sample	GROSS BETA	2.9 +/- 1.0	1.5	pCi/l	WATER	AB140421-3	4/24/2014	LT
1404329-2	LF008-30003	Sample	GROSS ALPHA	2.71 +/- 0.81	0.90	pCi/l	WATER	AB140421-3	4/24/2014	LT
1404329-2	LF008-30003	Sample	GROSS BETA	3.01 +/- 0.96	1.31	pCi/l	WATER	AB140421-3	4/24/2014	LT

Comments:

Data Package ID: *AB1404329-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140421-3MB

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 21-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 24-Apr-14

Prep Batch: AB140421-3
QCBatchID: AB140421-3-2
Run ID: AB140421-3A
Count Time: 1000 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABC0424

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.45 +/- 0.47	0.76	3	U
12587-47-2	GROSS BETA	0 +/- 0.63	1.05	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *AB1404329-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140421-3LCS

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 21-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: AB140421-3
QCBatchID: AB140421-3-2
Run ID: AB140421-3A
Count Time: 150 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABC0422B

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
12587-46-1	GROSS ALPHA	198 +/- 33	2	206.8	95.9	70 - 130	P
12587-47-2	GROSS BETA	218 +/- 35	5	216.4	101	70 - 130	P,M3

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *AB1404329-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30001
Lab ID: 1404329-1DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 17-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 24-Apr-14

Prep Batch: AB140421-3
QCBatchID: AB140421-3-2
Run ID: AB140421-3A
Count Time: 1000 minutes
Report Basis: Unfiltered

Final Aliquot: 150 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0424

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
12587-46-1	GROSS ALPHA	2.15 +/- 0.87	1.17	LT	2.74 +/- 0.90	1.08	LT	0.473	2.13
12587-47-2	GROSS BETA	2.9 +/- 1.0	1.5	LT	3.3 +/- 1.1	1.4	LT	0.253	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *AB1404329-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30001
Lab ID: 1404329-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 17-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 24-Apr-14

Prep Batch: AB140421-3
QCBatchID: AB140421-3-2
Run ID: AB140421-3A
Count Time: 1000 minutes
Report Basis: Unfiltered

Final Aliquot: 150 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0424

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	2.15 +/- 0.87	1.17	3	LT
12587-47-2	GROSS BETA	2.9 +/- 1.0	1.5	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404329-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Duplicate Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30001
Lab ID: 1404329-1DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 17-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 24-Apr-14

Prep Batch: AB140421-3
QCBatchID: AB140421-3-2
Run ID: AB140421-3A
Count Time: 1000 minutes
Report Basis: Unfiltered

Final Aliquot: 150 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0424

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	2.74 +/- 0.90	1.08	3	LT
12587-47-2	GROSS BETA	3.3 +/- 1.1	1.4	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404329-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30003
Lab ID: 1404329-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 16-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 24-Apr-14

Prep Batch: AB140421-3
QCBatchID: AB140421-3-2
Run ID: AB140421-3A
Count Time: 1000 minutes
Report Basis: Unfiltered

Final Aliquot: 160 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0424

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	2.71 +/- 0.81	0.90	3	LT
12587-47-2	GROSS BETA	3.01 +/- 0.96	1.31	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404329-1*

Section 5

RAW DATA

5

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404329

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Friday, April 25, 2014
11:42:18 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404329-1	GROSS ALPHA	4/17/2014	AB140421-3	NA	NA	WATER	150 ml	LB4100-C	AB140421-3A	4/24/2014	0.214	20.82%	1000	2.15	1.17	pCi/l	NA	
SMP	Trg. Analyte	12:39:00 PM	AB140421-3-2	NA	NA	NA	150 ml	D1	ABC0424	2:16 PM	0.116	NA	NA	0.87	NA	Unfiltered	NA	LT
1404329-1	GROSS BETA	4/17/2014	AB140421-3	NA	NA	WATER	150 ml	LB4100-C	AB140421-3A	4/24/2014	2.058	42.67%	1000	2.9	1.5	pCi/l	NA	
SMP	Trg. Analyte	12:39:00 PM	AB140421-3-2	NA	NA	NA	150 ml	D1	ABC0424	2:16 PM	1.641	NA	NA	1.0	NA	Unfiltered	NA	LT
1404329-1	GROSS ALPHA	4/17/2014	AB140421-3	NA	NA	WATER	150 ml	LB4100-C	AB140421-3A	4/24/2014	0.244	22.84%	1000	2.74	1.08	pCi/l	0.47	
DUP	Trg. Analyte	12:39:00 PM	AB140421-3-2	NA	NA	NA	150 ml	D2	ABC0424	2:16 PM	0.111	NA	NA	0.90	NA	Unfiltered	NA	LT
1404329-1	GROSS BETA	4/17/2014	AB140421-3	NA	NA	WATER	150 ml	LB4100-C	AB140421-3A	4/24/2014	2.069	42.96%	1000	3.3	1.4	pCi/l	0.25	
DUP	Trg. Analyte	12:39:00 PM	AB140421-3-2	NA	NA	NA	150 ml	D2	ABC0424	2:16 PM	1.591	NA	NA	1.1	NA	Unfiltered	NA	LT
1404329-2	GROSS ALPHA	4/16/2014	AB140421-3	NA	NA	WATER	160 ml	LB4100-C	AB140421-3A	4/24/2014	0.260	21.67%	1000	2.71	0.90	pCi/l	NA	
SMP	Trg. Analyte	1:32:00 PM	AB140421-3-2	NA	NA	NA	160 ml	D3	ABC0424	2:16 PM	0.106	NA	NA	0.81	NA	Unfiltered	NA	LT
1404329-2	GROSS BETA	4/16/2014	AB140421-3	NA	NA	WATER	160 ml	LB4100-C	AB140421-3A	4/24/2014	2.061	43.43%	1000	3.01	1.31	pCi/l	NA	
SMP	Trg. Analyte	1:32:00 PM	AB140421-3-2	NA	NA	NA	160 ml	D3	ABC0424	2:16 PM	1.581	NA	NA	0.96	NA	Unfiltered	NA	LT
AB140421-3	GROSS ALPHA	4/21/2014	AB140421-3	NA	NA	WATER	200 ml	LB4100-C	AB140421-3A	4/24/2014	0.153	20.63%	1000	0.45	0.76	pCi/l	NA	
MB	Trg. Analyte	10:37:23 AM	AB140421-3-2	NA	NA	NA	200 ml	B4	ABC0424	2:16 PM	0.121	NA	NA	0.47	NA	Unfiltered	NA	U
AB140421-3	GROSS BETA	4/21/2014	AB140421-3	NA	NA	WATER	200 ml	LB4100-C	AB140421-3A	4/24/2014	1.641	43.31%	1000	0	1.05	pCi/l	NA	
MB	Trg. Analyte	10:37:23 AM	AB140421-3-2	NA	NA	NA	200 ml	B4	ABC0424	2:16 PM	1.632	NA	NA	0.63	NA	Unfiltered	NA	U
AB140421-3	GROSS ALPHA	4/21/2014	AB140421-3	NA	NA	WATER	200 ml	LB4100-C	AB140421-3A	4/22/2014	14.540	21.10%	150	198	2	pCi/l	NA	95.9
LCS	Trg. Analyte	10:37:23 AM	AB140421-3-2	NA	NA	NA	200 ml	D4	ABC0422B	1:48 PM	0.065	NA	NA	33	NA	Unfiltered	NA	P
AB140421-3	GROSS BETA	4/21/2014	AB140421-3	NA	NA	WATER	200 ml	LB4100-C	AB140421-3A	4/22/2014	45.667	43.75%	150	218	5	pCi/l	NA	101
LCS	Trg. Analyte	10:37:23 AM	AB140421-3-2	NA	NA	NA	200 ml	D4	ABC0422B	1:48 PM	1.614	NA	NA	35	NA	Unfiltered	NA	P,M3

Comments:

Data Package ID: *AB1404329-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

Radium-226

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404329

1. This report consists of the analytical results for two water samples received by ALS on 04/18/14.

2. These samples were prepared according to the current revision of SOP 712. Standard Operating Procedure 712 is compliant with method SW846-9315.

3. These samples were analyzed for the presence of ^{226}Ra according to the current revision of SOP 724. The analyses were completed on 04/25/14.

4. This test is a screen for ^{226}Ra and could show high bias in sample results if other alpha emitting isotopes of radium are contained in the samples (esp.^{224}Ra and ^{223}Ra). The potential for this interference can been reduced by allowing the interfering nuclides to decay for at least 14 days. However, these samples were not decayed. All samples have ^{226}Ra activity below the achieved MDC and below the requested MDC of 1.0 pCi/L, thus the potential high bias to the sample results due to other isotopes of radium is insignificant.

5. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

6. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.

7. The ICP-AES measurement of barium concentrations prior to chemical separation for the associated QC samples showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

8. Radium-226 activity is reported in the associated method blank above the achieved minimum detectable concentration value, as indicated with a “B3” qualifier on the final reports. The measured blank activity is below the requested MDC. Results are acceptable according to the current revision of SOP 715, and are submitted without further qualification.

9. Due to uncertainty associated with the ICP-AES determination of barium concentration in the samples, the calculated yield for the laboratory control sample duplicate fell between 100% and 110%. To minimize the potential for low bias, results have been calculated conservatively assuming quantitative chemical yield (100%). The magnitude of the low bias is estimated to be less than 10% of the reported value and is acceptable according the ALS LQAP. This sample is identified with a "Y1" qualifier on the final reports.

10. ALS uses the following convention for reporting significant digits in the TPU and MDC results. The TPU value is rounded to two significant digits. The MDC value is rounded to the same decimal place as the TPU value. In practice, this could result in an MDC reported value of zero for samples with significant activity, including the batch laboratory control sample.

11. No further anomalous situations were encountered during the preparation or analysis of these samples. All remaining quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Linda Arend — 4/29/14
Radiochemistry Primary Data Reviewer — Date

Julie Ellis — 04/30/14
Radiochemistry Final Data Reviewer — Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404329
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30001	1404329-1		WATER	17-Apr-14	12:39
LF008-30003	1404329-2		WATER	16-Apr-14	13:32

RAD

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404329

Reference Document No: 150577-311

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 17 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371003

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:

Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:

Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) Date: 4/17/14 Time: 1600
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) C Trimble / ALS Date: 4-18-14 Time: 0940
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF008-30001	KAFB0307-GW-LF008-30001-REG	17 APR 2014	12:39	1 L HDPE	4 TN ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
2	LF008-30003	KAFB0311-GW-LF008-30003-REG	16 APR 2014	13:32	1 L HDPE	4 TN ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins

CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Empirical ~~SHAW E&I~~ 4/18/14 Workorder No: 1404329

Project Manager: JF Initials: CDT Date: 4-18-14

1. Does this project require any special handling in addition to standard ALS procedures?			YES	(NO)
2. Are custody seals on shipping containers intact?	~~NONE~~	(YES)	NO	
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO	
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO	
5. Are the COC and bottle labels complete and legible?		(YES)	NO	
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO	
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO	
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO	
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO	
10. Is there sufficient sample for the requested analyses?		(YES)	NO	
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO	
12. Are all samples within holding times for the requested analyses?		(YES)	NO	
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO	
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO	
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)	
16. Were the samples shipped on ice?		(YES)	NO	
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: (#2) #4	RAD ONLY	(YES)	NO	

Cooler #:	1							
Temperature (°C):	3.4							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	11							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/18/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

Delivery Address Bar Code

1404329

11

PRI - 18 APR
PRIORITY OVERNIG

TRK# 5651 1937 1003

XH FTCA 3.4 0

805

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RAD

Section 2

❷

SAMPLE RESULTS SUMMARY

Ra-226 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404329

Reported on: Tuesday, April 29, 2014
9:49:20 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404329-1	LF008-30001	Sample	Ra-226	0.23 +/- 0.23	0.42	pCi/l	WATER	TR140421-1	4/25/2014	U
1404329-2	LF008-30003	Sample	Ra-226	0.10 +/- 0.17	0.37	pCi/l	WATER	TR140421-1	4/25/2014	U

Comments:

Data Package ID: *TR1404329-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140421-1MB

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 21-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140421-1
QCBatchID: TR140421-1-1
Run ID: TR140421-1A
Count Time: 1000 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0425C

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.089 +/- 0.041	0.050	1	B3

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15720	15400	ug	98.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *TR1404329-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140421-1LCS

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 21-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140421-1
QCBatchID: TR140421-1-1
Run ID: TR140421-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0425A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	41 +/- 11	0	45.30	90.5	75 - 125	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15720	14800	ug	94.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404329-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140421-1LCSD

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 21-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140421-1
QCBatchID: TR140421-1-1
Run ID: TR140421-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0425A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	43 +/- 11	0	45.30	94.4	75 - 125	P,Y1

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15720	15890	ug	101	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404329-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:
Lab ID: TR140421-1LCSD

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 21-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140421-1
QCBatchID: TR140421-1-1
Run ID: TR140421-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425A

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	41 +/- 11	0	P	43 +/- 11	0	P,Y1	0.118	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *TR1404329-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30001
Lab ID: 1404329-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 17-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140421-1
QCBatchID: TR140421-1-1
Run ID: TR140421-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.23 +/- 0.23	0.42	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15890	15390	ug	96.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404329-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30003
Lab ID: 1404329-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 16-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140421-1
QCBatchID: TR140421-1-1
Run ID: TR140421-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.10 +/- 0.17	0.37	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15940	15300	ug	96.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404329-1*

Section 5

RAW DATA

5

Ra-226 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404329

Prep SOP: PAI 712
Analytical SOP: PAI 724

Reported on: Monday, April 28, 2014
9:46:45 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404329-1	Ra-226	4/17/2014	TR140421-1	4/22/2014	NA	WATER	1000 ml	LB4100-C	TR140421-1A	4/25/2014	0.367	20.28%	30	0.23	0.42	pCi/l	NA	
SMP	Trg. Analyte	12:39:00 PM	TR140421-1-1	5:00:00 PM	NA	NA	995 ml	B2	RDC0425A	3:20 PM	0.143	21.38%	96.8%	0.23	NA	Unfiltered	NA	U
1404329-2	Ra-226	4/16/2014	TR140421-1	4/22/2014	NA	WATER	1000 ml	LB4100-C	TR140421-1A	4/25/2014	0.200	19.97%	30	0.10	0.37	pCi/l	NA	
SMP	Trg. Analyte	1:32:00 PM	TR140421-1-1	5:00:00 PM	NA	NA	995 ml	B3	RDC0425A	3:20 PM	0.105	21.50%	96.0%	0.17	NA	Unfiltered	NA	U
TR140421-1	Ra-226	4/21/2014	TR140421-1	4/22/2014	NA	WATER	1000 ml	LB4100-C	TR140421-1A	4/25/2014	0.203	20.58%	1000	0.089	0.050	pCi/l	NA	
MB	Trg. Analyte	3:28:47 PM	TR140421-1-1	5:00:00 PM	NA	NA	995 ml	A2	RDC0425C	4:14 PM	0.111	21.81%	98.0%	0.041	NA	Unfiltered	NA	B3
TR140421-1	Ra-226	4/21/2014	TR140421-1	4/22/2014	NA	WATER	1000 ml	LB4100-C	TR140421-1A	4/25/2014	39.967	19.64%	30	41	0	pCi/l	NA	90.5
LCS	Trg. Analyte	3:28:47 PM	TR140421-1-1	5:00:00 PM	NA	NA	995 ml	B4	RDC0425A	3:20 PM	0.121	21.79%	94.2%	11	NA	Unfiltered	NA	P
TR140421-1	Ra-226	4/21/2014	TR140421-1	4/22/2014	NA	WATER	1000 ml	LB4100-C	TR140421-1A	4/25/2014	44.667	20.20%	30	43	0	pCi/l	0.12	94.4
LCSD	Trg. Analyte	3:28:47 PM	TR140421-1-1	5:00:00 PM	NA	NA	995 ml	C1	RDC0425A	3:20 PM	0.103	22.08%	101.0%	11	NA	Unfiltered	NA	P,Y1

Comments:

Data Package ID: *TR1404329-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

Radium-228

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404329

1. This report consists of the analytical results for two water samples received by ALS on 04/18/2014.

2. These samples were prepared according to the current revision of SOP 749. Standard Operating Procedure 749 is compliant with method SW-846 9320.

3. The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724. This SOP is compliant with method SW-846 9320. The analyses were completed on 04/29/2014.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.

6. ICP-AES measurement of barium concentrations prior to chemical separation for all associated QC samples showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

7. Due to uncertainty associated with the ICP-AES determination of barium concentration in the samples, the calculated yield for RA140425-1LCSD fell between 100% and 110%. To minimize the potential for low bias, results have been calculated conservatively assuming quantitative chemical yield (100%). The magnitude of the low bias is estimated to be less than 10% of the reported value and is acceptable according the ALS LQAP. This sample is identified with an “Y1” qualifier on the final reports.

8. No further anomalous situations were noted during the preparation and analysis of these samples. All remaining quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Jean Anderson — 4/30/14
Jean Anderson — Date
Radiochemistry Primary Data Reviewer

Julie Ellis — 4/30/14
Radiochemistry Final Data Reviewer — Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404329
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30001	1404329-1		WATER	17-Apr-14	12:39
LF008-30003	1404329-2		WATER	16-Apr-14	13:32

RAD

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404329

Reference Document No: 150577-311

Page 1 of 1

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 17 APR 2014
Lab Destination: ALSSL
Lab Contact: Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371003

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:

Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:

Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) T Nagel/Shaw — Date: 4/17/14 Time: 1600
1. Received By (Signature/Affiliation) C Trimble/ALS — Date: 4-18-14 Time: 0940
2. Relinquished By (Signature/Affiliation) — Date: Time:
2. Received By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1 LF008-30001	KAFB0307-GW-LF008-30001-REG	17 APR 2014	12:39	1 L HDPE	4 TN ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
2 LF008-30003	KAFB0311-GW-LF008-30003-REG	16 APR 2014	13:32	1 L HDPE	4 TN ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins

CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Empirical ~~SHAW E&I~~ 4/18/14 Workorder No: 1404329

Project Manager: JF Initials: CDT Date: 4-18-14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	~~NONE~~	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: (#2) #4	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	3.4							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	11							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/18/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

Delivery Address Bar Code

1404329

11

PRI - 18 APR
PRIORITY OVERNIG

TRK# 5651 1937 1003

XH FTCA 3.40

805

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RAD

Section 2

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SAMPLE RESULTS SUMMARY

Radium-228 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404329

Reported on: Wednesday, April 30, 2014
12:49:21 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404329-1	LF008-30001	Sample	Ra-228	0.23 +/- 0.21	0.43	pCi/l	WATER	RA140425-1	4/29/2014	U
1404329-2	LF008-30003	Sample	Ra-228	0.34 +/- 0.23	0.44	pCi/l	WATER	RA140425-1	4/29/2014	Y1,U

Comments:

Data Package ID: *RA1404329-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140425-1MB

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 25-Apr-14
Date Prepared: 25-Apr-14
Date Analyzed: 29-Apr-14

Prep Batch: RA140425-1
QCBatchID: RA140425-1-1
Run ID: RA140425-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0429

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	-0.04 +/- 0.25	0.57	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34970	32910	ug	94.1	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *RA1404329-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140425-1LCS

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 25-Apr-14
Date Prepared: 25-Apr-14
Date Analyzed: 29-Apr-14

Prep Batch: RA140425-1
QCBatchID: RA140425-1-1
Run ID: RA140425-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0429

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	8.6 +/- 2.0	0.5	8.833	97.0	70 - 130	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34970	34230	ug	97.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *RA1404329-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140425-1LCSD

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 25-Apr-14
Date Prepared: 25-Apr-14
Date Analyzed: 29-Apr-14

Prep Batch: RA140425-1
QCBatchID: RA140425-1-1
Run ID: RA140425-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0429

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	9.7 +/- 2.3	0.6	8.833	110	70 - 130	P,Y1

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34970	35040	ug	100	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *RA1404329-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:
Lab ID: RA140425-1LCSD

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 25-Apr-14
Date Prepared: 25-Apr-14
Date Analyzed: 29-Apr-14

Prep Batch: RA140425-1
QCBatchID: RA140425-1-1
Run ID: RA140425-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0429

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
15262-20-1	Ra-228	8.6 +/- 2.0	0.5	P	9.7 +/- 2.3	0.6	P,Y1	0.376	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *RA1404329-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30001
Lab ID: 1404329-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 25-Apr-14
Date Analyzed: 29-Apr-14

Prep Batch: RA140425-1
QCBatchID: RA140425-1-1
Run ID: RA140425-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0429

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.23 +/- 0.21	0.43	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	35250	33910	ug	96.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404329-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30003
Lab ID: 1404329-2

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 16-Apr-14
Date Prepared: 25-Apr-14
Date Analyzed: 29-Apr-14

Prep Batch: RA140425-1
QCBatchID: RA140425-1-1
Run ID: RA140425-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0429

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.34 +/- 0.23	0.44	1	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	35190	35500	ug	101	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404329-1*

Section 5

RAW DATA

5

Radium-228 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404329

Prep SOP: SOP749
Analytical SOP: PAI 724

Reported on: Wednesday, April 30, 2014
12:04:55 PM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404329-1	Ra-228	4/17/2014	RA140425-1	4/27/2014	4/29/2014	WATER	1500 ml	LB4100-C	RA140425-1A	4/29/2014	1.875	54.22%	120	0.23	0.43	pCi/l	NA	
SMP	Trg. Analyte	12:39:00 PM	RA140425-1-1	5:00:00 PM	11:30:00 AM	NA	1500 ml	D3	RAC0429	1:05 PM	1.581	NA	96.2%	0.21	NA	Unfiltered	NA	U
1404329-2	Ra-228	4/16/2014	RA140425-1	4/27/2014	4/29/2014	WATER	1500 ml	LB4100-C	RA140425-1A	4/29/2014	2.142	53.13%	120	0.34	0.44	pCi/l	NA	
SMP	Trg. Analyte	1:32:00 PM	RA140425-1-1	5:00:00 PM	11:30:00 AM	NA	1500 ml	D4	RAC0429	1:05 PM	1.702	NA	101.0%	0.23	NA	Unfiltered	NA	Y1,U
RA140425-1	Ra-228	4/25/2014	RA140425-1	4/27/2014	4/29/2014	WATER	1500 ml	LB4100-A	RA140425-1A	4/29/2014	1.933	48.58%	120	-0.04	0.57	pCi/l	NA	
MB	Trg. Analyte	12:38:55 PM	RA140425-1-1	5:00:00 PM	11:30:00 AM	NA	1500 ml	A1	RAA0429	1:22 PM	1.976	NA	94.1%	0.25	NA	Unfiltered	NA	U
RA140425-1	Ra-228	4/25/2014	RA140425-1	4/27/2014	4/29/2014	WATER	1500 ml	LB4100-A	RA140425-1A	4/29/2014	12.333	52.18%	120	8.6	0.5	pCi/l	NA	97.0
LCS	Trg. Analyte	12:38:55 PM	RA140425-1-1	5:00:00 PM	11:30:00 AM	NA	1500 ml	A2	RAA0429	1:22 PM	1.888	NA	97.9%	2.0	NA	Unfiltered	NA	P
RA140425-1	Ra-228	4/25/2014	RA140425-1	4/27/2014	4/29/2014	WATER	1500 ml	LB4100-A	RA140425-1A	4/29/2014	12.967	46.46%	120	9.7	0.6	pCi/l	0.38	110
LCSD	Trg. Analyte	12:38:55 PM	RA140425-1-1	5:00:00 PM	11:30:00 AM	NA	1500 ml	A3	RAA0429	1:22 PM	2.179	NA	100.0%	2.3	NA	Unfiltered	NA	P,Y1

Comments:

Data Package ID: *RA1404329-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
+ - Duplicate RPD not within limits.
LT - Result is less than Request MDC, greater than sample specific MDC
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits
NC - Not Calculated for duplicate results less than 5 times MDC
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).
2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte
TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
DER - Duplicate Error Ratio
BDL - Below Detection Limit

Subcontractor Data Package
TestAmerica

ANALYTICAL REPORT

Job Number: 160-6364-1

SDG Number: 1404127

Job Description: Kirtland

For:
Empirical Laboratories, LLC
621 Mainstream Drive
Suite 270
Nashville, TN 37228

Attention: Marianne Walker

Approved for release.
Erika K Gish
Project Manager II
5/14/2014 10:52 AM

Erika K Gish, Project Manager II
13715 Rider Trail North, Earth City, MO, 63045
(314)298-8566
erika.gish@testamericainc.com
05/14/2014

The test results in this report meet NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted. Results pertain only to samples listed in this report. Pursuant to NELAP, this report shall not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager.

Louisiana Lab Certification ID (Non-Potable, Solid/Haz. Material): 106151
Florida Lab Certification ID (Drinking Water): E87689.

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Qualifiers

Metals

Qualifier	Qualifier Description
D	The reported value is from a dilution.
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
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

CASE NARRATIVE

Client: Empirical Laboratories, LLC

Project: Kirtland

Report Number: 160-6364-1

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.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

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.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT
The samples were received on 4/23/2014 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.4º C.

Sample IDs changed per client request.

METALS (ICP/MS)
Samples LF008-30001 (160-6364-2) and LF008-30003 (160-6364-4) were analyzed for Metals (ICP/MS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 04/28/2014 and analyzed on 04/30/2014.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 119038. An LCSD was created due to the insufficient volume: LF008-30001 (160-6364-2), LF008-30003 (160-6364-4).

Reduced aliquot was used due to limited volume: LF008-30001 (160-6364-2), LF008-30003 (160-6364-4).

No difficulties were encountered during the Metals (ICP/MS) analysis.

All quality control parameters were within the acceptance limits.

METALS (ICPMS)

Samples LF008-30001 (160-6364-1), LF008-30003 (160-6364-3) and LF008-80001 (160-6364-5) were analyzed for Metals (ICPMS) in accordance with EPA SW-846 Methods 6020A. The samples were prepared on 04/28/2014 and analyzed on 04/30/2014.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 119038. An LCSD was created due to the insufficient volume: LF008-30001 (160-6364-1), LF008-30003 (160-6364-3), LF008-80001 (160-6364-5).

Reduced aliquot was used due to limited volume: LF008-30001 (160-6364-1), LF008-30003 (160-6364-3), LF008-80001 (160-6364-5).

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

Detection Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6364-1
SDG: 1404127

Client Sample ID: LF008-30001 — Lab Sample ID: 160-6364-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.4		2.0	0.46	ug/L	1		6020A	Total/NA

Client Sample ID: LF008-30001 — Lab Sample ID: 160-6364-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.2		2.0	0.46	ug/L	1		6020A	Dissolved

Client Sample ID: LF008-30003 — Lab Sample ID: 160-6364-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.1		2.0	0.46	ug/L	1		6020A	Total/NA

Client Sample ID: LF008-30003 — Lab Sample ID: 160-6364-4

No Detections.

Client Sample ID: LF008-80001 — Lab Sample ID: 160-6364-5

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6364-1
SDG: 1404127

Client Sample ID: LF008-30001 — Lab Sample ID: 160-6364-1

Date Collected: 04/17/14 12:39
Date Received: 04/23/14 10:10
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.4		2.0	0.46	ug/L		04/28/14 12:35	04/30/14 21:43	1

Client Sample ID: LF008-30001 — Lab Sample ID: 160-6364-2

Date Collected: 04/17/14 12:39
Date Received: 04/23/14 10:10
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.2		2.0	0.46	ug/L		04/28/14 12:35	04/30/14 21:56	1

Client Sample ID: LF008-30003 — Lab Sample ID: 160-6364-3

Date Collected: 04/16/14 13:32
Date Received: 04/23/14 10:10
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.1		2.0	0.46	ug/L		04/28/14 12:35	04/30/14 22:03	1

Client Sample ID: LF008-30003 — Lab Sample ID: 160-6364-4

Date Collected: 04/16/14 13:32
Date Received: 04/23/14 10:10
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	1.4	U	2.0	0.46	ug/L		04/28/14 12:35	04/30/14 22:09	1

Client Sample ID: LF008-80001 — Lab Sample ID: 160-6364-5

Date Collected: 04/16/14 15:45
Date Received: 04/23/14 10:10
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	1.4	U	2.0	0.46	ug/L		04/28/14 12:35	04/30/14 22:16	1

Default Detection Limits

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6364-1
SDG: 1404127

Method: 6020A - Metals (ICP/MS)

Analyte	LOQ	DL	Units	Method
Uranium	1.0	0.23	ug/L	6020A

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	LOQ	DL	Units	Method
Uranium	1.0	0.23	ug/L	6020A

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-119038/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 119587 — **Prep Batch: 119038**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	0.69	U	1.0	0.23	ug/L		04/28/14 12:35	04/30/14 21:23	1

Lab Sample ID: LCS 160-119038/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 119587 — **Prep Batch: 119038**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Uranium			1000	980		ug/L		98	80 - 120		

Lab Sample ID: LCSD 160-119038/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 119587 — **Prep Batch: 119038**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Uranium			1000	973		ug/L		97	80 - 120	1	20

Lab Sample ID: LRC 160-119587/13 — **Client Sample ID: Lab Control Sample**
Matrix: Water
Analysis Batch: 119587

Analyte			Spike Added	LRC Result	LRC Qualifier	Unit	D	%Rec	%Rec. Limits		
Uranium			2000	1830		ug/L		91	90 - 110		

QC Association Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6364-1
SDG: 1404127

Metals

Prep Batch: 119038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6364-1	LF008-30001	Total/NA	Water	3010A	
160-6364-1 SD	LF008-30001	Total/NA	Water	3010A	
160-6364-2	LF008-30001	Dissolved	Water	3010A	
160-6364-3	LF008-30003	Total/NA	Water	3010A	
160-6364-4	LF008-30003	Dissolved	Water	3010A	
160-6364-5	LF008-80001	Total/NA	Water	3010A	
LCS 160-119038/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 160-119038/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
MB 160-119038/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 119587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6364-1	LF008-30001	Total/NA	Water	6020A	119038
160-6364-1 SD	LF008-30001	Total/NA	Water	6020A	119038
160-6364-2	LF008-30001	Dissolved	Water	6020A	119038
160-6364-3	LF008-30003	Total/NA	Water	6020A	119038
160-6364-4	LF008-30003	Dissolved	Water	6020A	119038
160-6364-5	LF008-80001	Total/NA	Water	6020A	119038
CRI 160-119587/26	DL		Water	6020A	
ICSA 160-119587/27	ICS		Water	6020A	
ICSAB 160-119587/28	ICS		Water	6020A	
LCS 160-119038/2-A	Lab Control Sample	Total/NA	Water	6020A	119038
LCSD 160-119038/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	119038
LRC 160-119587/13	Lab Control Sample		Water	6020A	
MB 160-119038/1-A	Method Blank	Total/NA	Water	6020A	119038

Lab Chronicle

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6364-1
SDG: 1404127

Client Sample ID: LF008-30001 — Lab Sample ID: 160-6364-1

Date Collected: 04/17/14 12:39
Date Received: 04/23/14 10:10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			119038	04/28/14 12:35	LJT	TAL SL
Total/NA	Analysis	6020A		1	119587	04/30/14 21:43	CCB	TAL SL

Client Sample ID: LF008-30001 — Lab Sample ID: 160-6364-2

Date Collected: 04/17/14 12:39
Date Received: 04/23/14 10:10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			119038	04/28/14 12:35	LJT	TAL SL
Dissolved	Analysis	6020A		1	119587	04/30/14 21:56	CCB	TAL SL

Client Sample ID: LF008-30003 — Lab Sample ID: 160-6364-3

Date Collected: 04/16/14 13:32
Date Received: 04/23/14 10:10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			119038	04/28/14 12:35	LJT	TAL SL
Total/NA	Analysis	6020A		1	119587	04/30/14 22:03	CCB	TAL SL

Client Sample ID: LF008-30003 — Lab Sample ID: 160-6364-4

Date Collected: 04/16/14 13:32
Date Received: 04/23/14 10:10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			119038	04/28/14 12:35	LJT	TAL SL
Dissolved	Analysis	6020A		1	119587	04/30/14 22:09	CCB	TAL SL

Client Sample ID: LF008-80001 — Lab Sample ID: 160-6364-5

Date Collected: 04/16/14 15:45
Date Received: 04/23/14 10:10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			119038	04/28/14 12:35	LJT	TAL SL
Total/NA	Analysis	6020A		1	119587	04/30/14 22:16	CCB	TAL SL

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6364-1
SDG: 1404127

Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-14
California	NELAP	9	09266CA	03-31-14 *
Connecticut	State Program	1	PH-0241	03-31-15
Florida	NELAP	4	E87689	06-30-14
Illinois	NELAP	5	200023	11-30-14
Iowa	State Program	7	373	12-01-14
Kansas	NELAP	7	E-10236	10-31-14
Kentucky (DW)	State Program	4	90125	12-31-14
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA140007	12-31-14
Maryland	State Program	3	310	09-30-14
Missouri	State Program	7	780	06-30-14
Nevada	State Program	9	MO000542013-1	07-31-14
New Jersey	NELAP	2	MO002	06-30-14 *
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-15
North Dakota	State Program	8	R207	06-30-14
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	2013-049	08-31-14
Pennsylvania	NELAP	3	68-00540	02-28-15
South Carolina	State Program	4	85002001	06-30-14 *
Texas	NELAP	6	T104704193-13-6	07-31-14
USDA	Federal		P330-07-00122	01-09-17
USEPA Reg V SDWA	Federal	1	WG-15J	08-30-14
Utah	NELAP	8	MO000542013-5	07-31-14
Virginia	NELAP	3	2236	06-14-14 *
Washington	State Program	10	C592	08-30-14
West Virginia DEP	State Program	3	381	08-30-14

* Expired certification is currently pending renewal and is considered valid.

Method Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6364-1
SDG: 1404127

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL SL

Protocol References:

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

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6364-1
SDG: 1404127

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-6364-1	LF008-30001	Water	04/17/14 12:39	04/23/14 10:10
160-6364-2	LF008-30001	Water	04/17/14 12:39	04/23/14 10:10
160-6364-3	LF008-30003	Water	04/16/14 13:32	04/23/14 10:10
160-6364-4	LF008-30003	Water	04/16/14 13:32	04/23/14 10:10
160-6364-5	LF008-80001	Water	04/16/14 15:45	04/23/14 10:10

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
MS A CAL1 LLC_00111	05/01/14	04/24/14	2% HCL 2% HN03, Lot 346320	500 mL	MS CAL1_00005	0.5 mL	Uranium	1 ug/L
.MS CAL1_00005	12/23/14	Environmental Expres, Lot 1335201			(Purchased Reagent)		Uranium	1 ug/mL
MS A CAL2 CCV_00107	05/01/14	04/24/14	2% HCL 2% HN03, Lot 346320	500 mL	MS CAL3 A_00004	0.25 mL	Uranium	100 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A CAL3_00107	05/01/14	04/24/14	2% HCL 2% HN03, Lot 346320	250 mL	MS CAL3 A_00004	0.25 mL	Uranium	200 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A ICSA_00107	05/01/14	04/24/14	2% HCL 2% HN03, Lot 346320	250 mL	MS ICSA_00012	25 mL	Al	100 mg/L
.MS ICSA_00012	12/19/14	Inorganic Ventures, Lot G2-MEB476152			(Purchased Reagent)		Al	1000 ug/mL
MS A ICSAB_00108	05/01/14	04/24/14	2% HCL 2% HN03, Lot 346320	250 mL	MS CAL3 A_00004	0.125 mL	Uranium	100 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A ICV_00107	05/01/14	04/24/14	2% HCL 2% HN03, Lot 346320	250 mL	MS ICV 2_00003	0.125 mL	Uranium	100 ug/L
.MS ICV 2_00003	12/19/14	SPEX, Lot 5-29NY			(Purchased Reagent)		Uranium	200 ug/mL
MS LDR 2PPM_00107	05/01/14	04/24/14	2% HCL 2% HN03, Lot 346320	100 mL	MS CAL3 A_00004	1 mL	Uranium	2 ug/mL
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
PREP 1 and 2_00002	01/30/15	AccuScience, Lot 1055262			(Purchased Reagent)		Ag	40 mg/L
							Al	2000 mg/L
							As	200 mg/L
							B	400 mg/L
							Ba	200 mg/L
							Be	200 mg/L
							Bi	200 mg/L
							Ca	2000 mg/L
							Cd	200 mg/L
							Co	200 mg/L
							Cr	200 mg/L
							Cu	200 mg/L
							Fe	2000 mg/L
							K	2000 mg/L
							Li	200 mg/L
							Mg	2000 mg/L
							Mn	200 mg/L
							Mo	100 mg/L
							Na	2000 mg/L
							Nb	100 mg/L
							Ni	200 mg/L
							P	200 mg/L
							Pb	200 mg/L
							Sb	100 mg/L
							Se	100 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Sm	200 mg/L
							Sn	200 mg/L
							Sr	200 mg/L
							Sulfur	2000 mg/L
							Th	200 mg/L
							Ti	200 mg/L
							Tl	40 mg/L
							Uranium	200 mg/L
							V	200 mg/L
							W	200 mg/L
							Zn	200 mg/L
							Zr	200 mg/L

METALS

COVER PAGE
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6364-1

SDG No.: 1404127

Project: Kirtland

Client Sample ID	Lab Sample ID
LF008-30001	160-6364-1
LF008-30001	160-6364-2
LF008-30003	160-6364-3
LF008-30003	160-6364-4
LF008-80001	160-6364-5

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: LF008-30001

Lab Sample ID: 160-6364-1

Lab Name: TestAmerica St. Louis

Job No.: 160-6364-1

SDG ID.: 1404127

Matrix: Water

Date Sampled: 04/17/2014 12:39

Reporting Basis: WET

Date Received: 04/23/2014 10:10

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.4	2.0	1.4	0.46	ug/L			1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - DISSOLVED

Client Sample ID: LF008-30001
Lab Sample ID: 160-6364-2
Lab Name: TestAmerica St. Louis
Job No.: 160-6364-1
SDG ID.: 1404127
Matrix: Water
Date Sampled: 04/17/2014 12:39
Reporting Basis: WET
Date Received: 04/23/2014 10:10

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.2	2.0	1.4	0.46	ug/L			1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: LF008-30003

Lab Sample ID: 160-6364-3

Lab Name: TestAmerica St. Louis

Job No.: 160-6364-1

SDG ID.: 1404127

Matrix: Water

Date Sampled: 04/16/2014 13:32

Reporting Basis: WET

Date Received: 04/23/2014 10:10

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.1	2.0	1.4	0.46	ug/L			1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - DISSOLVED

Client Sample ID: LF008-30003
Lab Sample ID: 160-6364-4
Lab Name: TestAmerica St. Louis
Job No.: 160-6364-1
SDG ID.: 1404127
Matrix: Water
Date Sampled: 04/16/2014 13:32
Reporting Basis: WET
Date Received: 04/23/2014 10:10

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	1.4	2.0	1.4	0.46	ug/L	U		1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: LF008-80001

Lab Sample ID: 160-6364-5

Lab Name: TestAmerica St. Louis

Job No.: 160-6364-1

SDG ID.: 1404127

Matrix: Water

Date Sampled: 04/16/2014 15:45

Reporting Basis: WET

Date Received: 04/23/2014 10:10

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	1.4	2.0	1.4	0.46	ug/L	U		1	6020A

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

ICV Source: MS A ICV_00107 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00107

Analyte	ICV 160-119587/24 04/30/2014 17:15				CCV 160-119587/31 04/30/2014 21:09				CCV 160-119587/42 04/30/2014 22:23			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Uranium	104		100	104	96.5		100	96	95.0		100	95

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

Method: 6020A Instrument ID: ICPMS7500

Lab Sample ID: CRI 160-119587/26 Concentration Units: ug/L

CRQL Check Standard Source: MS A CAL1 LLC_00111

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Uranium	1.00	0.941	J	94	70-130

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

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

Concentration Units: ug/L

Analyte	RL	ICB 160-119587/25 04/30/2014 17:22		CCB 160-119587/32 04/30/2014 21:16		CCB 160-119587/43 04/30/2014 22:30			
		Found	C	Found	C	Found	C	Found	C
Uranium	1.0	0.69	U	0.69	U	0.69	U		

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

Concentration Units: ug/L Lab Sample ID: MB 160-119038/1-A

Instrument Code: ICPMS7500 Batch No.: 119587

CAS No.	Analyte	Concentration	C	Q	Method
7440-61-1	Uranium	0.69	U		6020A

FORM III-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

Lab Sample ID: ICSA 160-119587/27 Instrument ID: ICPMS7500

Lab File ID: 032ICSA.D ICS Source: MS A ICSA_00107

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Uranium		**0.0050**	
Aluminum	*100000*	*93910*	*94*

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

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

Lab Sample ID: ICSAB 160-119587/28 Instrument ID: ICPMS7500

Lab File ID: 033ICSB.D ICS Source: MS A ICSAB_00108

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Uranium	**100**	**103**	**103**

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

FORM IVA-IN

LINEAR RANGE CHECK STANDARD
METALS -

Lab ID: LRC 160-119587/13

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

Sample Matrix: Water LCS Source: MS LDR 2PPM_00107

Analyte	Water(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Uranium	2000	1830		91	90	110		6020A

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

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 160-119038/2-A

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

Sample Matrix: Water LCS Source: PREP 1 and 2_00002

Analyte	Water(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Uranium	1000	980		98	80	120		6020A

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

FORM VIIA - IN

7D-IN
LAB CONTROL SAMPLE DUPLICATE
METALS

Lab ID: LCSD 160-119038/3-A

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

Sample Matrix: Water LCS Source: PREP 1 and 2_00002

Analyte	(SDR)	C	Spike Added	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Uranium	973		1000	97	80-120	1	20		6020A

SDR = Spike Duplicate Results
Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIID - IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 160-6364-1

SDG No: 1404127

Lab Name: TestAmerica St. Louis Job No: 160-6364-1

Matrix: Water Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Uranium	2.4		2.41	J	NC	D	6020A

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

FORM VIII-IN

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6364-1

SDG Number: 1404127

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A DL Date: 04/19/2013 16:43

Prep Method: 3010A

Analyte	Wavelength/ Mass	LOQ (ug/L)	DL (ug/L)
Uranium	238	1	0.231

FORM IX - IN

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6364-1

SDG Number: 1404127

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A XMDL Date: 04/19/2013 16:42

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Uranium	238	1	0.231

9-IN
DETECTION LIMITS
METALS - DISSOLVED

Lab Name: TestAmerica St. Louis Job Number: 160-6364-1

SDG Number: 1404127

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A DL Date: 04/19/2013 16:43

Prep Method: 3010A

Analyte	Wavelength/ Mass	LOQ (ug/L)	DL (ug/L)
Uranium	238	1	0.231

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS - DISSOLVED

Lab Name: TestAmerica St. Louis Job Number: 160-6364-1

SDG Number: 1404127

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A XMDL Date: 04/19/2013 16:42

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Uranium	238	1	0.231

FORM IX - IN

11-IN
LINEAR RANGES
METALS

Lab Name: TestAmerica St. Louis Job No: 160-6364-1

SDG No.: 1404127

Instrument ID: ICPMS7500 Date: 02/14/2012 11:08

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Uranium		2000	6020A

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

Prep Method: 3010A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 160-119038/1-A	04/28/2014 12:35	119038		50	50
LCS 160-119038/2-A	04/28/2014 12:35	119038		50	50
LCSD 160-119038/3-A	04/28/2014 12:35	119038		50	50
160-6364-1	04/28/2014 12:35	119038		25	50
160-6364-2	04/28/2014 12:35	119038		25	50
160-6364-3	04/28/2014 12:35	119038		25	50
160-6364-4	04/28/2014 12:35	119038		25	50
160-6364-5	04/28/2014 12:35	119038		25	50

FORM XII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

Instrument ID: ICPMS7500 Analysis Method: 6020A

Start Date: 04/30/2014 14:21 End Date: 04/30/2014 22:30

Lab Sample Id	D/F	Type	Time	Analytes																							
				U																							
ICIS 160-119587/1			14:21	X																							
IC 160-119587/2			14:28	X																							
IC 160-119587/3			14:34	X																							
IC 160-119587/4			14:41	X																							
ICV 160-119587/5			14:48																								
ICB 160-119587/6			14:54																								
CRI 160-119587/7			15:01																								
ICSA 160-119587/8			15:08																								
ICSAB 160-119587/9			15:15																								
CCV 160-119587/10			15:21																								
CCB 160-119587/11			15:28																								
ZZZZZZ			15:35																								
LRC 160-119587/13	1		15:41	X																							
ZZZZZZ			15:48																								
ZZZZZZ			15:55																								
ZZZZZZ			16:01																								
ZZZZZZ			16:08																								
CCV 160-119587/18			16:15																								
CCB 160-119587/19			16:21																								
ICIS 160-119587/20			16:49	X																							
IC 160-119587/21	1		16:55	X																							
IC 160-119587/22	1		17:02	X																							
IC 160-119587/23	1		17:09	X																							
ICV 160-119587/24	1		17:15	X																							
ICB 160-119587/25	1		17:22	X																							
CRI 160-119587/26	1		17:29	X																							
ICSA 160-119587/27	1		17:36	X																							
ICSAB 160-119587/28	1		17:42	X																							
CCV 160-119587/29			17:49																								
CCB 160-119587/30			17:56																								
CCV 160-119587/31	1		21:09	X																							
CCB 160-119587/32	1		21:16	X																							
MB 160-119038/1-A	1	T	21:23	X																							
LCS 160-119038/2-A	1	T	21:30	X																							
LCSD 160-119038/3-A	1	T	21:36	X																							
160-6364-1	1	T	21:43	X																							
160-6364-1 SD	5	T	21:49	X																							
160-6364-2	1	D	21:56	X																							
160-6364-3	1	T	22:03	X																							
160-6364-4	1	D	22:09	X																							
160-6364-5	1	T	22:16	X																							
CCV 160-119587/42	1		22:23	X																							

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

Instrument ID: ICPMS7500 Analysis Method: 6020A

Start Date: 04/30/2014 14:21 End Date: 04/30/2014 22:30

Lab Sample Id	D/F	Type	Time	Analytes																							
				U																							
CCB 160-119587/43	1		22:30	X																							

Prep Types:
D = Dissolved
T = Total/NA

FORM XIII-IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

ICP-MS Instrument ID: ICPMS7500 Start Date: 04/30/2014 End Date: 04/30/2014

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc/2	Q	Element Sc/3	Q	Element Ge/2	Q	Element Ge/3	Q
LRC 160-119587/13	15:41	81		102		104		109		105	
IC 160-119587/21	16:55	101		100		99		102		103	
IC 160-119587/22	17:02	97		99		98		102		102	
IC 160-119587/23	17:09	98		100		100		105		102	
ICV 160-119587/24	17:15	100		101		100		104		103	
ICB 160-119587/25	17:22	101		100		101		99		100	
CRI 160-119587/26	17:29	101		99		99		103		103	
ICSA 160-119587/27	17:36	98		101		100		99		99	
ICSAB 160-119587/28	17:42	95		102		101		102		101	
CCV 160-119587/31	21:09	112		124		120		128		125	
CCB 160-119587/32	21:16	121		130		127		129		129	
MB 160-119038/1-A	21:23	121		130		126		135		133	
LCS 160-119038/2-A	21:30	105		123		123		125		127	
LCSD 160-119038/3-A	21:36	106		129		124		132		127	
160-6364-1	21:43	118		128		125		133		131	
160-6364-1 SD	21:49	119		126		125		130		129	
160-6364-2	21:56	117		124		122		131		129	
160-6364-3	22:03	119		125		124		130		131	
160-6364-4	22:09	127		132		130		137		137	
160-6364-5	22:16	125		132		130		139		139	
CCV 160-119587/42	22:23	121		129		127		136		133	
CCB 160-119587/43	22:30	124		129		127		130		130	

FORM XV - IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

ICP-MS Instrument ID: ICPMS7500 Start Date: 04/30/2014 End Date: 04/30/2014

Lab Sample ID	Time	Internal Standards %RI For:									
		Element In	Q	Element Ho/2	Q	Element Ho/3	Q	Element Ir/2	Q	Element Ir/3	Q
LRC 160-119587/13	15:41	104		104		106		104		107	
IC 160-119587/21	16:55	100		99		101		100		99	
IC 160-119587/22	17:02	99		100		101		99		98	
IC 160-119587/23	17:09	99		99		101		98		100	
ICV 160-119587/24	17:15	100		100		102		100		101	
ICB 160-119587/25	17:22	101		101		101		101		100	
CRI 160-119587/26	17:29	101		100		100		101		101	
ICSA 160-119587/27	17:36	94		98		99		92		93	
ICSAB 160-119587/28	17:42	96		99		101		93		95	
CCV 160-119587/31	21:09	116		110		111		104		108	
CCB 160-119587/32	21:16	121		115		116		111		112	
MB 160-119038/1-A	21:23	120		116		114		113		112	
LCS 160-119038/2-A	21:30	117		106		116		100		112	
LCSD 160-119038/3-A	21:36	119		114		117		109		111	
160-6364-1	21:43	121		115		116		110		113	
160-6364-1 SD	21:49	121		114		115		108		110	
160-6364-2	21:56	118		113		115		108		109	
160-6364-3	22:03	119		114		117		110		113	
160-6364-4	22:09	126		119		123		116		119	
160-6364-5	22:16	124		118		121		115		118	
CCV 160-119587/42	22:23	122		117		120		112		113	
CCB 160-119587/43	22:30	123		116		119		113		114	

FORM XV - IN

METALS BATCH WORKSHEET

Lab Name: TestAmerica St. Louis Job No.: 160-6364-1

SDG No.: 1404127

Batch Number: 119038 Batch Start Date: 04/28/14 12:35 Batch Analyst: Taddeo, Louis J

Batch Method: 3010A Batch End Date: 04/29/14 09:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	PREP 1 and 2 00002			
MB 160-119038/1		3010A, 6020A		50 mL	50 mL				
LCS 160-119038/2		3010A, 6020A		50 mL	50 mL	0.25 mL			
LCSD 160-119038/3		3010A, 6020A		50 mL	50 mL	0.25 mL			
160-6364-A-1	LF008-30001	3010A, 6020A	T	25 mL	50 mL				
160-6364-A-2	LF008-30001	3010A, 6020A	D	25 mL	50 mL				
160-6364-A-3	LF008-30003	3010A, 6020A	T	25 mL	50 mL				
160-6364-A-4	LF008-30003	3010A, 6020A	D	25 mL	50 mL				
160-6364-A-5	LF008-80001	3010A, 6020A	T	25 mL	50 mL				

Batch Notes	
Balance ID	27150548
Batch Comment	(HOT BLOCK 1)
Lot # of hydrochloric acid	353918
Lot # of Nitric Acid	327704
Oven, Bath or Block Temperature 1	93.2 Degrees C
Pipette ID	M-PREP-2
ID number of the thermometer	111815886
Digestion Tube/Cup Lot #	175919

Basis	Basis Description
T	Total/NA
D	Dissolved

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Shipping and Receiving Documents

SUBCONTRACT ORDER

Empirical Laboratories, LLC

1404127

PO #14-0369

SENDING LABORATORY:

Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Phone: 615.345.1115
Fax: 866.417.0548
Project Manager: Marianne J. Walker

RECEIVING LABORATORY:

Test America St.Louis
13715 Rider Trail North
Earth City, MO 63045-1205
Phone :(314) 298-8566
Fax: (314) 298-8757

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: LF008-30001				
Reference No: 1404127-01	**Water**	**Sampled:04/17/2014 12:39**		
SUB_SPECIALTY	05/06/2014 14:00	10/14/2014 13:39		Total Uranium by 200.8
Containers Supplied:				
Sample ID: LF008-30001				
Reference No: 1404127-02	**Water**	**Sampled:04/17/2014 12:39**		**Filtered**
SUB_SPECIALTY	05/06/2014 14:00	10/14/2014 13:39		Dissolved Uranium by 200.8
Containers Supplied:	-			
Sample ID: LF008-30003				
Reference No: 1404127-03	**Water**	**Sampled:04/16/2014 13:32**		
SUB_SPECIALTY	05/06/2014 14:00	10/13/2014 14:32		Total Uranium by 200.8
Containers Supplied:				
Sample ID: LF008-30003				
Reference No: 1404127-04	**Water**	**Sampled:04/16/2014 13:32**		**Filtered**
SUB_SPECIALTY	05/06/2014 14:00	10/13/2014 14:32		Dissolved Uranium by 200.8
Containers Supplied:				
Sample ID: LF008-80001				
Reference No: 1404127-05	**Water**	**Sampled:04/16/2014 15:45**		
SUB_SPECIALTY	05/06/2014 14:00	10/13/2014 16:45		Total Uranium by 200.8
Containers Supplied:				

160-6364 Chain of Custody

Released By	Date	Received By	Date
[signature]	4/22/14	[signature]	4.23.14 10:10
Released By	Date	Received By	Date

Page 1 of 1

Login Sample Receipt Checklist

Client: Empirical Laboratories, LLC

Job Number: 160-6364-1
SDG Number: 1404127

Login Number: 6364
List Number: 1
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

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?	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL DATA PACKAGE

SDG # KIRTLANDECOS_013

PROJECT NAME: KIRTLAND AFB (ECOS)
PROJECT LOCATION: ALBUQUERQUE, NEW MEXICO

SUBMITTAL TO:
Susan Huang
SHAW E&I, Inc.
4005 Port Chicago Highway
Concord, CA 94520

SUBMITTAL BY:
Empirical Laboratories, LLC (EL)
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Tel (615)345-1115
Fax (866)417-0548

LABORATORY CONTACT PERSON:
Project Manager: Marianne Walker
Tel (615)345-1115
Fax (866)417-0548
Email: mwalker@empirlabs.com

Original Report Date: May 29, 2014
Report Revision #: N/A
Revision Date: N/A
Total # of Pages: 760

THIS DOCUMENT MEETS DoD QSM 4.2 STANDARDS

The results relate to only the samples associated with the referenced SDG and the submitted data has been produced in accordance with laboratory procedures. The Laboratory's Technical Lab Director, Mr. Rick Davis, is responsible for the final data produced and reported. His signature is listed at the end of the Case Narrative within the Analytical Data Package. If applicable to this report package, details on report revisions and the information on subcontracted analysis are listed in the package Case Narrative. This report shall not be reproduced, except in full, without the written approval of Empirical Laboratories, LLC.

L-A-B Accredited - Certificate Number L2226 - Testing

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Sample Delivery Group Case Narrative

Receipt Information:
The samples were received within the preservation guidelines for the associated methods. The information associated with sample receipt and the Sample Delivery Group (SDG) are included within section 4 of this package, which also provides information on the link between the client sample ID listed on the COC and laboratory's assigned unique sample ID or WorkOrder #. The sample is tracked through the laboratory for all analysis via the assigned WorkOrder #.

All samples that were received were analyzed and none of the samples were placed on hold without analyses. Samples were subcontracted to Test America for Uranium and to ALS Environmental for Gross Alpha, Gross Beta, and Ra226.

The following issues were discovered with the COC and/or samples upon log-in:

1. Metals samples were analyzed on a list provided by the client not the compounds requested via the COC.

Changes to the Revision:
This is an original submittal of the final report package.

Analytical Information:
All samples were prepped (where applicable) and analyzed within the standard allowed holding times, unless noted within the exceptions listed below. The laboratory analyzed all samples within the program and method guidelines. Sample preparation and dilution information is provided within the final results report and at the beginning of each form set. The following information is provided specific to individual methods:

SW8260B:
The following batch spikes exceeded criteria:
4E05011-BS1 with a positive bias for Acetone; note – no positive results were detected in the associated samples for the compounds exceeding criteria

The following blanks have reported results:
4E01023-BLK1 for Hexachlorobutadiene
4E05011-BLK1 for Hexachlorobutadiene
Note – No positive results were detected in the associated samples.

The following were analyzed after the 12-hour tune criteria:
4E02004-MSD1 was analyzed 12 hours 20 minutes after the associated tune standard

The following continuing calibration verifications exceeded criteria:

4E12501-CCV1 with a negative bias for Bromomethane; note – the exceedences was minimal at -27.1% (±20%)
4E12606-CCV1 with a positive bias for Acetone and Bromoform; note - no positive results were detected in the associated samples for the compounds exceeding criteria

No additional anomalies or deviations are noted and the proper data qualifiers have been applied.

SW6010C/SW7470A:
The following compounds are qualified with an M to indicate that the LOD and/or DL were raised due to sample interference:
Cadmium in 1404149-05, 1404168-01, and -02

The following continuing calibration verifications exceeded criteria:
4E14903-CCV1 with a positive bias for Manganese; note – the CCV is only associated to batch QC and no recoveries were biased into or out of control due to the exceedence

The following matrix spikes exceeded criteria:
4D29021-MS1/MSD1 (1404168-01) with a positive bias for Iron, with a negative bias for Iron and Manganese, exceeded relative percent difference criteria for Chromium, Iron, and Manganese, and exceeded criteria for Chromium; note – the parent sample concentration for Chromium is greater than 4 times the amount spiked and all compounds exceeding criteria are within criteria in the associated batch spike. Boron, Molybdenum, and Tin were mistakenly not spiked into the matrix spikes for sample 1404168-01. The client was notified and indicated the spikes did not need re-digested and analyzed since the compounds are included in the post spike and batch spikes.

The following post spikes exceeded criteria:
4D29021-PS1 (1404168-01) with a positive bias for Arsenic; note - Arsenic is within criteria in the associated batch spike

No additional anomalies or deviations are noted and the proper data qualifiers have been applied.

Wet Chemistry:
The following blanks have reported results:
4D23015-BLK1 for Total Dissolved Solids; note – the concentrations in 1404149-01 and -03 were not greater than 10x the concentration in the blank; therefore, the samples are qualified with a "B"

The following matrix spikes exceeded criteria:
4E15013-MS1/MSD1 (1404168-01) with a negative bias for Nitrate/Nitrite as N; note – the associated batch spike is within criteria

The following batch spikes exceeded criteria:
4D23015-BSD1 with a positive bias for Total Dissolved Solids; note – since the exceedences was

minimal and the holding time had been exceeded upon discovery, the associated samples were not re-extracted

No additional anomalies or deviations are noted and the proper data qualifiers have been applied.

Data Qualifiers:

As applicable and where required, the following general qualifiers are associated with the sample results. Additional qualifiers will be specified within the reporting sections of the data package or within the body of the Case Narrative.

Analytical Report Terms and Qualifiers

DL: The detection limit (DL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The DL is supported by the method detection limit (MDL) which is determined from analysis of a sample containing the analyte in a given matrix.

LOD: The Limit of Detection is an estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. This definition is further clarified in the DoD QSM 4.2 revisions as the smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.

LOQ: The Limit of Quantitation is the minimum level, concentration, or quantity of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. This term is further clarified within the DoD QSM 4.2 as the lowest concentration that produces a quantitative result within specified limits of precision and bias.

*****: Exceeding quality control criteria are associated with the reported result.

B: The presence of a "B" to the right of an analytical value indicates that this compound was also detected in the method blank and the data should be interpreted with caution. One should consider the possibility that the correct sample result might be less than the reported result and, perhaps, zero.

D: When a sample (or sample extract) is rerun diluted because one of the compound concentrations exceeded the highest concentration range for the standard curve, all of the values obtained in the dilution run will be flagged with a "D".

E: The concentration for any compound found which exceeds the highest concentration level on the standard curve for that compound will be flagged with an "E". Usually the sample will be rerun at a dilution to quantitate the flagged compound. For Metals, the qualifier indicates that the serial dilution was outside of the control limits and the compound should be considered estimated due to the presence of interference.

H1: The result was analyzed outside of the EPA recommended holding time.

H2: The result was extracted outside of the EPA recommended holding time.

H3: The sample for this analyte was received outside of the EPA recommended holding time.

J: The presence of a "J" to the right of an analytical result indicates that the reported result is estimated. The mass spectral data pass the identification criteria showing that the compound is present, but the calculated result is less than the LOQ. One should feel confident that the result is greater than zero and less than the LOQ.

M: Indicates that the sample matrix interfered with the quantitation of the analyte. In dual column analysis the result is reported from the column with the lower concentration. In inorganics, it indicates that the parameters DL/LOD/LOQ have been raised.

N: The MS/MSD accuracy and/or precision are outside criteria. The predigested spike recovery is not within control limits for the associated parameter.

P: The associated numerical value is an estimated quantity. There is greater than a 40% difference between the two GC columns for the detected concentrations. The higher of the two values is reported unless matrix interference is obvious or for HPLC analysis where the primary column is reported.

Q: The relative percent difference (RPD) and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

S: The associated internal standard exceeded criteria.

U: The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.

X: The parameter shows a potential positive bias on a reported concentration due to an ICV or CCV exceeding the upper control limit on the high side.

Y: The parameter shows a potential negative bias on a reported concentration due to an ICV or CCV exceeding the lower control limit on the low side.

Z: The parameter shows lack of confirmation/detection, which may be due to a negative bias in the ICV or CCV which exceeds the lower control limit.

Chromatographic Flags for Manual Integration:

The following letters are used to denote manual integrations on the laboratory's raw data in association with chromatographic integrations:

A: The peak was manually integrated as it was not integrated in the original chromatogram.

B: The peak was manually integrated due to resolution or coelution issues in the original chromatogram.

C: The peak was manually integrated to correct the baseline from the original chromatogram.

D: The peak was manually integrated to identify the correct peak as the wrong peak was identified in the original chromatogram.

E: The peak was manually integrated to include the entire peak as the original chromatogram only integrated part of the peak.

LIMS Definitions / Naming Conventions:

The following are general naming conventions that are used throughout the laboratory; however, on a method by method basis, there are additional QAQC items that are named in a consistent format.

BLK: LIMS assigns a unique identifier to the Method Blank by naming it as the letters BLK appended to the Batch ID. A Method Blank is an analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The Method Blank is used to assess for possible contamination during preparation and/or analysis steps. Method Blanks within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally.

BS: LIMS assigns a unique identifier to the Blank Spike by naming it as the letters BS appended to the Batch ID. The Blank Spike or Lab Control Sample is a controlled analyte-free matrix, which is spiked with known and verified concentrations of target analytes. Spiking concentrations can be referenced in the method SOP. The BS is used to evaluate the viability of analytes taken through the entire prep (when applicable) and analytical process. Blank Spikes within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally. A duplicate Blank Spike will be designated as a BSD.

MS: The LIMS assigns each Client sample with a unique identifier. The Matrix Spike is designated with a MS at the end of the sample's unique identifier. The Matrix Spike sample is used to assess the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. A duplicate Matrix Spike will be designated as a MSD.

IDs: The LIMS assigns each Client sample with a unique identifier. The letter "RE" may potentially be appended to the end of the LIMS Sample ID. And "**RE"** implies that the sample was either re-prepped, re-analyzed straight, or re-analyzed at a dilution. Subsequent re-analysis for the sample will be appended with a numerical value beginning with 1 that will increase incrementally. Eg: RE1, RE2, RE3, etc.

Statement of Data Authenticity:

I certify that, based upon my inquiry of those individuals immediately responsible for obtaining the information and to the best of my knowledge, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in this Case Narrative, as verified by my signature below. During absences, the Data Quality Manager, Technical Directors or Project Managers are authorized to sign this Statement of Data Authenticity.

Mr. Rick D. Davis
Laboratory Technical Director / VP Operations

ORGANIC CALCULATIONS

GC/MS Volatiles

$$\text{Final Concentration} = \frac{\text{On-column(ug/L or ug/Kg) * Expected Vol/Weight (mL or g) * Dilution}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

Note - Expected Vol/Weight value is found in "Final Vol" column of Preparation Batch Summary.

GC/MS Extractables

$$\text{Final Concentration} = \frac{\text{On-column(ng/uL) * Final Vol (ml) * Dilution *(1000uL/mL)}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

= ng/mL or ng/g

= ug/L or ug/kg

GC or LC Extractables

$$\text{Final Concentration} = \frac{\text{On-column(ng/mL) * Final Vol (mL) * Dilution}}{\text{Initial Vol/Weight (mL or g) * (Percent Solids/100) (if applicable)}}$$

= ng/mL or ng/g

= ug/L or ug/kg

Empirical Laboratories, LLC
Certifications/Approvals
(Revised 05/13/2014)

DoD ELAP, Certificate Number L2226
- Aqueous
- Non-aqueous
- Expires: 11/30/2015

State of Florida, Department of Health – NELAP, Lab ID: E87646
- Clean Water Act
- RCRA/CERCLA
- Expires: 06/30/2014

State of Georgia, Environmental Protection Agency – NELAP
- Expires: 06/30/2014

State of Illinois, Environmental Protection Agency – NELAP, Certificate No.: 003300
- Groundwater
- Solid and Hazardous Waste
- Expires: 09/13/2014

State of Kentucky Department of Environmental Protection – NELAP, Certificate No.: 77
- Aqueous
- Non-aqueous
- Expires: 06/30/2014

State of Nevada, Department of Conservation and Natural Resources – NELAP, Certificate No.: TN000042013-1
- Aqueous
- Non-aqueous
- Expires: 07/31/2014

State of New Jersey Department of Environmental Protection – NELAP, Lab ID: TN473
- Water Pollution
- Solid and Hazardous Waste
- Expires: 06/30/2014

State of North Carolina, Department of Environment and Natural Resources - Certificate No.: 643
- Aqueous
- Non-aqueous
- Expires: 12/31/2014

State of North Dakota, Department of Health – NELAP, Certificate No.: R-204
- Aqueous
- Non-aqueous
- Expires: 06/30/2014

State of Texas, Commission on Environmental Quality – NELAP, Certificate No.: T104704307-14-10
- Aqueous
- Non-aqueous
- Expires: 12/31/2014

State of Utah, Department of Health – NELAP, Certificate No.: TN0042013-5
- Aqueous
- Non-aqueous
- Expires: 07/31/2014

Commonwealth of Virginia, Department of General Services – VELAP, Certificate No.: 2633 – Lab ID: 460243
- Aqueous
- Non-aqueous
- Expires: 12/14/2014

State of Washington, Department of Ecology – NELAP, Lab ID: C934-14
- Groundwater
- Solid and Hazardous Waste
- Expires: 03/18/2015

Sample Receipt Information

WORK ORDER

Printed: 4/24/2014 12:18:32AM

1404149

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Report To:
Shaw Environmental, Inc.
Susan Huang
4005 Port Chicago Highway
Concord, CA 94520
Phone: (925) 288-2099
Fax: (925) 288-0888

Invoice To:
Shaw Environmental, Inc.
Accounts Payable
PO Box 98519
Baton Rouge, LA 70884
Phone :(225) 932-2500
Fax: (225) 932-2661

Due to Client: 05/14/2014 16:00 *This is the projected due date to the client, at the time of receipt, and is for report delivery via upload, and/or email, and/or shipment to meet TAT as setup by project*

Received By: Joshua T. Gross
Date Received: 04/23/2014 08:40
Logged In By: Joshua T. Gross
Date Logged In: 04/23/2014 12:05

Samples Received at: **0.7°C**

Custody Seals	Yes	Received On Ice	Yes
Containers Intact	Yes		
COC/Labels Agree	Yes		
Preservation Confirme	Yes		

Method	Test Code	Due	TAT	Expires	Comments
1404149-01 LF008-30005 [Water] Sampled 04/21/2014 10:56 Mountain 'Client Sample'					
SW6010C	MET_ICP_LOW6010C_FULL	05/09/2014 14:00	15	10/18/2014 11:56	see versions
SW8260B	VOC_8260B_REG	05/09/2014 14:00	15	05/05/2014 11:56	see versions
SM2320B	WC_ALKALINITY_2320B	05/09/2014 14:00	15	05/05/2014 11:56	
SW9056A	WC_ANIONS_9056A (Regular)	05/09/2014 14:00	15	05/19/2014 11:56	see versions
E353.2	WC_NO3NO2_N_353.2	05/09/2014 14:00	15	05/19/2014 11:56	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/09/2014 14:00	15	04/28/2014 11:56	
SW7470A	MET_7470A_MERCURY	05/09/2014 14:00	15	05/19/2014 11:56	
1404149-02 LF008-30005 [Water] Sampled 04/21/2014 10:56 Mountain 'Client Sample'					**Filtered**
SW7470A	MET_7470A_DIS_MERCURY	05/09/2014 14:00	15	05/19/2014 11:56	
SW6010C	MET_ICP_LOW6010C_FULL_DIS	05/09/2014 14:00	15	10/18/2014 11:56	see versions
1404149-03 LF008-30006 [Water] Sampled 04/21/2014 10:56 Mountain 'Client Sample'					
SW9056A	WC_ANIONS_9056A (Regular)	05/09/2014 14:00	15	05/19/2014 11:56	see versions
SW7470A	MET_7470A_MERCURY	05/09/2014 14:00	15	05/19/2014 11:56	
SW6010C	MET_ICP_LOW6010C_FULL	05/09/2014 14:00	15	10/18/2014 11:56	see versions
SM2320B	WC_ALKALINITY_2320B	05/09/2014 14:00	15	05/05/2014 11:56	
E353.2	WC_NO3NO2_N_353.2	05/09/2014 14:00	15	05/19/2014 11:56	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/09/2014 14:00	15	04/28/2014 11:56	
SW8260B	VOC_8260B_REG	05/09/2014 14:00	15	05/05/2014 11:56	see versions

1404149

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Method	Test Code	Due	TAT	Expires	Comments
1404149-04 LF008-30006 [Water] Sampled 04/21/2014 10:56 Mountain 'Client Sample'					**Filtered**
SW6010C	MET_ICP_LOW6010C_FULL_DIS	05/09/2014 14:00	15	10/18/2014 11:56	see versions
SW7470A	MET_7470A_DIS_MERCURY	05/09/2014 14:00	15	05/19/2014 11:56	
1404149-05 LF008-30007 [Water] Sampled 04/21/2014 15:26 Mountain 'Client Sample'					
SW9056A	WC_ANIONS_9056A (Regular)	05/09/2014 14:00	15	05/19/2014 16:26	see versions
SW8260B	VOC_8260B_REG	05/09/2014 14:00	15	05/05/2014 16:26	see versions
SM2320B	WC_ALKALINITY_2320B	05/09/2014 14:00	15	05/05/2014 16:26	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/09/2014 14:00	15	04/28/2014 16:26	
E353.2	WC_NO3NO2_N_353.2	05/09/2014 14:00	15	05/19/2014 16:26	
SW6010C	MET_ICP_LOW6010C_FULL	05/09/2014 14:00	15	10/18/2014 16:26	see versions
SW7470A	MET_7470A_MERCURY	05/09/2014 14:00	15	05/19/2014 16:26	
1404149-06 LF008-30007 [Water] Sampled 04/21/2014 15:26 Mountain 'Client Sample'					**Filtered**
SW7470A	MET_7470A_DIS_MERCURY	05/09/2014 14:00	15	05/19/2014 16:26	
SW6010C	MET_ICP_LOW6010C_FULL_DIS	05/09/2014 14:00	15	10/18/2014 16:26	see versions
1404149-07 LF008-80004 [Water] Sampled 04/20/2014 08:00 Mountain 'Client Sample'					
SW8260B	VOC_8260B_REG	05/09/2014 14:00	15	05/04/2014 09:00	see versions

ALS Environmental - CO (SUB)

1404149-01 LF008-30005 [Water] Sampled 04/21/2014 10:56 Mountain 'Client Sample'					
EPA 9315	SUB_RAD_Ra226	05/09/2014 14:00	15	10/18/2014 11:56	Radium 226
EPA 900.0	SUB_RAD_GrossAlpha	05/09/2014 14:00	15	05/05/2014 11:56	
EPA 900.0	SUB_RAD_GrossBeta	05/09/2014 14:00	15	05/05/2014 11:56	
1404149-03 LF008-30006 [Water] Sampled 04/21/2014 10:56 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossBeta	05/09/2014 14:00	15	05/05/2014 11:56	
EPA 900.0	SUB_RAD_GrossAlpha	05/09/2014 14:00	15	05/05/2014 11:56	
EPA 9315	SUB_RAD_Ra226	05/09/2014 14:00	15	10/18/2014 11:56	Radium 226
1404149-05 LF008-30007 [Water] Sampled 04/21/2014 15:26 Mountain 'Client Sample'					
EPA 900.0	SUB_RAD_GrossBeta	05/09/2014 14:00	15	05/05/2014 16:26	
EPA 900.0	SUB_RAD_GrossAlpha	05/09/2014 14:00	15	05/05/2014 16:26	
EPA 9315	SUB_RAD_Ra226	05/09/2014 14:00	15	10/18/2014 16:26	Radium 226

WORK ORDER

Printed: 4/24/2014 12:18:32AM

1404149

Empirical Laboratories, LLC

Client:	**Shaw Environmental, Inc.**	**Project Manager:**	**Marianne J. Walker**
Project:	**Kirtland AFB (ECOS)**	**Project Number:**	**SHW_Kirtland_ECOS**

Method	Test Code	Due	TAT	Expires	Comments
Test America St.Louis					
1404149-01 LF008-30005 [Water] Sampled 04/21/2014 10:56 Mountain 'Client Sample'					
SUB_SPECIAL	SUB_SPECIALTY	05/09/2014 14:00	15	10/18/2014 11:56	Uranium by 6020
1404149-02 LF008-30005 [Water] Sampled 04/21/2014 10:56 Mountain 'Client Sample'					**Filtered**
SUB_SPECIAL	SUB_SPECIALTY	05/09/2014 14:00	15	10/18/2014 11:56	Dissolved Uranium by 6020
1404149-03 LF008-30006 [Water] Sampled 04/21/2014 10:56 Mountain 'Client Sample'					
SUB_SPECIAL	SUB_SPECIALTY	05/09/2014 14:00	15	10/18/2014 11:56	Uranium by 6020
1404149-04 LF008-30006 [Water] Sampled 04/21/2014 10:56 Mountain 'Client Sample'					**Filtered**
SUB_SPECIAL	SUB_SPECIALTY	05/09/2014 14:00	15	10/18/2014 11:56	Dissolved Uranium by 6020
1404149-05 LF008-30007 [Water] Sampled 04/21/2014 15:26 Mountain 'Client Sample'					
SUB_SPECIAL	SUB_SPECIALTY	05/09/2014 14:00	15	10/18/2014 16:26	Uranium by 6020
1404149-06 LF008-30007 [Water] Sampled 04/21/2014 15:26 Mountain 'Client Sample'					**Filtered**
SUB_SPECIAL	SUB_SPECIALTY	05/09/2014 14:00	15	10/18/2014 16:26	Dissolved Uranium by 6020

Reviewed By

Date

LF008 1404149

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-313

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 22 APR 2014
Lab Destination: Empirical Laboratories, Inc.
Lab Contact: Jennifer Chandler
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371069

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) [signature] Date: 4/22/14 Time: 1600
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) Date: Time:
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) [signature] Date: 4/23/14 Time: 0840

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
01	LF008-30005	KAFB0313-GW-LF008-30005-REG	21 APR 2014	10:56	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF008-30005	KAFB0313-GW-LF008-30005-REG	21 APR 2014	10:56	250 mL HDPE	1	HNO3<pH 2	Total Calcium, Potassium, Magnesium, Sodium, and Lead by SW846 6010C			N		
02	LF008-30005	KAFB0313-GW-LF008-30005-REG	21 APR 2014	10:56	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
01	~~LF008-30005~~	~~KAFB0313-GW-LF008-30005-REG~~	~~21 APR 2014~~	~~10:56~~	~~250 mL HDPE~~	~~1~~	~~H2SO4<pH 2~~	~~Nitrate plus Nitrite by EPA 353.2~~			~~N~~		
	LF008-30005	KAFB0313-GW-LF008-30005-REG	21 APR 2014	10:56	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		

KirtlandECOS_013

1404149

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-313

	Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
03	LF008-30006	KAFB0313-GW-LF008-30006-FD	21 APR 2014	10:56	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF008-30006	KAFB0313-GW-LF008-30006-FD	21 APR 2014	10:56	250 mL HDPE	1	HNO3<pH 2	Total Calcium, Potassium, Magnesium, Sodium, and Lead by SW846 6010C			N		
04	LF008-30006	KAFB0313-GW-LF008-30006-FD	21 APR 2014	10:56	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
03	LF008-30006	KAFB0313-GW-LF008-30006-FD	21 APR 2014	10:56	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
	LF008-30006	KAFB0313-GW-LF008-30006-FD	21 APR 2014	10:56	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		
05	LF008-30007	KAFB0314-GW-LF008-30007-REG	21 APR 2014	15:26	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF008-30007	KAFB0314-GW-LF008-30007-REG	21 APR 2014	15:26	250 mL HDPE	1	HNO3<pH 2	Total Calcium, Potassium, Magnesium, Sodium, and Lead by SW846 6010C			N		
06	LF008-30007	KAFB0314-GW-LF008-30007-REG	21 APR 2014	15:26	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
05	LF008-30007	KAFB0314-GW-LF008-30007-REG	21 APR 2014	15:26	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
	LF008-30007	KAFB0314-GW-LF008-30007-REG	21 APR 2014	15:26	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		
07	LF008-80004	FIELDQC-BW-LF008-80004-TB	21 APR 2014	08:00	40 mL VOA VIAL	2	HCl<pH 2	VOCs by SW846 8260B			N		

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

Cooler Received/Opened On: 04/23/14 0840 Workorder# 1404149

1. Tracking # 1069 (last 4 digits, FedEx)

   Courier: FedEx

2. Temperature of rep. sample or temp blank when opened: 0.6 °C + correction factor (+0.1) = 0.7 °C

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

   If yes, how many and where: 2. Front + back

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (initial) JTG

7. Were custody seals on containers: YES NO and intact YES NO NA

   Were these signed and dated correctly? YES NO NA

8. Packing material used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13. a. Were VOA vials received? YES NO NA

    b. Was there any observable headspace present in any VOA vial? YES NO NA

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence # —

I certify that I unloaded the cooler and answered questions 7-14 (initial) JTG

15. a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

    b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) JTG

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) JTG

I certify that I attached a label with the unique LIMS number to each container (initial) JTG

I certify that I have performed a second check of the LIMS information against the COC to confirm accuracy (initial) _____

21. Were there Non-Conformance issues at login? YES NO Was a NCR generated? YES NO #_____

Additional Details:

WORK ORDER

Printed: 4/28/2014 7:48:09PM

1404168

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Report To:
Shaw Environmental, Inc.
Susan Huang
4005 Port Chicago Highway
Concord, CA 94520
Phone: (925) 288-2099
Fax: (925) 288-0888

Invoice To:
Shaw Environmental, Inc.
Accounts Payable
PO Box 98519
Baton Rouge, LA 70884
Phone :(225) 932-2500
Fax: (225) 932-2661

Due to Client: 05/16/2014 16:00 *This is the projected due date to the client, at the time of receipt, and is for report delivery via upload, and/or email, and/or shipment to meet TAT as setup by project*

Received By: Joshua T. Gross
Date Received: 04/25/2014 08:50
Logged In By: Joshua T. Gross
Date Logged In: 04/25/2014 14:53

Samples Received at: **3.6°C**

Custody Seals	Yes	Received On Ice	Yes
Containers Intact	Yes		
COC/Labels Agree	Yes		
Preservation Confirme	Yes		

Method	Test Code	Due	TAT	Expires	Comments
1404168-01 LF008-30002 [Water] Sampled 04/24/2014 13:46 Mountain 'Client Sample'					**MS/MSD**
SW6010C	MET_ICP_LOW6010C_FULL	05/13/2014 14:00	15	10/21/2014 14:46	MS/MSD
SW8260B	VOC_8260B_REG	05/13/2014 14:00	15	05/08/2014 14:46	MS/MSD
SM2320B	WC_ALKALINITY_2320B	05/13/2014 14:00	15	05/08/2014 14:46	MS/MSD
SW9056A	WC_ANIONS_9056A (Regular)	05/13/2014 14:00	15	05/22/2014 14:46	MS/MSD
E353.2	WC_NO3NO2_N_353.2	05/13/2014 14:00	15	05/22/2014 14:46	MS/MSD
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/13/2014 14:00	15	05/01/2014 14:46	MS/MSD
SW7470A	MET_7470A_MERCURY	05/13/2014 14:00	15	05/22/2014 14:46	MS/MSD
1404168-02 LF008-30002 [Water] Sampled 04/24/2014 13:46 Mountain 'Client Sample'					**MS/MSD, Filtered**
SW7470A	MET_7470A_DIS_MERCURY	05/13/2014 14:00	15	05/22/2014 14:46	MS/MSD
SW6010C	MET_ICP_LOW6010C_FULL_DIS	05/13/2014 14:00	15	10/21/2014 14:46	MS/MSD
1404168-03 LF008-30004 [Water] Sampled 04/23/2014 15:51 Mountain 'Client Sample'					
SW6010C	MET_ICP_LOW6010C_FULL	05/13/2014 14:00	15	10/20/2014 16:51	see versions
SW7470A	MET_7470A_MERCURY	05/13/2014 14:00	15	05/21/2014 16:51	
SW8260B	VOC_8260B_REG	05/13/2014 14:00	15	05/07/2014 16:51	see versions
SM2320B	WC_ALKALINITY_2320B	05/13/2014 14:00	15	05/07/2014 16:51	
SW9056A	WC_ANIONS_9056A (Regular)	05/13/2014 14:00	15	05/21/2014 16:51	see versions
E353.2	WC_NO3NO2_N_353.2	05/13/2014 14:00	15	05/21/2014 16:51	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/13/2014 14:00	15	04/30/2014 16:51	

1404168

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Method	Test Code	Due	TAT	Expires	Comments
1404168-04 LF008-30004 [Water] Sampled 04/23/2014 15:51 Mountain 'Client Sample'					**Filtered**
SW7470A	MET_7470A_DIS_MERCURY	05/13/2014 14:00	15	05/21/2014 16:51	
SW6010C	MET_ICP_LOW6010C_FULL_DIS	05/13/2014 14:00	15	10/20/2014 16:51	see versions
1404168-05 LF008-80005 [Water] Sampled 04/23/2014 08:00 Mountain 'Trip Blank'					
SW8260B	VOC_8260B_REG	05/13/2014 14:00	15	05/07/2014 09:00	see versions
Test America St.Louis					
1404168-01 LF008-30002 [Water] Sampled 04/24/2014 13:46 Mountain 'Client Sample'					**MS/MSD**
SUB_SPECIAL	SUB_SPECIALTY	05/13/2014 14:00	15	10/21/2014 14:46	Uranium by 6020 - use for matrix spikes if sufficient sample
1404168-02 LF008-30002 [Water] Sampled 04/24/2014 13:46 Mountain 'Client Sample'					**MS/MSD, Filtered**
SUB_SPECIAL	SUB_SPECIALTY	05/13/2014 14:00	15	10/21/2014 14:46	Dissolved Uranium by 6020 - use for matrix spikes if sufficient samp
1404168-03 LF008-30004 [Water] Sampled 04/23/2014 15:51 Mountain 'Client Sample'					
SUB_SPECIAL	SUB_SPECIALTY	05/13/2014 14:00	15	10/20/2014 16:51	Uranium by 6020
1404168-04 LF008-30004 [Water] Sampled 04/23/2014 15:51 Mountain 'Client Sample'					**Filtered**
SUB_SPECIAL	SUB_SPECIALTY	05/13/2014 14:00	15	10/20/2014 16:51	Dissolved Uranium by 6020

Reviewed By

Date

LF008 1404168

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-310

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 24 APR 2014
Lab Destination: ~~AESL~~ Empirical Labs Inc
Lab Contact: Marianne Walker
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371140

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) [signature] Date: 4/24/14 Time: 1600
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) Date: Time:
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) [signature] Date: 4/25/14 Time: 0850

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
01	LF008-30002	KAFB0310-GW-LF008-30002-REG	24 APR 2014	13:46	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF008-30002	KAFB0310-GW-LF008-30002-REG	24 APR 2014	13:46	250 mL HDPE	1	HNO3<pH 2	Total Calcium, Potassium, Magnesium, Sodium, and Lead by SW846 6010C			N		
	LF008-30002	KAFB0310-GW-LF008-30002-REG	24 APR 2014	13:46	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
02	LF008-30002	KAFB0310-GW-LF008-30002-REG	24 APR 2014	13:46	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
01	LF008-30002	KAFB0310-GW-LF008-30002-REG	24 APR 2014	13:46	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		

1404168

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-310

	Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
Ø1	LF008-30002-MS	KAFB0310-GW-LF008-30002-MS-MS	24 APR 2014	13:46	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF008-30002-MS	KAFB0310-GW-LF008-30002-MS-MS	24 APR 2014	13:46	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
	LF008-30002-MS	KAFB0310-GW-LF008-30002-MS-MS	24 APR 2014	13:46	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		
Ø2	LF008-30002-MS	KAFB0310-GW-LF008-30002-MS-MS	24 APR 2014	13:46	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
Ø1	LF008-30002-MS	KAFB0310-GW-LF008-30002-MS-MS	24 APR 2014	13:46	250 mL HDPE	1	HNO3<pH 2	Total Calcium, Potassium, Magnesium, Sodium, and Lead by SW846 6010C			N		
	LF008-30002-MSD	KAFB0310-GW-LF008-30002-MSD-MSD	24 APR 2014	13:46	250 mL HDPE	1	HNO3<pH 2	Total Calcium, Potassium, Magnesium, Sodium, and Lead by SW846 6010C			N		
Ø2	LF008-30002-MSD	KAFB0310-GW-LF008-30002-MSD-MSD	24 APR 2014	13:46	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
Ø1	LF008-30002-MSD	KAFB0310-GW-LF008-30002-MSD-MSD	24 APR 2014	13:46	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
	LF008-30002-MSD	KAFB0310-GW-LF008-30002-MSD-MSD	24 APR 2014	13:46	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF008-30002-MSD	KAFB0310-GW-LF008-30002-MSD-MSD	24 APR 2014	13:46	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		
Ø3	LF008-30004	KAFB0312-GW-LF008-30004-REG	23 APR 2014	15:51	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
	LF008-30004	KAFB0312-GW-LF008-30004-REG	23 APR 2014	15:51	250 mL HDPE	1	HNO3<pH 2	Total Calcium, Potassium, Magnesium, Sodium, and Lead by SW846 6010C			N		
Ø4	LF008-30004	KAFB0312-GW-LF008-30004-REG	23 APR 2014	15:51	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
Ø3	LF008-30004	KAFB0312-GW-LF008-30004-REG	23 APR 2014	15:51	250 mL HDPE	1	H2SO4<pH 2	Nitrate plus Nitrite by EPA 353.2			N		
	LF008-30004	KAFB0312-GW-LF008-30004-REG	23 APR 2014	15:51	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		
Ø5	LF008-80005	FIELDQC-BW-LF008-80005-TB	23 APR 2014	08:00	40 mL VOA VIAL	2	HCl<pH 2	VOCs by SW846 8260B			N		

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

Cooler Received/Opened On: 04/25/14 0850 Workorder# 1404168

1. Tracking # 1140 (last 4 digits, FedEx)

   Courier: FedEx

2. Temperature of rep. sample or temp blank when opened: 3.5 °C + *correction factor (+0.1)* = 3.6 °C

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

   If yes, how many and where: 2, front + back

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (initial) JTG

7. Were custody seals on containers: YES NO and Intact YES NO NA

   Were these signed and dated correctly? YES NO NA

8. Packing material used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13. a. Were VOA vials received? YES NO NA

    b. Was there any observable headspace present in any VOA vial? YES NO NA

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence # ____

I certify that I unloaded the cooler and answered questions 7-14 (initial) JTG

15. a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

    b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) JTG

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) JTG

I certify that I attached a label with the unique LIMS number to each container (initial) JTG

I certify that I have performed a second check of the LIMS information against the COC to confirm accuracy (initial) ____

21. Were there Non-Conformance issues at login? YES NO Was a NCR generated? YES NO # ____

Additional Details:

WORK ORDER

Printed: 5/5/2014 7:13:03PM

1404203

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Report To:
Shaw Environmental, Inc.
Susan Huang
4005 Port Chicago Highway
Concord, CA 94520
Phone: (925) 288-2099
Fax: (925) 288-0888

Invoice To:
Shaw Environmental, Inc.
Accounts Payable
PO Box 98519
Baton Rouge, LA 70884
Phone :(225) 932-2500
Fax: (225) 932-2661

Due to Client: 05/21/2014 16:00 *This is the projected due date to the client, at the time of receipt, and is for report delivery via upload, and/or email, and/or shipment to meet TAT as setup by project*

Received By: Joshua T. Gross
Date Received: 04/30/2014 08:50
Logged In By: Joshua T. Gross
Date Logged In: 04/30/2014 11:22

Samples Received at: **0.2°C**

Custody Seals	Yes	Received On Ice	Yes
Containers Intact	Yes		
COC/Labels Agree	Yes		
Preservation Confirme	Yes		

Method	Test Code	Due	TAT	Expires	Comments
1404203-01 LF008-30008 [Water] Sampled 04/28/2014 12:17 Mountain 'Client Sample'					
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/16/2014 14:00	15	05/05/2014 13:17	
E353.2	WC_NO3NO2_N_353.2	05/16/2014 14:00	15	05/26/2014 13:17	
SW9056A	WC_ANIONS_9056A (Regular)	05/16/2014 14:00	15	05/26/2014 13:17	see versions
SM2320B	WC_ALKALINITY_2320B	05/16/2014 14:00	15	05/12/2014 13:17	
SW8260B	VOC_8260B_REG	05/16/2014 14:00	15	05/12/2014 13:17	see versions
SW6010C	MET_ICP_LOW6010C_FULL	05/16/2014 14:00	15	10/25/2014 13:17	see versions
SW7470A	MET_7470A_MERCURY	05/16/2014 14:00	15	05/26/2014 13:17	
1404203-02 LF008-30008 [Water] Sampled 04/28/2014 12:17 Mountain 'Client Sample'					**Filtered**
SW6010C	MET_ICP_LOW6010C_FULL_DIS	05/16/2014 14:00	15	10/25/2014 13:17	see versions
SW7470A	MET_7470A_DIS_MERCURY	05/16/2014 14:00	15	05/26/2014 13:17	
1404203-03 LF008-80006 [Water] Sampled 04/28/2014 08:00 Mountain 'Trip Blank'					
SW8260B	VOC_8260B_REG	05/16/2014 14:00	15	05/12/2014 09:00	see versions

ALS Environmental - CO (SUB)

1404203-01 LF008-30008 [Water] Sampled 04/28/2014 12:17 Mountain 'Client Sample'					
EPA 9315	SUB_RAD_Ra226	05/16/2014 14:00	15	10/25/2014 13:17	Radium 226
EPA 900.0	SUB_RAD_GrossAlpha	05/16/2014 14:00	15	05/12/2014 13:17	

Test America St.Louis

WORK ORDER

Printed: 5/5/2014 7:13:03PM

1404203

Empirical Laboratories, LLC

Client:	**Shaw Environmental, Inc.**	**Project Manager:**	**Marianne J. Walker**
Project:	**Kirtland AFB (ECOS)**	**Project Number:**	**SHW_Kirtland_ECOS**

Method	Test Code	Due	TAT	Expires	Comments
Test America St.Louis					
1404203-01 LF008-30008 [Water] Sampled 04/28/2014 12:17 Mountain 'Client Sample'					
SUB_SPECIAL	SUB_SPECIALTY	05/16/2014 14:00	15	10/25/2014 13:17	Uranium by 6020
1404203-02 LF008-30008 [Water] Sampled 04/28/2014 12:17 Mountain 'Client Sample'					**Filtered**
SUB_SPECIAL	SUB_SPECIALTY	05/16/2014 14:00	15	10/25/2014 13:17	Dissolved Uranium by 6020

Reviewed By

Date

LF008 1404203

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-315
Page 1 of 1

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 29 APR 2014
Lab Destination: Empirical Laboratories, Inc.
Lab Contact: Jennifer Chandler
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371297

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Unknown Radiological

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) [illegible] Date: 4/29/14 Time: 1600
1. Received By (Signature/Affiliation) Date: Time:
2. Relinquished By (Signature/Affiliation) Date: Time:
2. Received By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) [illegible] Date: 4/30/14 Time: 0850

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
01	LF008-30008	KAFB0315-GW-LF008-30008-REG	28 APR 2014	~~08:00~~ 1217 W	40 mL VOA VIAL	3	HCl<pH 2	VOCs by SW846 8260B			N		
↓	LF008-30008	KAFB0315-GW-LF008-30008-REG	28 APR 2014	~~08:00~~ 1217 W	250 mL HDPE	1	HNO3<pH 2	Total Calcium, Potassium, Magnesium, Sodium, and Lead by SW846 6010C			N		
02	LF008-30008	KAFB0315-GW-LF008-30008-REG	28 APR 2014	~~08:00~~ 1217 W	250 mL HDPE	1	HNO3<pH 2	Dissolved Iron and Manganese by SW846 6010C			N		
01	~~LF008-30008~~	~~KAFB0315-GW-LF008-30008-REG~~	~~28 APR 2014~~	~~08:00~~ 1217 W	~~250 mL HDPE~~	~~1~~	~~H2SO4<pH 2~~	~~Nitrate plus Nitrite by EPA 353.2~~			~~N~~		
↓	LF008-30008	KAFB0315-GW-LF008-30008-REG	28 APR 2014	~~08:00~~ 1217 W	250 mL HDPE	1	None except cool to 4 C	Chloride and Sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		
03	LF008-80006 FieldQC-GW-LF008-80006-TB 4/29/14 0800				40ml VOA VIAL	2	HCl<pH2	→ VOC's by SW846 8260B			N		

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KirtlandECOS_013

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

Cooler Received/Opened On: 04/30/14 0850 Workorder# 1404203

1. Tracking # 1297 (last 4 digits, FedEx)

   Courier: FedEx

2. Temperature of rep. sample or temp blank when opened: 0.1 °C + *correction factor (+0.1)* = 0.2 °C

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

   If yes, how many and where: 2. Front + back

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (initial) JTG

7. Were custody seals on containers: YES NO and Intact YES NO NA

   Were these signed and dated correctly? YES NO NA

8. Packing material used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13. a. Were VOA vials received? YES NO NA

    b. Was there any observable headspace present in any VOA vial? YES NO NA

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence # —

I certify that I unloaded the cooler and answered questions 7-14 (initial) JTG

15. a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

    b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) JTG

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) JTG

I certify that I attached a label with the unique LIMS number to each container (initial) JTG

I certify that I have performed a second check of the LIMS information against the COC to confirm accuracy (initial) _____

21. Were there Non-Conformance issues at login? YES NO Was a NCR generated? YES NO # _____

Additional Details:

KirtlandECOS_013 26

Sample Delivery Group Assignment Form

CLIENT: Shaw Environmental, Inc.
PROJECT NAME: Kirtland AFB (ECOS)
SDG #: KirtlandECOS_013

QC LEVEL: Level III
Report Due: 5/21/2014 - 5/21/2014
Client Sample Count: 13

Lab ID	Client ID	Sampled	Received	Matrix	E 353.2	E 900.0	E 9315	SM 2320B	SM 2540C	SW 6020	SW 6010C	SW 7470A	SW 8260B	SW 9056A
1404149-01	LF008-30005	4/21/2014	4/23/2014	Water	X	X	X	X	X	X	X	X	X	X
1404149-02	LF008-30005	4/21/2014	4/23/2014	Water						DISS	DISS	DISS		
1404149-03	LF008-30006	4/21/2014	4/23/2014	Water	X	X	X	X	X	X	X	X	X	X
1404149-04	LF008-30006	4/21/2014	4/23/2014	Water						DISS	DISS	DISS		
1404149-05	LF008-30007	4/21/2014	4/23/2014	Water	X	X	X	X	X	X	X	X	X	X
1404149-06	LF008-30007	4/21/2014	4/23/2014	Water						DISS	DISS	DISS		
1404149-07	LF008-80004	4/20/2014	4/23/2014	Water									X	
1404168-01	LF008-30002	4/24/2014	4/25/2014	Water	MS			MS	MS	MS	MS	MS	MS	MS
1404168-02	LF008-30002	4/24/2014	4/25/2014	Water						MS DISS	MS DISS	MS DISS		
1404168-03	LF008-30004	4/23/2014	4/25/2014	Water	X			X	X	X	X	X	X	X
1404168-04	LF008-30004	4/23/2014	4/25/2014	Water						DISS	DISS	DISS		
1404168-05	LF008-80005	4/23/2014	4/25/2014	Water									X	
1404203-01	LF008-30008	4/28/2014	4/30/2014	Water	X	X	X	X	X	X	X	X	X	X
1404203-02	LF008-30008	4/28/2014	4/30/2014	Water						DISS	DISS	DISS		
1404203-03	LF008-80006	4/28/2014	4/30/2014	Water									X	

Data for SW8260B Forms

Sample Extraction Data

Prep Method: 5030B-SW8260B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404149-01 [LF008-30005]	4E01023	5.00/5.00	5.00	5.00	1.00			05/01/14
1404149-03 [LF008-30006]	4E01023	5.00/5.00	5.00	5.00	1.00			05/01/14
1404149-05 [LF008-30007]	4E01023	5.00/5.00	5.00	5.00	1.00			05/01/14
1404149-07 [LF008-80004]	4E01023	5.00/5.00	5.00	5.00	1.00			05/01/14

Sample Extraction Data

Prep Method: 5030B-SW8260B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404168-01 [LF008-30002]	4E02004	5.00/5.00	5.00	5.00	1.00			05/02/14
1404168-03 [LF008-30004]	4E02004	5.00/5.00	5.00	5.00	1.00			05/02/14
1404168-05 [LF008-80005]	4E02004	5.00/5.00	5.00	5.00	1.00			05/02/14

Sample Extraction Data

Prep Method: 5030B-SW8260B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404203-01 [LF008-30008]	4E05011	5.00/5.00	5.00	5.00	1.00			05/05/14
1404203-03 [LF008-80006]	4E05011	5.00/5.00	5.00	5.00	1.00			05/05/14

ANALYSIS DATA SHEET

LF008-30005

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404149-01 File ID: 0414901.D

Sampled: 04/21/14 10:56 Prepared: 05/01/14 15:33 Analyzed: 05/01/14 15:33

Solids: Preparation: 5030B Dilution: 1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-30005

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-01	File ID:	0414901.D
Sampled:	04/21/14 10:56	Prepared:	05/01/14 15:33	Analyzed:	05/01/14 15:33
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene	**0.536**	0.250	0.500	1.00	J
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.98	103	75 - 120	
Dibromofluoromethane	30.00	29.99	100	85 - 115	
1,2-Dichloroethane-d4	30.00	29.41	98.0	70 - 120	
Toluene-d8	30.00	30.73	102	85 - 120	

ANALYSIS DATA SHEET

LF008-30006

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-03	File ID:	0414903.D
Sampled:	04/21/14 10:56	Prepared:	05/01/14 16:01	Analyzed:	05/01/14 16:01
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-30006

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-03	File ID:	0414903.D
Sampled:	04/21/14 10:56	Prepared:	05/01/14 16:01	Analyzed:	05/01/14 16:01
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene	**0.599**	0.250	0.500	1.00	J
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.89	99.6	75 - 120	
Dibromofluoromethane	30.00	30.26	101	85 - 115	
1,2-Dichloroethane-d4	30.00	29.54	98.5	70 - 120	
Toluene-d8	30.00	30.37	101	85 - 120	

ANALYSIS DATA SHEET

LF008-30007

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404149-05 File ID: 0414905.D

Sampled: 04/21/14 15:26 Prepared: 05/01/14 16:28 Analyzed: 05/01/14 16:28

Solids: Preparation: 5030B Dilution: 1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-30007

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-05	File ID:	0414905.D
Sampled:	04/21/14 15:26	Prepared:	05/01/14 16:28	Analyzed:	05/01/14 16:28
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene	**0.658**	0.250	0.500	1.00	J
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene	**0.549**	0.250	0.500	1.00	J
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.59	98.6	75 - 120	
Dibromofluoromethane	30.00	29.70	99.0	85 - 115	
1,2-Dichloroethane-d4	30.00	29.60	98.7	70 - 120	
Toluene-d8	30.00	29.29	97.6	85 - 120	

ANALYSIS DATA SHEET

LF008-80004

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404149-07 File ID: 0414907.D

Sampled: 04/20/14 08:00 Prepared: 05/01/14 16:56 Analyzed: 05/01/14 16:56

Solids: Preparation: 5030B Dilution: 1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-80004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-07	File ID:	0414907.D
Sampled:	04/20/14 08:00	Prepared:	05/01/14 16:56	Analyzed:	05/01/14 16:56
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.74	99.1	75 - 120	
Dibromofluoromethane	30.00	29.44	98.1	85 - 115	
1,2-Dichloroethane-d4	30.00	29.40	98.0	70 - 120	
Toluene-d8	30.00	28.66	95.5	85 - 120	

ANALYSIS DATA SHEET

LF008-30002

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-01	File ID:	0416801.D
Sampled:	04/24/14 13:46	Prepared:	05/02/14 16:23	Analyzed:	05/02/14 16:23
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	UY
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene	**0.266**	0.250	0.500	1.00	J
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-30002

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-01	File ID:	0416801.D
Sampled:	04/24/14 13:46	Prepared:	05/02/14 16:23	Analyzed:	05/02/14 16:23
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene	**1.10**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.33	94.4	75 - 120	
Dibromofluoromethane	30.00	29.45	98.2	85 - 115	
1,2-Dichloroethane-d4	30.00	30.84	103	70 - 120	
Toluene-d8	30.00	30.67	102	85 - 120	

ANALYSIS DATA SHEET

LF008-30004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-03	File ID:	0416803.D
Sampled:	04/23/14 15:51	Prepared:	05/02/14 16:48	Analyzed:	05/02/14 16:48
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	UY
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-30004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-03	File ID:	0416803.D
Sampled:	04/23/14 15:51	Prepared:	05/02/14 16:48	Analyzed:	05/02/14 16:48
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.69	92.3	75 - 120	
Dibromofluoromethane	30.00	29.62	98.7	85 - 115	
1,2-Dichloroethane-d4	30.00	31.69	106	70 - 120	
Toluene-d8	30.00	29.65	98.8	85 - 120	

ANALYSIS DATA SHEET

LF008-80005

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-05	File ID:	0416805.D
Sampled:	04/23/14 08:00	Prepared:	05/02/14 17:13	Analyzed:	05/02/14 17:13
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	UY
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane	**1.91**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-80005

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-05	File ID:	0416805.D
Sampled:	04/23/14 08:00	Prepared:	05/02/14 17:13	Analyzed:	05/02/14 17:13
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride	**2.58**	0.500	1.00	2.00	
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.00	93.3	75 - 120	
Dibromofluoromethane	30.00	29.41	98.0	85 - 115	
1,2-Dichloroethane-d4	30.00	31.35	104	70 - 120	
Toluene-d8	30.00	29.32	97.7	85 - 120	

ANALYSIS DATA SHEET

LF008-30008

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404203-01	File ID:	0420301.D
Sampled:	04/28/14 12:17	Prepared:	05/05/14 12:06	Analyzed:	05/05/14 12:06
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	UX
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-30008

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404203-01	File ID:	0420301.D
Sampled:	04/28/14 12:17	Prepared:	05/05/14 12:06	Analyzed:	05/05/14 12:06
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene	**0.267**	0.250	0.500	1.00	J
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.36	101	75 - 120	
Dibromofluoromethane	30.00	30.48	102	85 - 115	
1,2-Dichloroethane-d4	30.00	28.06	93.5	70 - 120	
Toluene-d8	30.00	28.86	96.2	85 - 120	

ANALYSIS DATA SHEET

LF008-80006

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404203-03	File ID:	0420303.D
Sampled:	04/28/14 08:00	Prepared:	05/05/14 12:34	Analyzed:	05/05/14 12:34
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	UX
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

LF008-80006

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404203-03	File ID:	0420303.D
Sampled:	04/28/14 08:00	Prepared:	05/05/14 12:34	Analyzed:	05/05/14 12:34
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.07	100	75 - 120	
Dibromofluoromethane	30.00	32.19	107	85 - 115	
1,2-Dichloroethane-d4	30.00	30.26	101	70 - 120	
Toluene-d8	30.00	28.70	95.7	85 - 120	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12206	Instrument:	MS-VOA4
		Calibration:	4121002

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
Calibration Check (4E12206-CCV1) ug/L				Lab File ID: 0501CCV1.D		Analyzed: 05/01/14 12:19		
Bromofluorobenzene	30.00	104	80 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	97.4	80 - 120	6.71	6.71	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	98.8	80 - 120	7.21	7.21	0.0000	+/-1.000	
Toluene-d8	30.00	104	80 - 120	9.43	9.43	0.0000	+/-1.000	
LCS (4E01023-BS1) ug/L				Lab File ID: 0501LCS1.D		Analyzed: 05/01/14 12:46		
Bromofluorobenzene	30.00	99.8	75 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	98.1	85 - 115	6.7	6.71	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	96.9	70 - 120	7.21	7.21	0.0000	+/-1.000	
Toluene-d8	30.00	99.9	85 - 120	9.43	9.43	0.0000	+/-1.000	
Blank (4E01023-BLK1) ug/L				Lab File ID: 0501BLK1.D		Analyzed: 05/01/14 14:37		
Bromofluorobenzene	30.00	97.6	75 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	99.0	85 - 115	6.7	6.71	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	93.2	70 - 120	7.2	7.21	-0.0100	+/-1.000	
Toluene-d8	30.00	94.5	85 - 120	9.42	9.43	-0.0100	+/-1.000	
LF008-30005 (1404149-01) ug/L				Lab File ID: 0414901.D		Analyzed: 05/01/14 15:33		
Bromofluorobenzene	30.00	103	75 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	100	85 - 115	6.7	6.71	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	98.0	70 - 120	7.2	7.21	-0.0100	+/-1.000	
Toluene-d8	30.00	102	85 - 120	9.43	9.43	0.0000	+/-1.000	
LF008-30006 (1404149-03) ug/L				Lab File ID: 0414903.D		Analyzed: 05/01/14 16:01		
Bromofluorobenzene	30.00	99.6	75 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	101	85 - 115	6.71	6.71	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	98.5	70 - 120	7.2	7.21	-0.0100	+/-1.000	
Toluene-d8	30.00	101	85 - 120	9.43	9.43	0.0000	+/-1.000	
LF008-30007 (1404149-05) ug/L				Lab File ID: 0414905.D		Analyzed: 05/01/14 16:28		
Bromofluorobenzene	30.00	98.6	75 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	99.0	85 - 115	6.71	6.71	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	98.7	70 - 120	7.2	7.21	-0.0100	+/-1.000	
Toluene-d8	30.00	97.6	85 - 120	9.43	9.43	0.0000	+/-1.000	
LF008-80004 (1404149-07) ug/L				Lab File ID: 0414907.D		Analyzed: 05/01/14 16:56		
Bromofluorobenzene	30.00	99.1	75 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	98.1	85 - 115	6.7	6.71	-0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	98.0	70 - 120	7.21	7.21	0.0000	+/-1.000	
Toluene-d8	30.00	95.5	85 - 120	9.43	9.43	0.0000	+/-1.000	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12501	Instrument:	MS-VOA3
		Calibration:	4120001

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
Calibration Check (4E12501-CCV1) ug/L				Lab File ID: 0502CCV1.D		Analyzed: 05/02/14 07:50		
Bromofluorobenzene	30.00	101	80 - 120	11.796	11.796	0.0000	+/-1.000	
Dibromofluoromethane	30.00	94.8	80 - 120	6.373	6.373	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	97.3	80 - 120	6.89	6.89	0.0000	+/-1.000	
Toluene-d8	30.00	100	80 - 120	9.146	9.146	0.0000	+/-1.000	
LCS (4E02004-BS1) ug/L				Lab File ID: 0502LCS1.D		Analyzed: 05/02/14 08:34		
Bromofluorobenzene	30.00	97.2	75 - 120	11.796	11.796	0.0000	+/-1.000	
Dibromofluoromethane	30.00	96.9	85 - 115	6.37	6.373	-0.0030	+/-1.000	
1,2-Dichloroethane-d4	30.00	99.6	70 - 120	6.89	6.89	0.0000	+/-1.000	
Toluene-d8	30.00	98.1	85 - 120	9.146	9.146	0.0000	+/-1.000	
Blank (4E02004-BLK1) ug/L				Lab File ID: 0502BLK1.D		Analyzed: 05/02/14 10:13		
Bromofluorobenzene	30.00	94.2	75 - 120	11.796	11.796	0.0000	+/-1.000	
Dibromofluoromethane	30.00	95.0	85 - 115	6.373	6.373	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	102	70 - 120	6.89	6.89	0.0000	+/-1.000	
Toluene-d8	30.00	101	85 - 120	9.146	9.146	0.0000	+/-1.000	
LF008-30002 (1404168-01) ug/L				Lab File ID: 0416801.D		Analyzed: 05/02/14 16:23		
Bromofluorobenzene	30.00	94.4	75 - 120	11.796	11.796	0.0000	+/-1.000	
Dibromofluoromethane	30.00	98.2	85 - 115	6.373	6.373	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	103	70 - 120	6.893	6.89	0.0030	+/-1.000	
Toluene-d8	30.00	102	85 - 120	9.146	9.146	0.0000	+/-1.000	
LF008-30004 (1404168-03) ug/L				Lab File ID: 0416803.D		Analyzed: 05/02/14 16:48		
Bromofluorobenzene	30.00	92.3	75 - 120	11.796	11.796	0.0000	+/-1.000	
Dibromofluoromethane	30.00	98.7	85 - 115	6.373	6.373	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	106	70 - 120	6.887	6.89	-0.0030	+/-1.000	
Toluene-d8	30.00	98.8	85 - 120	9.146	9.146	0.0000	+/-1.000	
LF008-80005 (1404168-05) ug/L				Lab File ID: 0416805.D		Analyzed: 05/02/14 17:13		
Bromofluorobenzene	30.00	93.3	75 - 120	11.799	11.796	0.0030	+/-1.000	
Dibromofluoromethane	30.00	98.0	85 - 115	6.373	6.373	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	104	70 - 120	6.89	6.89	0.0000	+/-1.000	
Toluene-d8	30.00	97.7	85 - 120	9.146	9.146	0.0000	+/-1.000	
Matrix Spike (4E02004-MS1) ug/L				Lab File ID: 0416801M.D		Analyzed: 05/02/14 19:17		
Bromofluorobenzene	30.00	98.8	75 - 120	11.799	11.796	0.0030	+/-1.000	
Dibromofluoromethane	30.00	97.7	85 - 115	6.379	6.373	0.0060	+/-1.000	
1,2-Dichloroethane-d4	30.00	102	70 - 120	6.886	6.89	-0.0040	+/-1.000	
Toluene-d8	30.00	99.3	85 - 120	9.149	9.146	0.0030	+/-1.000	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12501	Instrument:	MS-VOA3
		Calibration:	4120001

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (4E02004-MSD1) ug/L				Lab File ID: 0416801S.D		Analyzed: 05/02/14 19:41		
Bromofluorobenzene	30.00	96.2	75 - 120	11.796	11.796	0.0000	+/-1.000	
Dibromofluoromethane	30.00	95.3	85 - 115	6.373	6.373	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	100	70 - 120	6.89	6.89	0.0000	+/-1.000	
Toluene-d8	30.00	99.5	85 - 120	9.146	9.146	0.0000	+/-1.000	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12606	Instrument:	MS-VOA4
		Calibration:	4121002

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
Calibration Check (4E12606-CCV1) ug/L				Lab File ID: 0505CC1.D		Analyzed: 05/05/14 07:27		
Bromofluorobenzene	30.00	98.2	80 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	105	80 - 120	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	97.9	80 - 120	7.21	7.21	0.0000	+/-1.000	
Toluene-d8	30.00	97.7	80 - 120	9.43	9.43	0.0000	+/-1.000	
LCS (4E05011-BS1) ug/L				Lab File ID: 0505LCS1.D		Analyzed: 05/05/14 07:55		
Bromofluorobenzene	30.00	99.4	75 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	105	85 - 115	6.71	6.7	0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	98.6	70 - 120	7.2	7.21	-0.0100	+/-1.000	
Toluene-d8	30.00	96.2	85 - 120	9.43	9.43	0.0000	+/-1.000	
Blank (4E05011-BLK1) ug/L				Lab File ID: 0505BLK1.D		Analyzed: 05/05/14 09:46		
Bromofluorobenzene	30.00	100	75 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	103	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	98.3	70 - 120	7.2	7.21	-0.0100	+/-1.000	
Toluene-d8	30.00	94.8	85 - 120	9.43	9.43	0.0000	+/-1.000	
LF008-30008 (1404203-01) ug/L				Lab File ID: 0420301.D		Analyzed: 05/05/14 12:06		
Bromofluorobenzene	30.00	101	75 - 120	12.06	12.05	0.0100	+/-1.000	
Dibromofluoromethane	30.00	102	85 - 115	6.71	6.7	0.0100	+/-1.000	
1,2-Dichloroethane-d4	30.00	93.5	70 - 120	7.2	7.21	-0.0100	+/-1.000	
Toluene-d8	30.00	96.2	85 - 120	9.43	9.43	0.0000	+/-1.000	
LF008-80006 (1404203-03) ug/L				Lab File ID: 0420303.D		Analyzed: 05/05/14 12:34		
Bromofluorobenzene	30.00	100	75 - 120	12.05	12.05	0.0000	+/-1.000	
Dibromofluoromethane	30.00	107	85 - 115	6.7	6.7	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	101	70 - 120	7.21	7.21	0.0000	+/-1.000	
Toluene-d8	30.00	95.7	85 - 120	9.44	9.43	0.0100	+/-1.000	

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E01023	Laboratory ID:	4E01023-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Acetone	100.0	121	121	40 - 140
Benzene	50.00	48.5	97.1	80 - 120
Bromobenzene	50.00	46.8	93.7	75 - 125
Bromochloromethane	50.00	43.2	86.4	65 - 130
Bromodichloromethane	50.00	46.7	93.5	75 - 120
Bromoform	50.00	48.4	96.8	70 - 130
Bromomethane	50.00	41.8	83.6	30 - 145
n-Butylbenzene	50.00	51.2	102	70 - 135
2-Butanone	100.0	92.3	92.3	30 - 150
sec-Butylbenzene	50.00	51.1	102	70 - 125
tert-Butylbenzene	50.00	52.5	105	70 - 130
Carbon disulfide	50.00	38.7	77.4	35 - 160
Carbon tetrachloride	50.00	46.4	92.8	65 - 140
Chlorobenzene	50.00	49.6	99.1	80 - 120
Chloroethane	50.00	46.3	92.5	60 - 135
Chloroform	50.00	40.9	81.7	65 - 135
Chloromethane	50.00	42.3	84.6	40 - 125
2-Chlorotoluene	50.00	49.9	99.9	75 - 125
4-Chlorotoluene	50.00	49.5	99.0	75 - 130
Dibromochloromethane	50.00	49.1	98.2	60 - 135
1,2-Dibromo-3-chloropropane	50.00	48.5	96.9	50 - 130
1,2-Dibromoethane (EDB)	50.00	47.7	95.5	80 - 120
Dibromomethane	50.00	42.0	83.9	75 - 125
1,2-Dichlorobenzene	50.00	49.2	98.4	70 - 120
1,3-Dichlorobenzene	50.00	50.5	101	75 - 125
1,4-Dichlorobenzene	50.00	46.5	93.0	75 - 125
Dichlorodifluoromethane	50.00	52.3	105	30 - 155
1,1-Dichloroethane	50.00	42.4	84.8	70 - 135
1,2-Dichloroethane	50.00	46.8	93.6	70 - 130
1,1-Dichloroethene	50.00	47.5	94.9	70 - 130

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E01023	Laboratory ID:	4E01023-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
cis-1,2-Dichloroethene	50.00	47.9	95.8	70 - 125
trans-1,2-Dichloroethene	50.00	47.8	95.6	60 - 140
1,2-Dichloroethene (total)	100.0	95.7	95.7	75 - 125
1,2-Dichloropropane	50.00	47.8	95.7	75 - 125
1,3-Dichloropropane	50.00	47.9	95.8	75 - 125
2,2-Dichloropropane	50.00	51.0	102	70 - 135
1,1-Dichloropropene	50.00	49.6	99.1	75 - 130
cis-1,3-Dichloropropene	50.00	50.2	100	70 - 130
trans-1,3-Dichloropropene	50.00	49.1	98.1	55 - 140
1,3-Dichloropropene (total)	100.0	99.3	99.3	55 - 140
Ethylbenzene	50.00	48.4	96.9	75 - 125
Hexachlorobutadiene	50.00	49.4	98.9	50 - 140
2-Hexanone	100.0	105	105	55 - 130
Isopropylbenzene	50.00	55.2	110	75 - 125
p-Isopropyltoluene	50.00	47.2	94.3	75 - 130
Methylene chloride	50.00	43.6	87.2	55 - 140
Naphthalene	50.00	48.0	96.1	55 - 140
4-Methyl-2-pentanone	100.0	93.5	93.5	60 - 135
Methyl t-Butyl Ether	50.00	45.2	90.4	65 - 125
n-Propylbenzene	50.00	52.0	104	70 - 130
Styrene	50.00	52.3	105	65 - 135
1,1,2,2-Tetrachloroethane	50.00	45.8	91.7	65 - 130
1,1,1,2-Tetrachloroethane	50.00	51.2	102	80 - 130
Tetrachloroethene	50.00	46.3	92.6	45 - 150
Toluene	50.00	48.4	96.7	75 - 120
1,2,3-Trichlorobenzene	50.00	49.1	98.1	55 - 140
1,2,4-Trichlorobenzene	50.00	49.2	98.4	65 - 135
1,1,2-Trichloroethane	50.00	46.7	93.3	75 - 125
1,1,1-Trichloroethane	50.00	48.2	96.5	65 - 130
Trichloroethene	50.00	49.0	98.0	70 - 125

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E01023	Laboratory ID:	4E01023-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Trichlorofluoromethane	50.00	50.1	100	60 - 145
1,2,3-Trichloropropane	50.00	49.7	99.4	75 - 125
1,3,5-Trimethylbenzene	50.00	52.8	106	75 - 130
1,2,4-Trimethylbenzene	50.00	49.9	99.7	75 - 130
Vinyl chloride	50.00	49.7	99.4	50 - 145
m,p-Xylene	100.0	100	100	75 - 130
o-Xylene	50.00	50.1	100	80 - 120
Xylenes (total)	150.0	150	100	75 - 130

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E02004	Laboratory ID:	4E02004-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Acetone	100.0	110	110	40 - 140
Benzene	50.00	47.4	94.9	80 - 120
Bromobenzene	50.00	45.7	91.5	75 - 125
Bromochloromethane	50.00	40.6	81.2	65 - 130
Bromodichloromethane	50.00	42.1	84.3	75 - 120
Bromoform	50.00	35.2	70.3	70 - 130
Bromomethane	50.00	34.1	68.1	30 - 145
n-Butylbenzene	50.00	52.6	105	70 - 135
2-Butanone	100.0	106	106	30 - 150
sec-Butylbenzene	50.00	52.6	105	70 - 125
tert-Butylbenzene	50.00	49.7	99.4	70 - 130
Carbon disulfide	50.00	37.8	75.6	35 - 160
Carbon tetrachloride	50.00	39.9	79.8	65 - 140
Chlorobenzene	50.00	46.3	92.6	80 - 120
Chloroethane	50.00	41.2	82.5	60 - 135
Chloroform	50.00	40.4	80.9	65 - 135
Chloromethane	50.00	41.0	81.9	40 - 125
2-Chlorotoluene	50.00	49.5	99.1	75 - 125
4-Chlorotoluene	50.00	50.4	101	75 - 130
Dibromochloromethane	50.00	44.7	89.4	60 - 135
1,2-Dibromo-3-chloropropane	50.00	39.2	78.5	50 - 130
1,2-Dibromoethane (EDB)	50.00	45.0	90.1	80 - 120
Dibromomethane	50.00	39.5	79.0	75 - 125
1,2-Dichlorobenzene	50.00	48.2	96.3	70 - 120
1,3-Dichlorobenzene	50.00	50.0	100	75 - 125
1,4-Dichlorobenzene	50.00	48.8	97.6	75 - 125
Dichlorodifluoromethane	50.00	45.4	90.7	30 - 155
1,1-Dichloroethane	50.00	38.7	77.4	70 - 135
1,2-Dichloroethane	50.00	39.5	79.0	70 - 130
1,1-Dichloroethene	50.00	44.6	89.2	70 - 130

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E02004	Laboratory ID:	4E02004-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
cis-1,2-Dichloroethene	50.00	46.1	92.2	70 - 125
trans-1,2-Dichloroethene	50.00	43.6	87.2	60 - 140
1,2-Dichloroethene (total)	100.0	89.7	89.7	75 - 125
1,2-Dichloropropane	50.00	46.7	93.5	75 - 125
1,3-Dichloropropane	50.00	44.7	89.4	75 - 125
2,2-Dichloropropane	50.00	40.7	81.4	70 - 135
1,1-Dichloropropene	50.00	45.9	91.7	75 - 130
cis-1,3-Dichloropropene	50.00	51.7	103	70 - 130
trans-1,3-Dichloropropene	50.00	44.0	88.1	55 - 140
1,3-Dichloropropene (total)	100.0	95.8	95.8	55 - 140
Ethylbenzene	50.00	47.9	95.8	75 - 125
Hexachlorobutadiene	50.00	45.6	91.1	50 - 140
2-Hexanone	100.0	101	101	55 - 130
Isopropylbenzene	50.00	53.1	106	75 - 125
p-Isopropyltoluene	50.00	47.3	94.7	75 - 130
Methylene chloride	50.00	46.6	93.2	55 - 140
Naphthalene	50.00	48.2	96.4	55 - 140
4-Methyl-2-pentanone	100.0	87.4	87.4	60 - 135
Methyl t-Butyl Ether	50.00	42.0	84.0	65 - 125
n-Propylbenzene	50.00	52.2	104	70 - 130
Styrene	50.00	50.3	101	65 - 135
1,1,2,2-Tetrachloroethane	50.00	47.2	94.3	65 - 130
1,1,1,2-Tetrachloroethane	50.00	44.6	89.3	80 - 130
Tetrachloroethene	50.00	42.5	85.0	45 - 150
Toluene	50.00	46.7	93.3	75 - 120
1,2,3-Trichlorobenzene	50.00	48.1	96.2	55 - 140
1,2,4-Trichlorobenzene	50.00	49.3	98.5	65 - 135
1,1,2-Trichloroethane	50.00	47.0	94.1	75 - 125
1,1,1-Trichloroethane	50.00	39.1	78.3	65 - 130
Trichloroethene	50.00	44.8	89.6	70 - 125

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E02004	Laboratory ID:	4E02004-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Trichlorofluoromethane	50.00	40.1	80.2	60 - 145
1,2,3-Trichloropropane	50.00	42.2	84.3	75 - 125
1,3,5-Trimethylbenzene	50.00	50.9	102	75 - 130
1,2,4-Trimethylbenzene	50.00	50.8	102	75 - 130
Vinyl chloride	50.00	42.9	85.8	50 - 145
m,p-Xylene	100.0	97.2	97.2	75 - 130
o-Xylene	50.00	48.4	96.8	80 - 120
Xylenes (total)	150.0	146	97.0	75 - 130

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E05011	Laboratory ID:	4E05011-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Acetone	**100.0**	**143**	**143**	**40 - 140**
Benzene	50.00	47.1	94.2	80 - 120
Bromobenzene	50.00	47.2	94.3	75 - 125
Bromochloromethane	50.00	45.6	91.2	65 - 130
Bromodichloromethane	50.00	51.0	102	75 - 120
Bromoform	50.00	51.0	102	70 - 130
Bromomethane	50.00	40.7	81.3	30 - 145
n-Butylbenzene	50.00	48.1	96.3	70 - 135
2-Butanone	100.0	108	108	30 - 150
sec-Butylbenzene	50.00	49.0	97.9	70 - 125
tert-Butylbenzene	50.00	50.2	100	70 - 130
Carbon disulfide	50.00	35.7	71.3	35 - 160
Carbon tetrachloride	50.00	50.2	100	65 - 140
Chlorobenzene	50.00	47.2	94.5	80 - 120
Chloroethane	50.00	43.4	86.8	60 - 135
Chloroform	50.00	44.1	88.3	65 - 135
Chloromethane	50.00	43.9	87.8	40 - 125
2-Chlorotoluene	50.00	50.6	101	75 - 125
4-Chlorotoluene	50.00	49.8	99.7	75 - 130
Dibromochloromethane	50.00	50.9	102	60 - 135
1,2-Dibromo-3-chloropropane	50.00	50.7	101	50 - 130
1,2-Dibromoethane (EDB)	50.00	47.5	95.1	80 - 120
Dibromomethane	50.00	45.6	91.3	75 - 125
1,2-Dichlorobenzene	50.00	47.6	95.3	70 - 120
1,3-Dichlorobenzene	50.00	48.5	97.1	75 - 125
1,4-Dichlorobenzene	50.00	47.2	94.4	75 - 125
Dichlorodifluoromethane	50.00	53.1	106	30 - 155
1,1-Dichloroethane	50.00	43.9	87.9	70 - 135
1,2-Dichloroethane	50.00	56.6	113	70 - 130
1,1-Dichloroethene	50.00	44.8	89.6	70 - 130

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E05011	Laboratory ID:	4E05011-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
cis-1,2-Dichloroethene	50.00	47.2	94.5	70 - 125
trans-1,2-Dichloroethene	50.00	46.5	93.0	60 - 140
1,2-Dichloroethene (total)	100.0	93.7	93.7	75 - 125
1,2-Dichloropropane	50.00	46.1	92.2	75 - 125
1,3-Dichloropropane	50.00	46.9	93.8	75 - 125
2,2-Dichloropropane	50.00	53.5	107	70 - 135
1,1-Dichloropropene	50.00	48.8	97.6	75 - 130
cis-1,3-Dichloropropene	50.00	55.5	111	70 - 130
trans-1,3-Dichloropropene	50.00	52.4	105	55 - 140
1,3-Dichloropropene (total)	100.0	108	108	55 - 140
Ethylbenzene	50.00	48.0	95.9	75 - 125
Hexachlorobutadiene	50.00	48.1	96.3	50 - 140
2-Hexanone	100.0	112	112	55 - 130
Isopropylbenzene	50.00	53.7	107	75 - 125
p-Isopropyltoluene	50.00	45.1	90.1	75 - 130
Methylene chloride	50.00	44.0	88.0	55 - 140
Naphthalene	50.00	47.7	95.4	55 - 140
4-Methyl-2-pentanone	100.0	103	103	60 - 135
Methyl t-Butyl Ether	50.00	50.5	101	65 - 125
n-Propylbenzene	50.00	49.1	98.2	70 - 130
Styrene	50.00	50.5	101	65 - 135
1,1,2,2-Tetrachloroethane	50.00	45.2	90.5	65 - 130
1,1,1,2-Tetrachloroethane	50.00	51.6	103	80 - 130
Tetrachloroethene	50.00	42.2	84.5	45 - 150
Toluene	50.00	47.0	94.1	75 - 120
1,2,3-Trichlorobenzene	50.00	50.4	101	55 - 140
1,2,4-Trichlorobenzene	50.00	48.7	97.4	65 - 135
1,1,2-Trichloroethane	50.00	45.2	90.4	75 - 125
1,1,1-Trichloroethane	50.00	53.9	108	65 - 130
Trichloroethene	50.00	49.6	99.2	70 - 125

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E05011	Laboratory ID:	4E05011-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Trichlorofluoromethane	50.00	53.0	106	60 - 145
1,2,3-Trichloropropane	50.00	51.0	102	75 - 125
1,3,5-Trimethylbenzene	50.00	50.9	102	75 - 130
1,2,4-Trimethylbenzene	50.00	48.8	97.6	75 - 130
Vinyl chloride	50.00	47.2	94.5	50 - 145
m,p-Xylene	100.0	99.7	99.7	75 - 130
o-Xylene	50.00	49.9	99.8	80 - 120
Xylenes (total)	150.0	150	99.8	75 - 130

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW8260B

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4E02004

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC.	Q	QC LIMITS REC.
Acetone	100.0	ND	101	101		40 - 140
Benzene	50.00	ND	49.9	99.9		80 - 120
Bromobenzene	50.00	ND	47.1	94.3		75 - 125
Bromochloromethane	50.00	ND	47.9	95.7		65 - 130
Bromodichloromethane	50.00	ND	47.3	94.5		75 - 120
Bromoform	50.00	ND	40.8	81.6		70 - 130
Bromomethane	50.00	ND	37.0	74.0		30 - 145
n-Butylbenzene	50.00	ND	49.4	98.8		70 - 135
2-Butanone	100.0	ND	101	101		30 - 150
sec-Butylbenzene	50.00	ND	49.9	99.9		70 - 125
tert-Butylbenzene	50.00	ND	53.4	107		70 - 130
Carbon disulfide	50.00	ND	49.1	98.3		35 - 160
Carbon tetrachloride	50.00	ND	45.7	91.4		65 - 140
Chlorobenzene	50.00	ND	47.9	95.8		80 - 120
Chloroethane	50.00	ND	46.7	93.5		60 - 135
Chloroform	50.00	ND	48.2	96.3		65 - 135
Chloromethane	50.00	ND	46.1	92.1		40 - 125
2-Chlorotoluene	50.00	ND	48.7	97.4		75 - 125
4-Chlorotoluene	50.00	ND	48.9	97.7		75 - 130
Dibromochloromethane	50.00	ND	47.9	95.8		60 - 135
1,2-Dibromo-3-chloropropane	50.00	ND	43.5	87.1		50 - 130
1,2-Dibromoethane (EDB)	50.00	ND	49.0	97.9		80 - 120
Dibromomethane	50.00	ND	48.4	96.7		75 - 125
1,2-Dichlorobenzene	50.00	ND	48.2	96.3		70 - 120
1,3-Dichlorobenzene	50.00	ND	48.8	97.6		75 - 125
1,4-Dichlorobenzene	50.00	ND	48.9	97.7		75 - 125
Dichlorodifluoromethane	50.00	ND	49.2	98.4		30 - 155
1,1-Dichloroethane	50.00	ND	47.7	95.3		70 - 135
1,2-Dichloroethane	50.00	ND	45.7	91.5		70 - 130
1,1-Dichloroethene	50.00	ND	47.8	95.7		70 - 130
cis-1,2-Dichloroethene	50.00	0.266	50.1	99.7		70 - 125
trans-1,2-Dichloroethene	50.00	ND	48.4	96.8		60 - 140

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW8260B

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4E02004

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC.	Q	QC LIMITS REC.
1,2-Dichloroethene (total)	100.0	ND	98.5	98.5		75 - 125
1,2-Dichloropropane	50.00	ND	49.1	98.2		75 - 125
1,3-Dichloropropane	50.00	ND	47.3	94.7		75 - 125
2,2-Dichloropropane	50.00	ND	38.6	77.2		70 - 135
1,1-Dichloropropene	50.00	ND	48.0	96.1		75 - 130
cis-1,3-Dichloropropene	50.00	ND	46.5	93.1		70 - 130
trans-1,3-Dichloropropene	50.00	ND	45.8	91.6		55 - 140
1,3-Dichloropropene (total)	100.0	ND	92.3	92.3		55 - 140
Ethylbenzene	50.00	ND	50.0	100		75 - 125
Hexachlorobutadiene	50.00	ND	44.8	89.6		50 - 140
2-Hexanone	100.0	ND	98.9	98.9		55 - 130
Isopropylbenzene	50.00	ND	49.7	99.5		75 - 125
p-Isopropyltoluene	50.00	ND	48.9	97.9		75 - 130
Methylene chloride	50.00	ND	50.7	101		55 - 140
Naphthalene	50.00	ND	52.0	104		55 - 140
4-Methyl-2-pentanone	100.0	ND	97.5	97.5		60 - 135
Methyl t-Butyl Ether	50.00	ND	48.3	96.7		65 - 125
n-Propylbenzene	50.00	ND	49.8	99.6		70 - 130
Styrene	50.00	ND	49.6	99.2		65 - 135
1,1,2,2-Tetrachloroethane	50.00	ND	49.7	99.4		65 - 130
1,1,1,2-Tetrachloroethane	50.00	ND	47.2	94.4		80 - 130
Tetrachloroethene	50.00	ND	46.7	93.5		45 - 150
Toluene	50.00	ND	48.7	97.4		75 - 120
1,2,3-Trichlorobenzene	50.00	ND	49.9	99.9		55 - 140
1,2,4-Trichlorobenzene	50.00	ND	48.2	96.4		65 - 135
1,1,2-Trichloroethane	50.00	ND	49.1	98.3		75 - 125
1,1,1-Trichloroethane	50.00	ND	46.6	93.3		65 - 130
Trichloroethene	50.00	1.10	48.7	95.2		70 - 125
Trichlorofluoromethane	50.00	ND	45.8	91.6		60 - 145
1,2,3-Trichloropropane	50.00	ND	48.2	96.5		75 - 125
1,3,5-Trimethylbenzene	50.00	ND	49.8	99.6		75 - 130
1,2,4-Trimethylbenzene	50.00	ND	50.2	100		75 - 130

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW8260B

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4E02004

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC.	Q	QC LIMITS REC.
Vinyl chloride	50.00	ND	47.3	94.7		50 - 145
m,p-Xylene	100.0	ND	98.8	98.8		75 - 130
o-Xylene	50.00	ND	50.1	100		80 - 120
Xylenes (total)	150.0	ND	149	99.3		75 - 130

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW8260B

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4E02004

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Acetone	100.0	95.2	95.2	6.05		30	40 - 140
Benzene	50.00	48.5	97.0	2.92		30	80 - 120
Bromobenzene	50.00	48.6	97.1	2.95		30	75 - 125
Bromochloromethane	50.00	47.0	94.0	1.79		30	65 - 130
Bromodichloromethane	50.00	45.9	91.9	2.84		30	75 - 120
Bromoform	50.00	40.8	81.5	0.149		30	70 - 130
Bromomethane	50.00	38.8	77.6	4.68		30	30 - 145
n-Butylbenzene	50.00	50.5	101	2.30		30	70 - 135
2-Butanone	100.0	96.9	96.9	4.30		30	30 - 150
sec-Butylbenzene	50.00	50.9	102	1.84		30	70 - 125
tert-Butylbenzene	50.00	54.2	108	1.39		30	70 - 130
Carbon disulfide	50.00	48.7	97.4	0.884		30	35 - 160
Carbon tetrachloride	50.00	43.5	86.9	5.02		30	65 - 140
Chlorobenzene	50.00	47.1	94.2	1.71		30	80 - 120
Chloroethane	50.00	45.2	90.5	3.25		30	60 - 135
Chloroform	50.00	46.3	92.7	3.86		30	65 - 135
Chloromethane	50.00	43.8	87.6	5.07		30	40 - 125
2-Chlorotoluene	50.00	49.3	98.6	1.23		30	75 - 125
4-Chlorotoluene	50.00	50.3	101	2.97		30	75 - 130
Dibromochloromethane	50.00	48.0	96.0	0.171		30	60 - 135
1,2-Dibromo-3-chloropropane	50.00	42.0	84.1	3.52		30	50 - 130
1,2-Dibromoethane (EDB)	50.00	47.6	95.3	2.70		30	80 - 120
Dibromomethane	50.00	47.0	94.0	2.90		30	75 - 125
1,2-Dichlorobenzene	50.00	49.6	99.1	2.90		30	70 - 120
1,3-Dichlorobenzene	50.00	50.2	100	2.94		30	75 - 125
1,4-Dichlorobenzene	50.00	50.5	101	3.32		30	75 - 125
Dichlorodifluoromethane	50.00	47.5	94.9	3.62		30	30 - 155
1,1-Dichloroethane	50.00	45.2	90.5	5.23		30	70 - 135
1,2-Dichloroethane	50.00	44.3	88.7	3.13		30	70 - 130
1,1-Dichloroethene	50.00	47.3	94.7	1.07		30	70 - 130
cis-1,2-Dichloroethene	50.00	48.2	95.9	3.83		30	70 - 125
trans-1,2-Dichloroethene	50.00	44.9	89.8	7.43		30	60 - 140
1,2-Dichloroethene (total)	100.0	93.1	93.1	5.59		30	75 - 125

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW8260B

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4E02004

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
1,2-Dichloropropane	50.00	48.3	96.7	1.59		30	75 - 125
1,3-Dichloropropane	50.00	46.8	93.6	1.09		30	75 - 125
2,2-Dichloropropane	50.00	36.7	73.3	5.22		30	70 - 135
1,1-Dichloropropene	50.00	46.0	92.0	4.32		30	75 - 130
cis-1,3-Dichloropropene	50.00	45.3	90.7	2.58		30	70 - 130
trans-1,3-Dichloropropene	50.00	45.8	91.5	0.131		30	55 - 140
1,3-Dichloropropene (total)	100.0	91.1	91.1	1.36		30	55 - 140
Ethylbenzene	50.00	48.1	96.2	3.91		30	75 - 125
Hexachlorobutadiene	50.00	46.2	92.5	3.13		30	50 - 140
2-Hexanone	100.0	95.3	95.3	3.74		30	55 - 130
Isopropylbenzene	50.00	48.5	97.0	2.48		30	75 - 125
p-Isopropyltoluene	50.00	50.1	100	2.39		30	75 - 130
Methylene chloride	50.00	49.9	99.8	1.47		30	55 - 140
Naphthalene	50.00	55.0	110	5.58		30	55 - 140
4-Methyl-2-pentanone	100.0	93.0	93.0	4.79		30	60 - 135
Methyl t-Butyl Ether	50.00	46.5	93.1	3.78		30	65 - 125
n-Propylbenzene	50.00	50.7	101	1.79		30	70 - 130
Styrene	50.00	49.2	98.4	0.852		30	65 - 135
1,1,2,2-Tetrachloroethane	50.00	51.0	102	2.62		30	65 - 130
1,1,1,2-Tetrachloroethane	50.00	47.1	94.2	0.181		30	80 - 130
Tetrachloroethene	50.00	46.5	92.9	0.604		30	45 - 150
Toluene	50.00	47.3	94.7	2.87		30	75 - 120
1,2,3-Trichlorobenzene	50.00	51.5	103	3.03		30	55 - 140
1,2,4-Trichlorobenzene	50.00	50.4	101	4.38		30	65 - 135
1,1,2-Trichloroethane	50.00	49.3	98.6	0.320		30	75 - 125
1,1,1-Trichloroethane	50.00	44.2	88.5	5.31		30	65 - 130
Trichloroethene	50.00	47.0	91.8	3.57		30	70 - 125
Trichlorofluoromethane	50.00	43.5	87.0	5.16		30	60 - 145
1,2,3-Trichloropropane	50.00	47.5	94.9	1.63		30	75 - 125
1,3,5-Trimethylbenzene	50.00	51.2	102	2.81		30	75 - 130
1,2,4-Trimethylbenzene	50.00	51.8	104	3.10		30	75 - 130
Vinyl chloride	50.00	45.2	90.4	4.57		30	50 - 145
m,p-Xylene	100.0	98.0	98.0	0.901		30	75 - 130

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW8260B

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4E02004

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
o-Xylene	50.00	49.3	98.6	1.63		30	80 - 120
Xylenes (total)	150.0	147	98.2	1.15		30	75 - 130

PREPARATION BATCH SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E01023 Batch Matrix: Water Preparation: 5030B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30005	1404149-01	05/01/14 15:33	5.00	5.00
LF008-30006	1404149-03	05/01/14 16:01	5.00	5.00
LF008-30007	1404149-05	05/01/14 16:28	5.00	5.00
LF008-80004	1404149-07	05/01/14 16:56	5.00	5.00
Blank	4E01023-BLK1	05/01/14 14:37	5.00	5.00
LCS	4E01023-BS1	05/01/14 12:46	5.00	5.00

PREPARATION BATCH SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E02004 Batch Matrix: Water Preparation: 5030B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30002	1404168-01	05/02/14 16:23	5.00	5.00
LF008-30004	1404168-03	05/02/14 16:48	5.00	5.00
LF008-80005	1404168-05	05/02/14 17:13	5.00	5.00
Blank	4E02004-BLK1	05/02/14 10:13	5.00	5.00
LCS	4E02004-BS1	05/02/14 08:34	5.00	5.00
LF008-30002	4E02004-MS1	05/02/14 19:17	5.00	5.00
LF008-30002	4E02004-MSD1	05/02/14 19:41	5.00	5.00

PREPARATION BATCH SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E05011 Batch Matrix: Water Preparation: 5030B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30008	1404203-01	05/05/14 12:06	5.00	5.00
LF008-80006	1404203-03	05/05/14 12:34	5.00	5.00
Blank	4E05011-BLK1	05/05/14 09:46	5.00	5.00
LCS	4E05011-BS1	05/05/14 07:55	5.00	5.00

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E01023-BLK1 File ID: 0501BLK1.D

Sampled: Prepared: Analyzed: 05/01/14 14:37

Solids: Preparation: 5030B Dilution:

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E01023-BLK1 File ID: 0501BLK1.D

Sampled: Prepared: Analyzed: 05/01/14 14:37

Solids: Preparation: 5030B Dilution:

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene	**0.336**	0.250	0.500	1.00	J
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.28	97.6	75 - 120	
Dibromofluoromethane	30.00	29.69	99.0	85 - 115	
1,2-Dichloroethane-d4	30.00	27.95	93.2	70 - 120	
Toluene-d8	30.00	28.36	94.5	85 - 120	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E01023-BS1 File ID: 0501LCS1.D

Sampled: Prepared: Analyzed: 05/01/14 12:46

Solids: Preparation: 5030B Dilution:

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**121**	2.50	5.00	10.0	
71-43-2	Benzene	**48.5**	0.250	0.500	1.00	
108-86-1	Bromobenzene	**46.8**	0.250	0.500	1.00	
74-97-5	Bromochloromethane	**43.2**	0.250	0.500	1.00	
75-27-4	Bromodichloromethane	**46.7**	0.250	0.500	1.00	
75-25-2	Bromoform	**48.4**	0.250	0.500	1.00	
74-83-9	Bromomethane	**41.8**	0.500	1.00	2.00	
104-51-8	n-Butylbenzene	**51.2**	0.250	0.500	1.00	
78-93-3	2-Butanone	**92.3**	2.50	5.00	10.0	
135-98-8	sec-Butylbenzene	**51.1**	0.250	0.500	1.00	
98-06-6	tert-Butylbenzene	**52.5**	0.250	0.500	1.00	
75-15-0	Carbon disulfide	**38.7**	0.250	0.500	1.00	
56-23-5	Carbon tetrachloride	**46.4**	0.250	0.500	1.00	
108-90-7	Chlorobenzene	**49.6**	0.250	0.500	1.00	
75-00-3	Chloroethane	**46.3**	0.500	1.00	2.00	
67-66-3	Chloroform	**40.9**	0.250	0.500	1.00	
74-87-3	Chloromethane	**42.3**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene	**49.9**	0.250	0.500	1.00	
106-43-4	4-Chlorotoluene	**49.5**	0.250	0.500	1.00	
124-48-1	Dibromochloromethane	**49.1**	0.250	0.500	1.00	
96-12-8	1,2-Dibromo-3-chloropropane	**48.5**	0.500	1.00	2.00	
106-93-4	1,2-Dibromoethane (EDB)	**47.7**	0.250	0.500	1.00	
74-95-3	Dibromomethane	**42.0**	0.250	0.500	1.00	
95-50-1	1,2-Dichlorobenzene	**49.2**	0.250	0.500	1.00	
541-73-1	1,3-Dichlorobenzene	**50.5**	0.250	0.500	1.00	
106-46-7	1,4-Dichlorobenzene	**46.5**	0.250	0.500	1.00	
75-71-8	Dichlorodifluoromethane	**52.3**	0.500	1.00	2.00	
75-34-3	1,1-Dichloroethane	**42.4**	0.250	0.500	1.00	
107-06-2	1,2-Dichloroethane	**46.8**	0.250	0.500	1.00	
75-35-4	1,1-Dichloroethene	**47.5**	0.250	0.500	1.00	
156-59-2	cis-1,2-Dichloroethene	**47.9**	0.250	0.500	1.00	
156-60-5	trans-1,2-Dichloroethene	**47.8**	0.250	0.500	1.00	
540-59-0	1,2-Dichloroethene (total)	**95.7**	0.500	1.00	2.00	
78-87-5	1,2-Dichloropropane	**47.8**	0.250	0.500	1.00	
142-28-9	1,3-Dichloropropane	**47.9**	0.250	0.500	1.00	
594-20-7	2,2-Dichloropropane	**51.0**	0.250	0.500	1.00	
563-58-6	1,1-Dichloropropene	**49.6**	0.250	0.500	1.00	
10061-01-5	cis-1,3-Dichloropropene	**50.2**	0.250	0.500	1.00	
10061-02-6	trans-1,3-Dichloropropene	**49.1**	0.250	0.500	1.00	
542-75-6	1,3-Dichloropropene (total)	**99.3**	0.500	1.00	2.00	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E01023-BS1 File ID: 0501LCS1.D

Sampled: Prepared: Analyzed: 05/01/14 12:46

Solids: Preparation: 5030B Dilution:

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene	**48.4**	0.250	0.500	1.00	
87-68-3	Hexachlorobutadiene	**49.4**	0.250	0.500	1.00	B
591-78-6	2-Hexanone	**105**	1.25	2.50	5.00	
98-82-8	Isopropylbenzene	**55.2**	0.250	0.500	1.00	
99-87-6	p-Isopropyltoluene	**47.2**	0.250	0.500	1.00	
75-09-2	Methylene chloride	**43.6**	0.500	1.00	2.00	
91-20-3	Naphthalene	**48.0**	0.250	0.500	1.00	
108-10-1	4-Methyl-2-pentanone	**93.5**	1.25	2.50	5.00	
1634-04-4	Methyl t-Butyl Ether	**45.2**	0.250	0.500	1.00	
103-65-1	n-Propylbenzene	**52.0**	0.250	0.500	1.00	
100-42-5	Styrene	**52.3**	0.250	0.500	1.00	
79-34-5	1,1,2,2-Tetrachloroethane	**45.8**	0.250	0.500	1.00	
630-20-6	1,1,1,2-Tetrachloroethane	**51.2**	0.250	0.500	1.00	
127-18-4	Tetrachloroethene	**46.3**	0.250	0.500	1.00	
108-88-3	Toluene	**48.4**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene	**49.1**	0.250	0.500	1.00	
120-82-1	1,2,4-Trichlorobenzene	**49.2**	0.250	0.500	1.00	
79-00-5	1,1,2-Trichloroethane	**46.7**	0.250	0.500	1.00	
71-55-6	1,1,1-Trichloroethane	**48.2**	0.250	0.500	1.00	
79-01-6	Trichloroethene	**49.0**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane	**50.1**	0.500	1.00	2.00	
96-18-4	1,2,3-Trichloropropane	**49.7**	0.500	1.00	2.00	
108-67-8	1,3,5-Trimethylbenzene	**52.8**	0.250	0.500	1.00	
95-63-6	1,2,4-Trimethylbenzene	**49.9**	0.250	0.500	1.00	
75-01-4	Vinyl chloride	**49.7**	0.250	0.500	1.00	
108-38-3/106-42-	m,p-Xylene	**100**	0.500	1.00	2.00	
95-47-6	o-Xylene	**50.1**	0.250	0.500	1.00	
1330-20-7	Xylenes (total)	**150**	0.750	1.50	3.00	

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.93	99.8	75 - 120	
Dibromofluoromethane	30.00	29.42	98.1	85 - 115	
1,2-Dichloroethane-d4	30.00	29.07	96.9	70 - 120	
Toluene-d8	30.00	29.97	99.9	85 - 120	

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E02004-BLK1 File ID: 0502BLK1.D

Sampled: Prepared: Analyzed: 05/02/14 10:13

Solids: Preparation: 5030B Dilution:

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	UY
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E02004-BLK1 File ID: 0502BLK1.D

Sampled: Prepared: Analyzed: 05/02/14 10:13

Solids: Preparation: 5030B Dilution:

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.25	94.2	75 - 120	
Dibromofluoromethane	30.00	28.49	95.0	85 - 115	
1,2-Dichloroethane-d4	30.00	30.74	102	70 - 120	
Toluene-d8	30.00	30.29	101	85 - 120	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E02004-BS1 File ID: 0502LCS1.D

Sampled: Prepared: Analyzed: 05/02/14 08:34

Solids: Preparation: 5030B Dilution:

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**110**	2.50	5.00	10.0	
71-43-2	Benzene	**47.4**	0.250	0.500	1.00	
108-86-1	Bromobenzene	**45.7**	0.250	0.500	1.00	
74-97-5	Bromochloromethane	**40.6**	0.250	0.500	1.00	
75-27-4	Bromodichloromethane	**42.1**	0.250	0.500	1.00	
75-25-2	Bromoform	**35.2**	0.250	0.500	1.00	
74-83-9	Bromomethane	**34.1**	0.500	1.00	2.00	Y
104-51-8	n-Butylbenzene	**52.6**	0.250	0.500	1.00	
78-93-3	2-Butanone	**106**	2.50	5.00	10.0	
135-98-8	sec-Butylbenzene	**52.6**	0.250	0.500	1.00	
98-06-6	tert-Butylbenzene	**49.7**	0.250	0.500	1.00	
75-15-0	Carbon disulfide	**37.8**	0.250	0.500	1.00	
56-23-5	Carbon tetrachloride	**39.9**	0.250	0.500	1.00	
108-90-7	Chlorobenzene	**46.3**	0.250	0.500	1.00	
75-00-3	Chloroethane	**41.2**	0.500	1.00	2.00	
67-66-3	Chloroform	**40.4**	0.250	0.500	1.00	
74-87-3	Chloromethane	**41.0**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene	**49.5**	0.250	0.500	1.00	
106-43-4	4-Chlorotoluene	**50.4**	0.250	0.500	1.00	
124-48-1	Dibromochloromethane	**44.7**	0.250	0.500	1.00	
96-12-8	1,2-Dibromo-3-chloropropane	**39.2**	0.500	1.00	2.00	
106-93-4	1,2-Dibromoethane (EDB)	**45.0**	0.250	0.500	1.00	
74-95-3	Dibromomethane	**39.5**	0.250	0.500	1.00	
95-50-1	1,2-Dichlorobenzene	**48.2**	0.250	0.500	1.00	
541-73-1	1,3-Dichlorobenzene	**50.0**	0.250	0.500	1.00	
106-46-7	1,4-Dichlorobenzene	**48.8**	0.250	0.500	1.00	
75-71-8	Dichlorodifluoromethane	**45.4**	0.500	1.00	2.00	
75-34-3	1,1-Dichloroethane	**38.7**	0.250	0.500	1.00	
107-06-2	1,2-Dichloroethane	**39.5**	0.250	0.500	1.00	
75-35-4	1,1-Dichloroethene	**44.6**	0.250	0.500	1.00	
156-59-2	cis-1,2-Dichloroethene	**46.1**	0.250	0.500	1.00	
156-60-5	trans-1,2-Dichloroethene	**43.6**	0.250	0.500	1.00	
540-59-0	1,2-Dichloroethene (total)	**89.7**	0.500	1.00	2.00	
78-87-5	1,2-Dichloropropane	**46.7**	0.250	0.500	1.00	
142-28-9	1,3-Dichloropropane	**44.7**	0.250	0.500	1.00	
594-20-7	2,2-Dichloropropane	**40.7**	0.250	0.500	1.00	
563-58-6	1,1-Dichloropropene	**45.9**	0.250	0.500	1.00	
10061-01-5	cis-1,3-Dichloropropene	**51.7**	0.250	0.500	1.00	
10061-02-6	trans-1,3-Dichloropropene	**44.0**	0.250	0.500	1.00	
542-75-6	1,3-Dichloropropene (total)	**95.8**	0.500	1.00	2.00	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E02004-BS1 File ID: 0502LCS1.D

Sampled: Prepared: Analyzed: 05/02/14 08:34

Solids: Preparation: 5030B Dilution:

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene	**47.9**	0.250	0.500	1.00	
87-68-3	Hexachlorobutadiene	**45.6**	0.250	0.500	1.00	
591-78-6	2-Hexanone	**101**	1.25	2.50	5.00	
98-82-8	Isopropylbenzene	**53.1**	0.250	0.500	1.00	
99-87-6	p-Isopropyltoluene	**47.3**	0.250	0.500	1.00	
75-09-2	Methylene chloride	**46.6**	0.500	1.00	2.00	
91-20-3	Naphthalene	**48.2**	0.250	0.500	1.00	
108-10-1	4-Methyl-2-pentanone	**87.4**	1.25	2.50	5.00	
1634-04-4	Methyl t-Butyl Ether	**42.0**	0.250	0.500	1.00	
103-65-1	n-Propylbenzene	**52.2**	0.250	0.500	1.00	
100-42-5	Styrene	**50.3**	0.250	0.500	1.00	
79-34-5	1,1,2,2-Tetrachloroethane	**47.2**	0.250	0.500	1.00	
630-20-6	1,1,1,2-Tetrachloroethane	**44.6**	0.250	0.500	1.00	
127-18-4	Tetrachloroethene	**42.5**	0.250	0.500	1.00	
108-88-3	Toluene	**46.7**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene	**48.1**	0.250	0.500	1.00	
120-82-1	1,2,4-Trichlorobenzene	**49.3**	0.250	0.500	1.00	
79-00-5	1,1,2-Trichloroethane	**47.0**	0.250	0.500	1.00	
71-55-6	1,1,1-Trichloroethane	**39.1**	0.250	0.500	1.00	
79-01-6	Trichloroethene	**44.8**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane	**40.1**	0.500	1.00	2.00	
96-18-4	1,2,3-Trichloropropane	**42.2**	0.500	1.00	2.00	
108-67-8	1,3,5-Trimethylbenzene	**50.9**	0.250	0.500	1.00	
95-63-6	1,2,4-Trimethylbenzene	**50.8**	0.250	0.500	1.00	
75-01-4	Vinyl chloride	**42.9**	0.250	0.500	1.00	
108-38-3/106-42-	m,p-Xylene	**97.2**	0.500	1.00	2.00	
95-47-6	o-Xylene	**48.4**	0.250	0.500	1.00	
1330-20-7	Xylenes (total)	**146**	0.750	1.50	3.00	

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.17	97.2	75 - 120	
Dibromofluoromethane	30.00	29.07	96.9	85 - 115	
1,2-Dichloroethane-d4	30.00	29.89	99.6	70 - 120	
Toluene-d8	30.00	29.44	98.1	85 - 120	

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E02004-MS1 File ID: 0416801M.D

Sampled: Prepared: Analyzed: 05/02/14 19:17

Solids: Preparation: 5030B Dilution:

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**101**	2.50	5.00	10.0	
71-43-2	Benzene	**49.9**	0.250	0.500	1.00	
108-86-1	Bromobenzene	**47.1**	0.250	0.500	1.00	
74-97-5	Bromochloromethane	**47.9**	0.250	0.500	1.00	
75-27-4	Bromodichloromethane	**47.3**	0.250	0.500	1.00	
75-25-2	Bromoform	**40.8**	0.250	0.500	1.00	
74-83-9	Bromomethane	**37.0**	0.500	1.00	2.00	Y
104-51-8	n-Butylbenzene	**49.4**	0.250	0.500	1.00	
78-93-3	2-Butanone	**101**	2.50	5.00	10.0	
135-98-8	sec-Butylbenzene	**49.9**	0.250	0.500	1.00	
98-06-6	tert-Butylbenzene	**53.4**	0.250	0.500	1.00	
75-15-0	Carbon disulfide	**49.1**	0.250	0.500	1.00	
56-23-5	Carbon tetrachloride	**45.7**	0.250	0.500	1.00	
108-90-7	Chlorobenzene	**47.9**	0.250	0.500	1.00	
75-00-3	Chloroethane	**46.7**	0.500	1.00	2.00	
67-66-3	Chloroform	**48.2**	0.250	0.500	1.00	
74-87-3	Chloromethane	**46.1**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene	**48.7**	0.250	0.500	1.00	
106-43-4	4-Chlorotoluene	**48.9**	0.250	0.500	1.00	
124-48-1	Dibromochloromethane	**47.9**	0.250	0.500	1.00	
96-12-8	1,2-Dibromo-3-chloropropane	**43.5**	0.500	1.00	2.00	
106-93-4	1,2-Dibromoethane (EDB)	**49.0**	0.250	0.500	1.00	
74-95-3	Dibromomethane	**48.4**	0.250	0.500	1.00	
95-50-1	1,2-Dichlorobenzene	**48.2**	0.250	0.500	1.00	
541-73-1	1,3-Dichlorobenzene	**48.8**	0.250	0.500	1.00	
106-46-7	1,4-Dichlorobenzene	**48.9**	0.250	0.500	1.00	
75-71-8	Dichlorodifluoromethane	**49.2**	0.500	1.00	2.00	
75-34-3	1,1-Dichloroethane	**47.7**	0.250	0.500	1.00	
107-06-2	1,2-Dichloroethane	**45.7**	0.250	0.500	1.00	
75-35-4	1,1-Dichloroethene	**47.8**	0.250	0.500	1.00	
156-59-2	cis-1,2-Dichloroethene	**50.1**	0.250	0.500	1.00	
156-60-5	trans-1,2-Dichloroethene	**48.4**	0.250	0.500	1.00	
540-59-0	1,2-Dichloroethene (total)	**98.5**	0.500	1.00	2.00	
78-87-5	1,2-Dichloropropane	**49.1**	0.250	0.500	1.00	
142-28-9	1,3-Dichloropropane	**47.3**	0.250	0.500	1.00	
594-20-7	2,2-Dichloropropane	**38.6**	0.250	0.500	1.00	
563-58-6	1,1-Dichloropropene	**48.0**	0.250	0.500	1.00	
10061-01-5	cis-1,3-Dichloropropene	**46.5**	0.250	0.500	1.00	
10061-02-6	trans-1,3-Dichloropropene	**45.8**	0.250	0.500	1.00	
542-75-6	1,3-Dichloropropene (total)	**92.3**	0.500	1.00	2.00	

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E02004-MS1 File ID: 0416801M.D

Sampled: Prepared: Analyzed: 05/02/14 19:17

Solids: Preparation: 5030B Dilution:

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene	**50.0**	0.250	0.500	1.00	
87-68-3	Hexachlorobutadiene	**44.8**	0.250	0.500	1.00	
591-78-6	2-Hexanone	**98.9**	1.25	2.50	5.00	
98-82-8	Isopropylbenzene	**49.7**	0.250	0.500	1.00	
99-87-6	p-Isopropyltoluene	**48.9**	0.250	0.500	1.00	
75-09-2	Methylene chloride	**50.7**	0.500	1.00	2.00	
91-20-3	Naphthalene	**52.0**	0.250	0.500	1.00	
108-10-1	4-Methyl-2-pentanone	**97.5**	1.25	2.50	5.00	
1634-04-4	Methyl t-Butyl Ether	**48.3**	0.250	0.500	1.00	
103-65-1	n-Propylbenzene	**49.8**	0.250	0.500	1.00	
100-42-5	Styrene	**49.6**	0.250	0.500	1.00	
79-34-5	1,1,2,2-Tetrachloroethane	**49.7**	0.250	0.500	1.00	
630-20-6	1,1,1,2-Tetrachloroethane	**47.2**	0.250	0.500	1.00	
127-18-4	Tetrachloroethene	**46.7**	0.250	0.500	1.00	
108-88-3	Toluene	**48.7**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene	**49.9**	0.250	0.500	1.00	
120-82-1	1,2,4-Trichlorobenzene	**48.2**	0.250	0.500	1.00	
79-00-5	1,1,2-Trichloroethane	**49.1**	0.250	0.500	1.00	
71-55-6	1,1,1-Trichloroethane	**46.6**	0.250	0.500	1.00	
79-01-6	Trichloroethene	**48.7**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane	**45.8**	0.500	1.00	2.00	
96-18-4	1,2,3-Trichloropropane	**48.2**	0.500	1.00	2.00	
108-67-8	1,3,5-Trimethylbenzene	**49.8**	0.250	0.500	1.00	
95-63-6	1,2,4-Trimethylbenzene	**50.2**	0.250	0.500	1.00	
75-01-4	Vinyl chloride	**47.3**	0.250	0.500	1.00	
108-38-3/106-42-	m,p-Xylene	**98.8**	0.500	1.00	2.00	
95-47-6	o-Xylene	**50.1**	0.250	0.500	1.00	
1330-20-7	Xylenes (total)	**149**	0.750	1.50	3.00	

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.65	98.8	75 - 120	
Dibromofluoromethane	30.00	29.30	97.7	85 - 115	
1,2-Dichloroethane-d4	30.00	30.51	102	70 - 120	
Toluene-d8	30.00	29.80	99.3	85 - 120	

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E02004-MSD1 File ID: 0416801S.D

Sampled: Prepared: Analyzed: 05/02/14 19:41

Solids: Preparation: 5030B Dilution:

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**95.2**	2.50	5.00	10.0	
71-43-2	Benzene	**48.5**	0.250	0.500	1.00	
108-86-1	Bromobenzene	**48.6**	0.250	0.500	1.00	
74-97-5	Bromochloromethane	**47.0**	0.250	0.500	1.00	
75-27-4	Bromodichloromethane	**45.9**	0.250	0.500	1.00	
75-25-2	Bromoform	**40.8**	0.250	0.500	1.00	
74-83-9	Bromomethane	**38.8**	0.500	1.00	2.00	Y
104-51-8	n-Butylbenzene	**50.5**	0.250	0.500	1.00	
78-93-3	2-Butanone	**96.9**	2.50	5.00	10.0	
135-98-8	sec-Butylbenzene	**50.9**	0.250	0.500	1.00	
98-06-6	tert-Butylbenzene	**54.2**	0.250	0.500	1.00	
75-15-0	Carbon disulfide	**48.7**	0.250	0.500	1.00	
56-23-5	Carbon tetrachloride	**43.5**	0.250	0.500	1.00	
108-90-7	Chlorobenzene	**47.1**	0.250	0.500	1.00	
75-00-3	Chloroethane	**45.2**	0.500	1.00	2.00	
67-66-3	Chloroform	**46.3**	0.250	0.500	1.00	
74-87-3	Chloromethane	**43.8**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene	**49.3**	0.250	0.500	1.00	
106-43-4	4-Chlorotoluene	**50.3**	0.250	0.500	1.00	
124-48-1	Dibromochloromethane	**48.0**	0.250	0.500	1.00	
96-12-8	1,2-Dibromo-3-chloropropane	**42.0**	0.500	1.00	2.00	
106-93-4	1,2-Dibromoethane (EDB)	**47.6**	0.250	0.500	1.00	
74-95-3	Dibromomethane	**47.0**	0.250	0.500	1.00	
95-50-1	1,2-Dichlorobenzene	**49.6**	0.250	0.500	1.00	
541-73-1	1,3-Dichlorobenzene	**50.2**	0.250	0.500	1.00	
106-46-7	1,4-Dichlorobenzene	**50.5**	0.250	0.500	1.00	
75-71-8	Dichlorodifluoromethane	**47.5**	0.500	1.00	2.00	
75-34-3	1,1-Dichloroethane	**45.2**	0.250	0.500	1.00	
107-06-2	1,2-Dichloroethane	**44.3**	0.250	0.500	1.00	
75-35-4	1,1-Dichloroethene	**47.3**	0.250	0.500	1.00	
156-59-2	cis-1,2-Dichloroethene	**48.2**	0.250	0.500	1.00	
156-60-5	trans-1,2-Dichloroethene	**44.9**	0.250	0.500	1.00	
540-59-0	1,2-Dichloroethene (total)	**93.1**	0.500	1.00	2.00	
78-87-5	1,2-Dichloropropane	**48.3**	0.250	0.500	1.00	
142-28-9	1,3-Dichloropropane	**46.8**	0.250	0.500	1.00	
594-20-7	2,2-Dichloropropane	**36.7**	0.250	0.500	1.00	
563-58-6	1,1-Dichloropropene	**46.0**	0.250	0.500	1.00	
10061-01-5	cis-1,3-Dichloropropene	**45.3**	0.250	0.500	1.00	
10061-02-6	trans-1,3-Dichloropropene	**45.8**	0.250	0.500	1.00	
542-75-6	1,3-Dichloropropene (total)	**91.1**	0.500	1.00	2.00	

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E02004-MSD1 File ID: 0416801S.D

Sampled: Prepared: Analyzed: 05/02/14 19:41

Solids: Preparation: 5030B Dilution:

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene	**48.1**	0.250	0.500	1.00	
87-68-3	Hexachlorobutadiene	**46.2**	0.250	0.500	1.00	
591-78-6	2-Hexanone	**95.3**	1.25	2.50	5.00	
98-82-8	Isopropylbenzene	**48.5**	0.250	0.500	1.00	
99-87-6	p-Isopropyltoluene	**50.1**	0.250	0.500	1.00	
75-09-2	Methylene chloride	**49.9**	0.500	1.00	2.00	
91-20-3	Naphthalene	**55.0**	0.250	0.500	1.00	
108-10-1	4-Methyl-2-pentanone	**93.0**	1.25	2.50	5.00	
1634-04-4	Methyl t-Butyl Ether	**46.5**	0.250	0.500	1.00	
103-65-1	n-Propylbenzene	**50.7**	0.250	0.500	1.00	
100-42-5	Styrene	**49.2**	0.250	0.500	1.00	
79-34-5	1,1,2,2-Tetrachloroethane	**51.0**	0.250	0.500	1.00	
630-20-6	1,1,1,2-Tetrachloroethane	**47.1**	0.250	0.500	1.00	
127-18-4	Tetrachloroethene	**46.5**	0.250	0.500	1.00	
108-88-3	Toluene	**47.3**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene	**51.5**	0.250	0.500	1.00	
120-82-1	1,2,4-Trichlorobenzene	**50.4**	0.250	0.500	1.00	
79-00-5	1,1,2-Trichloroethane	**49.3**	0.250	0.500	1.00	
71-55-6	1,1,1-Trichloroethane	**44.2**	0.250	0.500	1.00	
79-01-6	Trichloroethene	**47.0**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane	**43.5**	0.500	1.00	2.00	
96-18-4	1,2,3-Trichloropropane	**47.5**	0.500	1.00	2.00	
108-67-8	1,3,5-Trimethylbenzene	**51.2**	0.250	0.500	1.00	
95-63-6	1,2,4-Trimethylbenzene	**51.8**	0.250	0.500	1.00	
75-01-4	Vinyl chloride	**45.2**	0.250	0.500	1.00	
108-38-3/106-42-	m,p-Xylene	**98.0**	0.500	1.00	2.00	
95-47-6	o-Xylene	**49.3**	0.250	0.500	1.00	
1330-20-7	Xylenes (total)	**147**	0.750	1.50	3.00	

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.85	96.2	75 - 120	
Dibromofluoromethane	30.00	28.59	95.3	85 - 115	
1,2-Dichloroethane-d4	30.00	30.12	100	70 - 120	
Toluene-d8	30.00	29.86	99.5	85 - 120	

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E05011-BLK1 File ID: 0505BLK1.D

Sampled: Prepared: Analyzed: 05/05/14 09:46

Solids: Preparation: 5030B Dilution:

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	UX
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E05011-BLK1 File ID: 0505BLK1.D

Sampled: Prepared: Analyzed: 05/05/14 09:46

Solids: Preparation: 5030B Dilution:

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene	**0.350**	0.250	0.500	1.00	J
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.99	100	75 - 120	
Dibromofluoromethane	30.00	30.79	103	85 - 115	
1,2-Dichloroethane-d4	30.00	29.50	98.3	70 - 120	
Toluene-d8	30.00	28.44	94.8	85 - 120	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E05011-BS1 File ID: 0505LCS1.D

Sampled: Prepared: Analyzed: 05/05/14 07:55

Solids: Preparation: 5030B Dilution:

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**143**	2.50	5.00	10.0	X
71-43-2	Benzene	**47.1**	0.250	0.500	1.00	
108-86-1	Bromobenzene	**47.2**	0.250	0.500	1.00	
74-97-5	Bromochloromethane	**45.6**	0.250	0.500	1.00	
75-27-4	Bromodichloromethane	**51.0**	0.250	0.500	1.00	
75-25-2	Bromoform	**51.0**	0.250	0.500	1.00	X
74-83-9	Bromomethane	**40.7**	0.500	1.00	2.00	
104-51-8	n-Butylbenzene	**48.1**	0.250	0.500	1.00	
78-93-3	2-Butanone	**108**	2.50	5.00	10.0	
135-98-8	sec-Butylbenzene	**49.0**	0.250	0.500	1.00	
98-06-6	tert-Butylbenzene	**50.2**	0.250	0.500	1.00	
75-15-0	Carbon disulfide	**35.7**	0.250	0.500	1.00	
56-23-5	Carbon tetrachloride	**50.2**	0.250	0.500	1.00	
108-90-7	Chlorobenzene	**47.2**	0.250	0.500	1.00	
75-00-3	Chloroethane	**43.4**	0.500	1.00	2.00	
67-66-3	Chloroform	**44.1**	0.250	0.500	1.00	
74-87-3	Chloromethane	**43.9**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene	**50.6**	0.250	0.500	1.00	
106-43-4	4-Chlorotoluene	**49.8**	0.250	0.500	1.00	
124-48-1	Dibromochloromethane	**50.9**	0.250	0.500	1.00	
96-12-8	1,2-Dibromo-3-chloropropane	**50.7**	0.500	1.00	2.00	
106-93-4	1,2-Dibromoethane (EDB)	**47.5**	0.250	0.500	1.00	
74-95-3	Dibromomethane	**45.6**	0.250	0.500	1.00	
95-50-1	1,2-Dichlorobenzene	**47.6**	0.250	0.500	1.00	
541-73-1	1,3-Dichlorobenzene	**48.5**	0.250	0.500	1.00	
106-46-7	1,4-Dichlorobenzene	**47.2**	0.250	0.500	1.00	
75-71-8	Dichlorodifluoromethane	**53.1**	0.500	1.00	2.00	
75-34-3	1,1-Dichloroethane	**43.9**	0.250	0.500	1.00	
107-06-2	1,2-Dichloroethane	**56.6**	0.250	0.500	1.00	
75-35-4	1,1-Dichloroethene	**44.8**	0.250	0.500	1.00	
156-59-2	cis-1,2-Dichloroethene	**47.2**	0.250	0.500	1.00	
156-60-5	trans-1,2-Dichloroethene	**46.5**	0.250	0.500	1.00	
540-59-0	1,2-Dichloroethene (total)	**93.7**	0.500	1.00	2.00	
78-87-5	1,2-Dichloropropane	**46.1**	0.250	0.500	1.00	
142-28-9	1,3-Dichloropropane	**46.9**	0.250	0.500	1.00	
594-20-7	2,2-Dichloropropane	**53.5**	0.250	0.500	1.00	
563-58-6	1,1-Dichloropropene	**48.8**	0.250	0.500	1.00	
10061-01-5	cis-1,3-Dichloropropene	**55.5**	0.250	0.500	1.00	
10061-02-6	trans-1,3-Dichloropropene	**52.4**	0.250	0.500	1.00	
542-75-6	1,3-Dichloropropene (total)	**108**	0.500	1.00	2.00	

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Laboratory ID: 4E05011-BS1 File ID: 0505LCS1.D

Sampled: Prepared: Analyzed: 05/05/14 07:55

Solids: Preparation: 5030B Dilution:

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene	**48.0**	0.250	0.500	1.00	
87-68-3	Hexachlorobutadiene	**48.1**	0.250	0.500	1.00	B
591-78-6	2-Hexanone	**112**	1.25	2.50	5.00	
98-82-8	Isopropylbenzene	**53.7**	0.250	0.500	1.00	
99-87-6	p-Isopropyltoluene	**45.1**	0.250	0.500	1.00	
75-09-2	Methylene chloride	**44.0**	0.500	1.00	2.00	
91-20-3	Naphthalene	**47.7**	0.250	0.500	1.00	
108-10-1	4-Methyl-2-pentanone	**103**	1.25	2.50	5.00	
1634-04-4	Methyl t-Butyl Ether	**50.5**	0.250	0.500	1.00	
103-65-1	n-Propylbenzene	**49.1**	0.250	0.500	1.00	
100-42-5	Styrene	**50.5**	0.250	0.500	1.00	
79-34-5	1,1,2,2-Tetrachloroethane	**45.2**	0.250	0.500	1.00	
630-20-6	1,1,1,2-Tetrachloroethane	**51.6**	0.250	0.500	1.00	
127-18-4	Tetrachloroethene	**42.2**	0.250	0.500	1.00	
108-88-3	Toluene	**47.0**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene	**50.4**	0.250	0.500	1.00	
120-82-1	1,2,4-Trichlorobenzene	**48.7**	0.250	0.500	1.00	
79-00-5	1,1,2-Trichloroethane	**45.2**	0.250	0.500	1.00	
71-55-6	1,1,1-Trichloroethane	**53.9**	0.250	0.500	1.00	
79-01-6	Trichloroethene	**49.6**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane	**53.0**	0.500	1.00	2.00	
96-18-4	1,2,3-Trichloropropane	**51.0**	0.500	1.00	2.00	
108-67-8	1,3,5-Trimethylbenzene	**50.9**	0.250	0.500	1.00	
95-63-6	1,2,4-Trimethylbenzene	**48.8**	0.250	0.500	1.00	
75-01-4	Vinyl chloride	**47.2**	0.250	0.500	1.00	
108-38-3/106-42-	m,p-Xylene	**99.7**	0.500	1.00	2.00	
95-47-6	o-Xylene	**49.9**	0.250	0.500	1.00	
1330-20-7	Xylenes (total)	**150**	0.750	1.50	3.00	

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.83	99.4	75 - 120	
Dibromofluoromethane	30.00	31.36	105	85 - 115	
1,2-Dichloroethane-d4	30.00	29.57	98.6	70 - 120	
Toluene-d8	30.00	28.86	96.2	85 - 120	

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0425TUN1.D	Injection Date:	04/25/14
Instrument ID:	MS-VOA3	Injection Time:	13:35
Sequence:	4D11911	Lab Sample ID:	4D11911-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	26.4	PASS
75	30 - 60% of 95	51.2	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.48	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	86.8	PASS
175	5 - 9% of 174	8.38	PASS
176	95 - 101% of 174	95.3	PASS
177	5 - 9% of 176	7.11	PASS

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0430TUN1.D	Injection Date:	04/30/14
Instrument ID:	MS-VOA4	Injection Time:	07:57
Sequence:	4E12105	Lab Sample ID:	4E12105-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	16.6	PASS
75	30 - 60% of 95	40.4	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.43	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	97.8	PASS
175	5 - 9% of 174	7.13	PASS
176	95 - 101% of 174	97.2	PASS
177	5 - 9% of 176	6.37	PASS

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0501TUN1.D	Injection Date:	05/01/14
Instrument ID:	MS-VOA4	Injection Time:	11:50
Sequence:	4E12206	Lab Sample ID:	4E12206-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	16.3	PASS
75	30 - 60% of 95	41.3	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.43	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	92.5	PASS
175	5 - 9% of 174	7.17	PASS
176	95 - 101% of 174	97.4	PASS
177	5 - 9% of 176	6.53	PASS

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0502TUN1.D	Injection Date:	05/02/14
Instrument ID:	MS-VOA3	Injection Time:	07:21
Sequence:	4E12501	Lab Sample ID:	4E12501-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	24.9	PASS
75	30 - 60% of 95	49.1	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.48	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	87.4	PASS
175	5 - 9% of 174	7.63	PASS
176	95 - 101% of 174	98.7	PASS
177	5 - 9% of 176	6.78	PASS

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Lab File ID:	0505TUN1.D	Injection Date:	05/05/14
Instrument ID:	MS-VOA4	Injection Time:	06:26
Sequence:	4E12606	Lab Sample ID:	4E12606-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	18.4	PASS
75	30 - 60% of 95	43.8	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.81	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	87.2	PASS
175	5 - 9% of 174	7.23	PASS
176	95 - 101% of 174	96.7	PASS
177	5 - 9% of 176	6.37	PASS

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D11911	Instrument:	MS-VOA3
Calibration:	4120001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4D11911-TUN1	0425TUN1.D	04/25/14 13:35
Cal Standard	4D11911-CAL1	SEQCAL1.D	04/25/14 15:16
Cal Standard	4D11911-CAL2	SEQCAL2.D	04/25/14 15:42
Cal Standard	4D11911-CAL3	SEQCAL3.D	04/25/14 16:07
Cal Standard	4D11911-CAL4	SEQCAL4.D	04/25/14 16:33
Cal Standard	4D11911-CAL5	SEQCAL5.D	04/25/14 16:58
Cal Standard	4D11911-CAL6	SEQCAL6.D	04/25/14 17:24
Cal Standard	4D11911-CAL7	SEQCAL7.D	04/25/14 17:49
Cal Standard	4D11911-CAL8	SEQCAL8.D	04/25/14 18:13
Cal Standard	4D11911-CAL9	SEQCAL9.D	04/25/14 18:38
Initial Cal Check	4D11911-ICV2	SEQICV2.D	04/25/14 19:54

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12105	Instrument:	MS-VOA4
Calibration:	4121002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4E12105-TUN1	0430TUN1.D	04/30/14 07:57
Cal Standard	4E12105-CAL1	0430CAL1.D	04/30/14 09:51
Cal Standard	4E12105-CAL2	0430CAL2.D	04/30/14 10:19
Cal Standard	4E12105-CAL3	0430CAL3.D	04/30/14 10:46
Cal Standard	4E12105-CAL4	0430CAL4.D	04/30/14 11:14
Cal Standard	4E12105-CAL5	0430CAL5.D	04/30/14 11:42
Cal Standard	4E12105-CAL6	0430CAL6.D	04/30/14 12:10
Cal Standard	4E12105-CAL7	0430CAL7.D	04/30/14 12:37
Cal Standard	4E12105-CAL8	0430CAL8.D	04/30/14 13:05
Cal Standard	4E12105-CAL9	0430CAL9.D	04/30/14 13:33
Initial Cal Check	4E12105-ICV2	0430ICV2.D	04/30/14 14:56

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12206	Instrument:	MS-VOA4
Calibration:	4121002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4E12206-TUN1	0501TUN1.D	05/01/14 11:50
Calibration Check	4E12206-CCV1	0501CCV1.D	05/01/14 12:19
LCS	4E01023-BS1	0501LCS1.D	05/01/14 12:46
Blank	4E01023-BLK1	0501BLK1.D	05/01/14 14:37
LF008-30005	1404149-01	0414901.D	05/01/14 15:33
LF008-30006	1404149-03	0414903.D	05/01/14 16:01
LF008-30007	1404149-05	0414905.D	05/01/14 16:28
LF008-80004	1404149-07	0414907.D	05/01/14 16:56

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12501	Instrument:	MS-VOA3
Calibration:	4120001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4E12501-TUN1	0502TUN1.D	05/02/14 07:21
Calibration Check	4E12501-CCV1	0502CCV1.D	05/02/14 07:50
LCS	4E02004-BS1	0502LCS1.D	05/02/14 08:34
Blank	4E02004-BLK1	0502BLK1.D	05/02/14 10:13
LF008-30002	1404168-01	0416801.D	05/02/14 16:23
LF008-30004	1404168-03	0416803.D	05/02/14 16:48
LF008-80005	1404168-05	0416805.D	05/02/14 17:13
LF008-30002	4E02004-MS1	0416801M.D	05/02/14 19:17
LF008-30002	4E02004-MSD1	0416801S.D	05/02/14 19:41

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12606	Instrument:	MS-VOA4
Calibration:	4121002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	4E12606-TUN1	0505TUN1.D	05/05/14 06:26
Calibration Check	4E12606-CCV1	0505CC1.D	05/05/14 07:27
LCS	4E05011-BS1	0505LCS1.D	05/05/14 07:55
Blank	4E05011-BLK1	0505BLK1.D	05/05/14 09:46
LF008-30008	1404203-01	0420301.D	05/05/14 12:06
LF008-80006	1404203-03	0420303.D	05/05/14 12:34

INTERNAL STANDARD AREA AND RT SUMMARY
SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12206	Instrument:	MS-VOA4
		Calibration:	4121002

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (4E12206-CCV1)			Lab File ID: 0501CCV1.D				Analyzed: 05/01/14 12:19		
Fluorobenzene	1039607	7.73	1006813	7.73	103	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	364755	10.86	370192	10.86	99	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	399278	13.26	397214	13.26	101	50 - 200	0.0000	+/-0.50	
LCS (4E01023-BS1)			Lab File ID: 0501LCS1.D				Analyzed: 05/01/14 12:46		
Fluorobenzene	1008062	7.73	1006813	7.73	100	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	364065	10.86	370192	10.86	98	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	382666	13.25	397214	13.26	96	50 - 200	-0.0100	+/-0.50	
Blank (4E01023-BLK1)			Lab File ID: 0501BLK1.D				Analyzed: 05/01/14 14:37		
Fluorobenzene	1001617	7.73	1006813	7.73	99	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	368461	10.85	370192	10.86	100	50 - 200	-0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	380331	13.25	397214	13.26	96	50 - 200	-0.0100	+/-0.50	
LF008-30005 (1404149-01)			Lab File ID: 0414901.D				Analyzed: 05/01/14 15:33		
Fluorobenzene	980577	7.74	1006813	7.73	97	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	347741	10.85	370192	10.86	94	50 - 200	-0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	387655	13.25	397214	13.26	98	50 - 200	-0.0100	+/-0.50	
LF008-30006 (1404149-03)			Lab File ID: 0414903.D				Analyzed: 05/01/14 16:01		
Fluorobenzene	873638	7.73	1006813	7.73	87	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	319524	10.86	370192	10.86	86	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	347111	13.26	397214	13.26	87	50 - 200	0.0000	+/-0.50	
LF008-30007 (1404149-05)			Lab File ID: 0414905.D				Analyzed: 05/01/14 16:28		
Fluorobenzene	966366	7.73	1006813	7.73	96	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	349512	10.86	370192	10.86	94	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	377420	13.26	397214	13.26	95	50 - 200	0.0000	+/-0.50	
LF008-80004 (1404149-07)			Lab File ID: 0414907.D				Analyzed: 05/01/14 16:56		
Fluorobenzene	969206	7.74	1006813	7.73	96	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	355323	10.86	370192	10.86	96	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	367864	13.25	397214	13.26	93	50 - 200	-0.0100	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12501	Instrument:	MS-VOA3
		Calibration:	4120001

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (4E12501-CCV1)			Lab File ID: 0502CCV1.D				Analyzed: 05/02/14 07:50		
Fluorobenzene	951888	7.422	810931	7.422	117	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	398560	10.593	349095	10.59	114	50 - 200	0.0030	+/-0.50	
1,4-Dichlorobenzene-d4	428302	13.003	397344	13.003	108	50 - 200	0.0000	+/-0.50	
LCS (4E02004-BS1)			Lab File ID: 0502LCS1.D				Analyzed: 05/02/14 08:34		
Fluorobenzene	967925	7.419	810931	7.422	119	50 - 200	-0.0030	+/-0.50	
Chlorobenzene-d5	410361	10.593	349095	10.593	118	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	427381	12.999	397344	13.003	108	50 - 200	-0.0040	+/-0.50	
Blank (4E02004-BLK1)			Lab File ID: 0502BLK1.D				Analyzed: 05/02/14 10:13		
Fluorobenzene	907439	7.422	810931	7.422	112	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	371618	10.59	349095	10.593	106	50 - 200	-0.0030	+/-0.50	
1,4-Dichlorobenzene-d4	386633	12.999	397344	13.003	97	50 - 200	-0.0040	+/-0.50	
LF008-30002 (1404168-01)			Lab File ID: 0416801.D				Analyzed: 05/02/14 16:23		
Fluorobenzene	871877	7.422	810931	7.422	108	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	359435	10.59	349095	10.593	103	50 - 200	-0.0030	+/-0.50	
1,4-Dichlorobenzene-d4	373215	13.003	397344	13.003	94	50 - 200	0.0000	+/-0.50	
LF008-30004 (1404168-03)			Lab File ID: 0416803.D				Analyzed: 05/02/14 16:48		
Fluorobenzene	849169	7.422	810931	7.422	105	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	362520	10.59	349095	10.593	104	50 - 200	-0.0030	+/-0.50	
1,4-Dichlorobenzene-d4	368082	13.003	397344	13.003	93	50 - 200	0.0000	+/-0.50	
LF008-80005 (1404168-05)			Lab File ID: 0416805.D				Analyzed: 05/02/14 17:13		
Fluorobenzene	872300	7.422	810931	7.422	108	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	370234	10.593	349095	10.593	106	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	373383	12.999	397344	13.003	94	50 - 200	-0.0040	+/-0.50	
Matrix Spike (4E02004-MS1)			Lab File ID: 0416801M.D				Analyzed: 05/02/14 19:17		
Fluorobenzene	884120	7.422	810931	7.422	109	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	376548	10.593	349095	10.593	108	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	414111	13.003	397344	13.003	104	50 - 200	0.0000	+/-0.50	
Matrix Spike Dup (4E02004-MSD1)			Lab File ID: 0416801S.D				Analyzed: 05/02/14 19:41		
Fluorobenzene	893470	7.422	810931	7.422	110	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	373113	10.59	349095	10.593	107	50 - 200	-0.0030	+/-0.50	
1,4-Dichlorobenzene-d4	392386	12.999	397344	13.003	99	50 - 200	-0.0040	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12606	Instrument:	MS-VOA4
		Calibration:	4121002

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (4E12606-CCV1)			Lab File ID: 0505CC1.D				Analyzed: 05/05/14 07:27		
Fluorobenzene	1080616	7.74	1006813	7.73	107	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	417243	10.86	370192	10.86	113	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	430597	13.25	397214	13.26	108	50 - 200	-0.0100	+/-0.50	
LCS (4E05011-BS1)			Lab File ID: 0505LCS1.D				Analyzed: 05/05/14 07:55		
Fluorobenzene	1116632	7.74	1006813	7.74	111	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	437563	10.85	370192	10.86	118	50 - 200	-0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	454974	13.25	397214	13.25	115	50 - 200	0.0000	+/-0.50	
Blank (4E05011-BLK1)			Lab File ID: 0505BLK1.D				Analyzed: 05/05/14 09:46		
Fluorobenzene	1097970	7.73	1006813	7.74	109	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	419997	10.86	370192	10.86	113	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	448957	13.26	397214	13.25	113	50 - 200	0.0100	+/-0.50	
LF008-30008 (1404203-01)			Lab File ID: 0420301.D				Analyzed: 05/05/14 12:06		
Fluorobenzene	1049533	7.73	1006813	7.74	104	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	390360	10.86	370192	10.86	105	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	414084	13.25	397214	13.25	104	50 - 200	0.0000	+/-0.50	
LF008-80006 (1404203-03)			Lab File ID: 0420303.D				Analyzed: 05/05/14 12:34		
Fluorobenzene	930581	7.74	1006813	7.74	92	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	361693	10.86	370192	10.86	98	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	388048	13.25	397214	13.25	98	50 - 200	0.0000	+/-0.50	

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4120001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Dates:	4/25/14 15:16 4/25/14 18:38

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone	1		2	~~0.2197782~~	4	0.1888307	10	0.1529414	20	0.1406202	100	0.1397666
Acetonitrile	5	9.238878E-02	10	8.278395E-02	20	8.838108E-02	50	7.373102E-02	100	8.051699E-02	500	7.711373E-02
Acrolein	2.5		5	1.850646E-02	10	1.676387E-02	25	1.524987E-02	50	1.490974E-02	250	1.532288E-02
Acrylonitrile	2.5	0.2028298	5	0.1868574	10	0.1908656	25	0.1789028	50	0.1886847	250	0.1872106
Benzene	0.5	1.096571	1	0.9562294	2	1.100862	5	0.9931621	10	1.023992	50	0.984107
Allyl chloride	0.5	0.1581995	1	0.1409176	2	0.1436488	5	0.1086798	10	0.1244433	50	0.1210003
Bromobenzene	0.5	0.96113	1	0.7806021	2	0.8160828	5	0.7560134	10	0.7863264	50	0.7862705
Bromochloromethane	0.5	0.1668597	1	0.145006	2	0.1380337	5	0.1342557	10	0.1491693	50	0.1375219
Tert-Amyl Methyl Ether	0.5	0.7830836	1	0.7256676	2	0.8354438	5	0.7367247	10	0.8177164	50	0.7933923
Bromodichloromethane	0.5	0.4153202	1	0.3669784	2	0.4146239	5	0.3629466	10	0.3919341	50	0.3876551
Bromoform	0.5	0.4398525	1	0.4024101	2	0.4567669	5	0.4128907	10	0.4703488	50	0.5309732
Bromomethane	0.5	~~0.4220394~~	1	0.231537	2	0.1989281	5	0.1728052	10	0.1836041	50	0.1600502
Bromofluorobenzene	30	0.9346646	35	0.9311598	40	0.9634487	50	0.9078091	60	0.9314756	70	0.9392159
n-Butylbenzene	0.5	2.495702	1	2.229771	2	2.397766	5	2.13195	10	2.349742	50	2.348091
2-Butanone	1	0.2660424	2	0.2332249	4	0.2326572	10	0.20872	20	0.2234569	100	0.2344025
sec-Butylbenzene	0.5	3.075549	1	2.720675	2	3.123007	5	2.83447	10	3.001183	50	2.983469
tert-Butylbenzene	0.5	2.371473	1	1.947695	2	2.071016	5	2.044078	10	2.111815	50	2.143726
Carbon disulfide	0.5	0.779724	1	0.6405619	2	0.7322622	5	0.6658448	10	0.6790694	50	0.6571738
Carbon tetrachloride	0.5	0.3411852	1	0.3224189	2	0.3644369	5	0.337285	10	0.3564399	50	0.3514003
Chlorobenzene	0.5	2.029588	1	1.830139	2	1.990414	5	1.722515	10	1.863842	50	1.828658
Chloroethane	0.5	~~0.299377~~	1	0.2375758	2	0.2189681	5	0.2003161	10	0.1912621	50	0.1853653
Chloroform	0.5	0.8310138	1	0.5852001	2	0.5551748	5	0.4857495	10	0.5118522	50	0.476835
2-Chloroethyl vinyl ether	1	0.2595472	2	0.2305805	4	0.2600742	10	0.2421143	20	0.2634669	100	0.264353
Chloromethane	0.5	0.6401143	1	0.594352	2	0.5749049	5	0.5158808	10	0.5638657	50	0.4994171
1-Chlorohexane	0.5	~~1.211134~~	1	0.8635902	2	0.9172734	5	0.7684134	10	0.7548821	50	0.7631887
2-Chlorotoluene	0.5	2.37653	1	2.109268	2	2.290023	5	2.005087	10	2.078845	50	2.044165
Chloroprene	0.5	0.5703094	1	0.5665211	2	0.5808298	5	0.5509245	10	0.5861474	50	0.5603331
4-Chlorotoluene	0.5	2.345515	1	2.049991	2	2.266652	5	2.086687	10	2.184188	50	2.182478
Cyclohexane	0.5	0.6266013	1	0.5404155	2	0.5467909	5	0.5181228	10	0.5574448	50	0.529085
Dibromochloromethane	0.5	0.7482245	1	0.5893894	2	0.6320998	5	0.612705	10	0.6423666	50	0.7096436
1,2-Dibromo-3-chloropropane	0.5	0.2820011	1	0.1848616	2	0.1898266	5	0.1827747	10	0.2047147	50	0.2232184

INITIAL CALIBRATION DATA

SW8260B

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Calibration: 4120001
Instrument: MS-VOA3
Matrix: Water
Calibration Dates: 4/25/14 15:16 4/25/14 18:38

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,2-Dibromoethane (EDB)	0.5	0.7269271	1	0.7199104	2	0.7269339	5	0.6173798	10	0.6668146	50	0.6831673
Dibromomethane	0.5	0.2116543	1	0.1799635	2	0.1971855	5	0.1841151	10	0.1846672	50	0.185519
1,2-Dichlorobenzene	0.5	1.755217	1	1.490071	2	1.579042	5	1.393869	10	1.453122	50	1.473041
1,3-Dichlorobenzene	0.5	1.631831	1	1.455436	2	1.561657	5	1.423949	10	1.475258	50	1.473675
trans-1,4-Dichloro-2-butene	0.5	0.3195901	1	0.3842886	2	0.4072492	5	0.3235882	10	0.3532615	50	0.3726454
cis-1,4-Dichloro-2-butene	0.5	0.3849914	1	0.4036809	2	0.3733154	5	0.3199229	10	0.3468036	50	0.3783618
1,4-Dichlorobenzene	0.5	1.710886	1	1.51302	2	1.48908	5	1.42278	10	1.498367	50	1.509799
Dichlorodifluoromethane	0.5	0.3163989	1	0.2246355	2	0.2354841	5	0.2307687	10	0.2818761	50	0.2539293
1,1-Dichloroethane	0.5	0.6852075	1	0.5429286	2	0.5861157	5	0.5325459	10	0.5558141	50	0.5502335
1,2-Dichloroethane	0.5	0.5862115	1	0.5268751	2	0.5224719	5	0.4800446	10	0.5253105	50	0.502077
1,1-Dichloroethene	0.5	0.2459221	1	0.208132	2	0.2152699	5	0.2039718	10	0.2331695	50	0.2090234
cis-1,2-Dichloroethene	0.5	0.3094558	1	0.2729458	2	0.2872008	5	0.2562661	10	0.2687318	50	0.2648159
trans-1,2-Dichloroethene	0.5	0.3330476	1	0.2460901	2	0.2790105	5	0.240058	10	0.2526135	50	0.2385283
1,2-Dichloroethene (total)	1	0.3212517	2	0.259518	4	0.2831056	10	0.248162	20	0.2606727	100	0.2516721
1,2-Dichloropropane	0.5	0.3124421	1	0.3134545	2	0.3108421	5	0.298814	10	0.3130191	50	0.3059484
1,3-Dichloropropane	0.5	1.186669	1	1.006114	2	1.154023	5	0.9989527	10	1.084485	50	1.054833
2,2-Dichloropropane	0.5	0.4439888	1	0.3628151	2	0.4022321	5	0.3658098	10	0.3835988	50	0.3668495
1,1-Dichloropropene	0.5	0.337751	1	0.3338964	2	0.3579505	5	0.3339363	10	0.3474803	50	0.3325944
cis-1,3-Dichloropropene	0.5	0.4165894	1	0.37448	2	0.39592	5	0.3817679	10	0.4013477	50	0.4122653
trans-1,3-Dichloropropene	0.5	0.972111	1	0.9051115	2	1.013786	5	0.9234274	10	0.966089	50	1.028238
Diisopropyl Ether	0.5	1.454106	1	1.315931	2	1.367771	5	1.309669	10	1.370212	50	1.352993
1,4-Dioxane	10		20	4.570352E-03	40	4.458166E-03	100	3.809611E-03	200	4.350976E-03	1000	4.351783E-03
Ethylbenzene	0.5	3.238082	1	2.885687	2	3.205327	5	2.783358	10	3.009478	50	2.918865
Ethyl tert-Butyl Ether	0.5	1.046625	1	0.9628683	2	1.072825	5	1.030855	10	1.093599	50	1.064751
Ethyl Methacrylate	0.5	0.8809371	1	0.7536076	2	0.9398073	5	0.8278987	10	0.8904967	50	0.898957
Hexachlorobutadiene	0.5	0.7393049	1	0.5347692	2	0.5441726	5	0.5186385	10	0.5201609	50	0.5242663
Hexane	0.5	0.4038976	1	0.3310458	2	0.3414345	5	0.3093957	10	0.3472835	50	0.3220463
2-Hexanone	1	0.956094	2	0.8101103	4	0.835624	10	0.7831746	20	0.8400667	100	0.8468156
Iodomethane	0.5		1	0.1631974	2	0.1498447	5	0.1256233	10	0.153948	50	0.253534
Isobutyl alcohol	10	1.417748E-02	20	1.409551E-02	40	1.230376E-02	100	1.147774E-02	200	1.212121E-02	1000	1.345291E-02
Isopropylbenzene	0.5	2.703359	1	2.544981	2	2.986269	5	2.557172	10	2.777032	50	2.78015

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4120001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Dates:	4/25/14 15:16 4/25/14 18:38

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
p-Isopropyltoluene	0.5	2.703536	1	2.305139	2	2.663822	5	2.385013	10	2.608542	50	2.616744
Methacrylonitrile	5	0.33089	10	0.2989877	20	0.3116882	50	0.2918888	100	0.3108321	500	0.3014685
Methylene chloride	0.5	~~0.5727731~~	1	0.3714044	2	0.3473787	5	0.2749089	10	0.2715014	50	0.2592943
Methyl Acetate	0.5	~~0.6074889~~	1	0.4956684	2	0.4482756	5	0.4292212	10	0.4199253	50	0.3946834
Methylcyclohexane	0.5	0.4232339	1	0.3466866	2	0.3721431	5	0.3456461	10	0.3851236	50	0.3602993
Naphthalene	0.5	2.942218	1	2.583828	2	2.906068	5	2.630177	10	2.870438	50	3.036072
Methyl Methacrylate	0.5		1	0.4183269	2	0.4423701	5	0.3959482	10	0.44915	50	0.4420805
4-Methyl-2-pentanone	1	0.5764687	2	0.506227	4	0.5149496	10	0.4786629	20	0.5079286	100	0.5043023
Methyl t-Butyl Ether	0.5	0.7970446	1	0.8648224	2	0.8180759	5	0.7798725	10	0.8321093	50	0.8239817
n-Propylbenzene	0.5	3.495938	1	2.910872	2	3.332859	5	3.054071	10	3.197082	50	3.176372
Propionitrile	5	7.426938E-02	10	7.561991E-02	20	7.656622E-02	50	7.098922E-02	100	7.342308E-02	500	0.0741682
Styrene	0.5	1.851992	1	1.759899	2	1.953641	5	1.806611	10	1.891402	50	1.963785
1,1,2,2-Tetrachloroethane	0.5	0.9056737	1	0.8171002	2	0.8878675	5	0.77731	10	0.8172787	50	0.830265
1,1,1,2-Tetrachloroethane	0.5	0.6200882	1	0.6022814	2	0.6860373	5	0.6080471	10	0.6331269	50	0.6800583
tert-Butyl alcohol	2.5		5	3.848323E-02	10	4.207424E-02	25	3.997182E-02	50	4.198686E-02	250	0.0406131
Tetrachloroethene	0.5	0.7909953	1	0.6549166	2	0.739831	5	0.6774409	10	0.7112671	50	0.6790671
Toluene	0.5	1.838791	1	1.488899	2	1.772507	5	1.526342	10	1.619397	50	1.566638
1,2,3-Trichlorobenzene	0.5	1.256785	1	1.05311	2	1.086673	5	0.9776212	10	1.068884	50	1.116276
1,2,4-Trichlorobenzene	0.5	1.234366	1	0.9980664	2	1.098996	5	0.9919506	10	1.084206	50	1.109085
1,1,2-Trichloroethane	0.5	0.5271542	1	0.4979002	2	0.5659364	5	0.4752385	10	0.5124033	50	0.4901823
1,1,1-Trichloroethane	0.5	0.4985635	1	0.4271038	2	0.4419441	5	0.4198462	10	0.4444697	50	0.4199169
Tetrahydrofuran	0.5		1	5.506177E-02	2	4.097059E-02	5	4.324057E-02	10	3.811999E-02	50	3.740513E-02
Trichloroethene	0.5	0.3301359	1	0.2515288	2	0.3002703	5	0.2606429	10	0.2729278	50	0.2642124
Trichlorofluoromethane	0.5	0.464221	1	0.40925	2	0.4422346	5	0.4124276	10	0.4410304	50	0.4008857
1,2,3-Trichloropropane	0.5	0.3140043	1	0.2953615	2	0.3262141	5	0.2701905	10	0.3046965	50	0.2928628
1,3,5-Trimethylbenzene	0.5	2.433334	1	2.343077	2	2.569327	5	2.370084	10	2.434983	50	2.465582
1,2,4-Trimethylbenzene	0.5	2.569531	1	2.336556	2	2.527823	5	2.424794	10	2.577736	50	2.609814
1,1,2-Trichloro-1,2,2-trifluoroethar	0.5	0.2760838	1	0.2426394	2	0.2402085	5	0.2104122	10	0.2170588	50	0.2021907
Vinyl chloride	0.5	0.2796674	1	0.2507786	2	0.2656699	5	0.2197729	10	0.2541951	50	0.2376486
m,p-Xylene	1	2.609457	2	2.143861	4	2.583703	10	2.312761	20	2.369686	100	2.341698
o-Xylene	0.5	2.81231	1	2.303589	2	2.585357	5	2.386778	10	2.615188	50	2.542011

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4120001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Dates:	4/25/14 15:16 4/25/14 18:38

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Vinyl acetate	1	1.018031	2	0.8939473	4	0.954638	10	0.9326425	20	0.959029	100	0.9765245
Xylenes (total)	1.5	2.677075	3	2.197103	6	2.584254	15	2.337433	30	2.45152	150	2.408469
Dibromofluoromethane	30	0.2739797	35	0.2743326	40	0.2704166	50	0.2635333	60	0.2688049	70	0.2617889
1,2-Dichloroethane-d4	30	6.105125E-02	35	6.258802E-02	40	5.972781E-02	50	5.938081E-02	60	5.976105E-02	70	6.238842E-02
Toluene-d8	30	2.248041	35	2.259253	40	2.305877	50	2.180108	60	2.206796	70	2.186568
tert-Amyl alcohol	2.5		5	0.0266832	10	0.0315915	25	2.959723E-02	50	3.246802E-02	250	3.141008E-02
tert-Amyl ethyl ether	0.5	0.9081351	1	0.8075851	2	0.8274278	5	0.8099966	10	0.847626	50	0.8480741
1,3,5-Trichlorobenzene	0.5	1.344773	1	1.171411	2	1.234247	5	1.070328	10	1.156604	50	1.162323
Diethyl ether	0.5	0.3093064	1	0.2806725	2	0.2792816	5	0.2573728	10	0.2723527	50	0.2781931

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4120001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Dates:	4/25/14 15:16 4/25/14 18:38

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone	200	0.1477228	300	0.1452062	400	0.1503184						
Acetonitrile	1000	8.046426E-02	1500	7.454899E-02	2000	7.474151E-02						
Acrolein	500	0.0160386	750	1.609423E-02	1000	0.0167957						
Acrylonitrile	500	0.1987902	750	0.1782495	1000	0.1864391						
Benzene	100	1.030244	150	0.9694538	200	1.002778						
Allyl chloride	100	0.1309791	150	0.11768	200	0.1238084						
Bromobenzene	100	0.7877159	150	0.7900942	200	0.8148428						
Bromochloromethane	100	0.1424918	150	0.1334968	200	0.1365328						
Tert-Amyl Methyl Ether	100	0.8448456	150	0.8017501	200	0.8242148						
Bromodichloromethane	100	0.4177831	150	0.3960962	200	0.4083862						
Bromoform	100	0.6075323	150	0.5971128	200	0.6072727						
Bromomethane	100	0.1729053	150	0.1743572	200	0.1866218						
Bromofluorobenzene	30	0.9914636	30	1.005484	30	0.9935039						
n-Butylbenzene	100	2.467861	150	2.34544	200	2.460019						
2-Butanone	200	0.2456765	300	0.2310451	400	0.236675						
sec-Butylbenzene	100	3.109726	150	2.957947	200	3.067097						
tert-Butylbenzene	100	2.22251	150	2.37208	200	2.236175						
Carbon disulfide	100	0.7236094	150	0.6604814	200	0.73355						
Carbon tetrachloride	100	0.3945258	150	0.366935	200	0.401077						
Chlorobenzene	100	1.903631	150	1.815166	200	1.829916						
Chloroethane	100	0.1977645	150	0.1850225	200	0.1920056						
Chloroform	100	0.51138	150	0.484444	200	0.4991291						
2-Chloroethyl vinyl ether	200	0.2787576	300	0.264355	400	0.2701714						
Chloromethane	100	0.5346189	150	0.5083623	200	0.5364492						
1-Chlorohexane	100	0.8351678	150	0.7799972	200	0.8247733						
2-Chlorotoluene	100	2.103794	150	2.056055	200	2.120716						
Chloroprene	100	0.5962336	150	0.5644736	200	0.5970803						
4-Chlorotoluene	100	2.212979	150	2.168956	200	2.215732						
Cyclohexane	100	0.5691769	150	0.5222025	200	0.5759751						
Dibromochloromethane	100	0.7560598	150	0.7479911	200	0.7558637						
1,2-Dibromo-3-chloropropane	100	0.2317196	150	0.2375378	200	0.2481718						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4120001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Dates:	4/25/14 15:16 4/25/14 18:38

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,2-Dibromoethane (EDB)	100	0.7108856	150	0.6851418	200	0.6869888						
Dibromomethane	100	0.1952153	150	0.1880951	200	0.1915195						
1,2-Dichlorobenzene	100	1.522786	150	1.483665	200	1.512161						
1,3-Dichlorobenzene	100	1.513013	150	1.479113	200	1.51612						
trans-1,4-Dichloro-2-butene	100	0.3870681	150	0.3908342	200	0.3984516						
cis-1,4-Dichloro-2-butene	100	0.4014005	150	0.4014646	200	0.4099793						
1,4-Dichlorobenzene	100	1.52191	150	1.518868	200	1.529061						
Dichlorodifluoromethane	100	0.275547	150	0.2552089	200	0.2733958						
1,1-Dichloroethane	100	0.5687733	150	0.5377038	200	0.5523729						
1,2-Dichloroethane	100	0.5325531	150	0.5063252	200	0.5196185						
1,1-Dichloroethene	100	0.229861	150	0.2054633	200	0.2309564						
cis-1,2-Dichloroethene	100	0.2856047	150	0.2743714	200	0.2818615						
trans-1,2-Dichloroethene	100	0.256231	150	0.2329051	200	0.2476789						
1,2-Dichloroethene (total)	200	0.2709179	300	0.2536383	400	0.2647702						
1,2-Dichloropropane	100	0.3246905	150	0.3064025	200	0.3153455						
1,3-Dichloropropane	100	1.096429	150	1.056143	200	1.044425						
2,2-Dichloropropane	100	0.4016384	150	0.3760967	200	0.400444						
1,1-Dichloropropene	100	0.3665916	150	0.3375416	200	0.3661826						
cis-1,3-Dichloropropene	100	0.4437588	150	0.4241928	200	0.441926						
trans-1,3-Dichloropropene	100	1.109527	150	1.086393	200	1.09078						
Diisopropyl Ether	100	1.404174	150	1.324192	200	1.351597						
1,4-Dioxane	2000	4.619727E-03	3000	4.342322E-03	4000	4.365197E-03						
Ethylbenzene	100	3.119606	150	2.923024	200	2.994366						
Ethyl tert-Butyl Ether	100	1.140229	150	1.093062	200	1.100586						
Ethyl Methacrylate	100	0.9588648	150	0.9282122	200	0.9363065						
Hexachlorobutadiene	100	0.582267	150	0.5708915	200	0.6123581						
Hexane	100	0.3307336	150	0.3199777	200	0.3465847						
2-Hexanone	200	0.8768504	300	0.8329114	400	0.8274381						
Iodomethane	100	0.3102316	150	0.2781579	200	0.2917808						
Isobutyl alcohol	2000	1.449018E-02	3000	1.382811E-02	4000	1.414632E-02						
Isopropylbenzene	100	2.980101	150	2.784756	200	2.886315						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4120001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Dates:	4/25/14 15:16 4/25/14 18:38

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
p-Isopropyltoluene	100	2.728129	150	2.584523	200	2.675142						
Methacrylonitrile	1000	0.3081577	1500	0.2837455	2000	0.2751571						
Methylene chloride	100	0.2701891	150	0.2512988	200	0.2626468						
Methyl Acetate	100	0.4129805	150	0.3807716	200	0.3915846						
Methylcyclohexane	100	0.386774	150	0.3609458	200	0.3950949						
Naphthalene	100	3.227218	150	3.234331	200	3.274841						
Methyl Methacrylate	100	0.4629771	150	0.440624	200	0.4523979						
4-Methyl-2-pentanone	200	0.5279702	300	0.493361	400	0.5008346						
Methyl t-Butyl Ether	100	0.8687811	150	0.7961665	200	0.8198997						
n-Propylbenzene	100	3.276386	150	3.127534	200	3.256607						
Propionitrile	1000	7.629612E-02	1500	7.203244E-02	2000	7.256415E-02						
Styrene	100	2.090809	150	2.011521	200	2.026673						
1,1,2,2-Tetrachloroethane	100	0.8338457	150	0.822866	200	0.8435807						
1,1,1,2-Tetrachloroethane	100	0.7330538	150	0.7153913	200	0.7269644						
tert-Butyl alcohol	500	4.229679E-02	750	4.013534E-02	1000	4.179791E-02						
Tetrachloroethene	100	0.7232871	150	0.6798562	200	0.7170303						
Toluene	100	1.604156	150	1.534743	200	1.54894						
1,2,3-Trichlorobenzene	100	1.183185	150	1.180409	200	1.21826						
1,2,4-Trichlorobenzene	100	1.174592	150	1.186455	200	1.24046						
1,1,2-Trichloroethane	100	0.5227448	150	0.4968736	200	0.4967661						
1,1,1-Trichloroethane	100	0.4539342	150	0.4257701	200	0.4558584						
Tetrahydrofuran	100	3.949794E-02	150	0.0374418	200	0.0382209						
Trichloroethene	100	0.2813537	150	0.2631299	200	0.2804506						
Trichlorofluoromethane	100	0.4455993	150	0.409244	200	0.4504688						
1,2,3-Trichloropropane	100	0.3171211	150	0.3041538	200	0.3059756						
1,3,5-Trimethylbenzene	100	2.524181	150	2.439403	200	2.518058						
1,2,4-Trimethylbenzene	100	2.657922	150	2.575083	200	2.596493						
1,1,2-Trichloro-1,2,2-trifluoroethan	100	0.2164194	150	0.1986445	200	0.2216453						
Vinyl chloride	100	0.2642356	150	0.2430454	200	0.2654721						
m,p-Xylene	200	2.457438	300	2.271974	400	2.29405						
o-Xylene	100	2.678664	150	2.571607	200	2.557985						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4120001	Instrument:	MS-VOA3	
Matrix:	Water	Calibration Dates:	4/25/14 15:16	4/25/14 18:38

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Vinyl acetate	200	0.9904196	300	0.9250878	400	0.9155559						
Xylenes (total)	300	2.53118	450	2.371851	600	2.382029						
Dibromofluoromethane	30	0.2736546	30	0.2665955	30	0.2695197						
1,2-Dichloroethane-d4	30	6.054523E-02	30	5.669255E-02	30	5.977459E-02						
Toluene-d8	30	2.240854	30	2.237877	30	2.203758						
tert-Amyl alcohol	500	3.426521E-02	750	3.297374E-02	1000	3.357043E-02						
tert-Amyl ethyl ether	100	0.8959265	150	0.8589677	200	0.8812976						
1,3,5-Trichlorobenzene	100	1.213534	150	1.2196	200	1.271446						
Diethyl ether	100	0.2905697	150	0.2777363	200	0.2829592						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4120001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Dates:	4/25/14 15:16 4/25/14 18:38

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Acetone	0.1522009	11.0709	3.180571	9.078866E-02			15	
Acetonitrile	8.051892E-02	8.031099	3.255333	6.402822E-02			15	
Acrolein	1.621017E-02	7.135684	3.0855	0.2091637			15	
Acrylonitrile	0.1887589	4.279608	3.975556	0.1212841			15	
Benzene	1.017489	5.082288	7.144667	2.073202E-02			15	
Allyl chloride	0.1299285	11.72981	4.044445	0.0619114			15	
Bromobenzene	0.8087865	7.40338	11.95222	2.031629E-02			15	
Bromochloromethane	0.1425964	7.327601	6.221667	0.049559			15	
Tert-Amyl Methyl Ether	0.795871	5.232954	7.346	3.775876E-02			15	
Bromodichloromethane	0.3957471	5.185015	8.167667	2.285521E-02			15	
Bromoform	0.5027956	16.76868	11.35956	0.0251339	0.9989669		SPCC (0.1)	
Bromomethane	0.1851011	11.89756	2.3555	8.398601E-02			15	
Bromofluorobenzene	0.9553584	3.596079	11.797	4.530815E-03			15	
n-Butylbenzene	2.358482	4.991777	13.39578	1.152297E-02			15	
2-Butanone	0.2346556	6.615514	5.667111	5.963256E-02			15	
sec-Butylbenzene	2.985903	4.478518	12.852	1.414267E-02			15	
tert-Butylbenzene	2.168952	6.675398	12.61456	1.748401E-02			15	
Carbon disulfide	0.6969197	6.716369	4.137111	7.917686E-02			15	
Carbon tetrachloride	0.3595227	7.168689	7.107	0.0261323			15	
Chlorobenzene	1.868208	5.03452	10.62667	2.415717E-02			SPCC (0.3)	
Chloroethane	0.201035	9.108306	2.4725	9.153928E-02			15	
Chloroform	0.5489754	20.31879	6.195111	5.174251E-02	0.999393		CCC (30)	
2-Chloroethyl vinyl ether	0.2592689	5.59937	8.546	2.889317E-02			15	
Chloromethane	0.5519961	8.28723	1.835444	0.1094572			SPCC (0.1)	
1-Chlorohexane	0.8134108	7.04654	10.60175	2.767551E-02			15	
2-Chlorotoluene	2.131609	5.712493	12.17633	2.204181E-02			15	
Chloroprene	0.5747614	2.815912	5.461444	7.979751E-02			15	
4-Chlorotoluene	2.190353	4.021071	12.24033	9.418776E-03			15	
Cyclohexane	0.5539794	6.105338	7.03	2.528532E-02			15	
Dibromochloromethane	0.6882604	9.951834	9.859333	2.016913E-02			15	
1,2-Dibromo-3-chloropropane	0.2205363	15.08582	14.00267	2.105052E-02	0.9984693		0.99	
1,2-Dibromoethane (EDB)	0.6915721	5.093616	10.07333	2.842963E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4120001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Dates:	4/25/14 15:16 4/25/14 18:38

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Dibromomethane	0.1908816	5.006324	8.098222	3.453605E-02			15	
1,2-Dichlorobenzene	1.518108	6.73583	13.34911	1.269257E-02			15	
1,3-Dichlorobenzene	1.503339	4.142161	12.93744	1.427117E-02			15	
trans-1,4-Dichloro-2-butene	0.3707752	8.583845	11.77567	3.15549E-03			15	
cis-1,4-Dichloro-2-butene	0.3799912	7.873945	11.45844	4.314796E-02			15	
1,4-Dichlorobenzene	1.523752	5.053011	13.03122	1.859618E-03			15	
Dichlorodifluoromethane	0.2608049	11.21215	1.650111	6.879785E-02			15	
1,1-Dichloroethane	0.5679661	8.253133	5.190667	4.252331E-02			SPCC (0.1)	
1,2-Dichloroethane	0.5223875	5.530217	6.984556	3.313935E-02			15	
1,1-Dichloroethene	0.2201966	6.839011	3.602111	0.0831085			CCC (30)	
cis-1,2-Dichloroethene	0.2779171	5.570818	5.931222	5.536096E-02			15	
trans-1,2-Dichloroethene	0.2584626	11.99009	4.792333	0.1091371			15	
1,2-Dichloroethene (total)	0.2681898	8.415002	5.931222	5.536096E-02			15	
1,2-Dichloropropane	0.3112176	2.309371	7.984667	2.338981E-02			CCC (30)	
1,3-Dichloropropane	1.075786	5.831418	9.608444	1.561781E-02			15	
2,2-Dichloropropane	0.3892748	6.673299	6.035	4.558244E-02			15	
1,1-Dichloropropene	0.3459916	4.071674	6.99	2.168207E-02			15	
cis-1,3-Dichloropropene	0.4102498	5.933394	8.753667	1.255345E-02			15	
trans-1,3-Dichloropropene	1.010607	7.377504	9.241555	2.421501E-02			15	
Diisopropyl Ether	1.361183	3.370292	5.574	4.760772E-02			15	
1,4-Dioxane	4.358517E-03	5.651636	8.14925	4.505751E-02			15	
Ethylbenzene	3.008644	5.055862	10.77767	8.337043E-03			CCC (30)	
Ethyl tert-Butyl Ether	1.067267	4.740827	6.058889	7.315686E-02			15	
Ethyl Methacrylate	0.8905653	7.260499	9.433778	2.488818E-02			15	
Hexachlorobutadiene	0.5718699	12.31836	15.35667	1.952922E-02			15	
Hexane	0.3391555	8.07537	5.391	0.0408139			15	
2-Hexanone	0.8454539	5.758821	9.548667	2.543593E-02			15	
Iodomethane	0.2157897	34.62447	3.7935	0.1222257	0.9963313		0.99	
Isobutyl alcohol	1.334369E-02	8.176626	6.298	6.687525E-02			15	
Isopropylbenzene	2.777793	5.757692	11.68333	5.978978E-03			15	
p-Isopropyltoluene	2.585621	5.617118	12.99167	1.999865E-02			15	
Methacrylonitrile	0.301424	5.510089	5.849	0.1136544			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4120001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Dates:	4/25/14 15:16 4/25/14 18:38

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Methylene chloride	0.2885778	15.52704	4.095875	0.1042552	0.9988981		0.99	
Methyl Acetate	0.4216388	8.79462	3.9475	0.0809318			15	
Methylcyclohexane	0.3751053	6.702295	8.298667	2.923847E-02			15	
Naphthalene	2.967243	8.531129	15.22556	1.132222E-02			15	
Methyl Methacrylate	0.4379843	4.846058	8.135375	2.685726E-02			15	
4-Methyl-2-pentanone	0.5123006	5.395254	8.683444	2.741058E-02			15	
Methyl t-Butyl Ether	0.822306	3.651375	4.782556	0.0758375			15	
n-Propylbenzene	3.20308	5.234507	12.09522	7.124411E-03			15	
Propionitrile	7.399208E-02	2.613336	5.389	4.918679E-02			15	
Styrene	1.928481	5.658556	11.25633	9.441451E-03			15	
1,1,2,2-Tetrachloroethane	0.8373097	4.615656	11.62056	1.581626E-02			SPCC (0.3)	
1,1,1,2-Tetrachloroethane	0.6672276	7.831734	10.67467	0.0208016			15	
tert-Butyl alcohol	4.091991E-02	3.289545	3.73775	0.192737			15	
Tetrachloroethene	0.7081879	5.823757	9.960445	8.182754E-03			15	
Toluene	1.611157	7.337346	9.223	2.343325E-02			CCC (30)	
1,2,3-Trichlorobenzene	1.1268	7.942351	15.51378	2.105737E-02			15	
1,2,4-Trichlorobenzene	1.124242	8.196505	15.07678	2.430898E-03			15	
1,1,2-Trichloroethane	0.5094666	5.231858	9.395333	2.708112E-02			15	
1,1,1-Trichloroethane	0.4430452	5.639341	6.762333	3.971262E-02			15	
Tetrahydrofuran	4.124484E-02	14.37693	6.405875	0.0711645			15	
Trichloroethene	0.2782947	8.681337	7.930444	5.061292E-02			15	
Trichlorofluoromethane	0.4305957	5.269873	2.905556	6.311983E-02			15	
1,2,3-Trichloropropane	0.3033978	5.351062	11.74667	1.627102E-02			15	
1,3,5-Trimethylbenzene	2.455337	2.9788	12.27589	1.839602E-02			15	
1,2,4-Trimethylbenzene	2.54175	3.941184	12.64644	5.833742E-03			15	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.2250336	10.80261	3.663778	0.1390573			15	
Vinyl chloride	0.2533873	7.110973	1.964	0.1089386			CCC (30)	
m,p-Xylene	2.37607	6.328991	10.891	0.0120272			15	
o-Xylene	2.561499	5.817181	11.28289	2.456914E-02			15	
Vinyl acetate	0.951764	4.118273	5.276778	5.605509E-02			15	
Xylenes (total)	2.437879	5.871953	11.28289	2.456914E-02			15	
Dibromofluoromethane	0.2691806	1.685021	6.375667	2.371706E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4120001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Dates:	4/25/14 15:16 4/25/14 18:38

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
1,2-Dichloroethane-d4	6.021219E-02	2.930266	6.888555	3.826507E-02			15	
Toluene-d8	2.229904	1.788234	9.146111	1.438549E-02			15	
tert-Amyl alcohol	3.156993E-02	7.74428	6.5845	4.424769E-02			15	
tert-Amyl ethyl ether	0.8538929	4.208388	8.258	2.028012E-02			15	
1,3,5-Trichlorobenzene	1.204918	6.463419	14.51744	1.963043E-02			15	
Diethyl ether	0.2809383	4.956608	3.278556	0.1767638			15	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4121002	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	4/30/14 9:51 4/30/14 13:33

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone	1	5.657945E-02	2	8.043911E-02	4	8.036889E-02	10	6.980582E-02	20	0.0695207	100	8.420266E-02
Acetonitrile	5	4.725789E-02	10	4.182497E-02	20	4.602172E-02	50	0.0408566	100	4.040874E-02	500	4.382169E-02
Acrolein	2.5	0.0371981	5	3.350039E-02	10	3.638947E-02	25	3.403058E-02	50	3.200623E-02	250	4.125733E-02
Acrylonitrile	2.5	8.957954E-02	5	8.539569E-02	10	9.331058E-02	25	9.431514E-02	50	8.863642E-02	250	0.1071883
Benzene	0.5	1.158088	1	1.056598	2	1.157744	5	1.134424	10	1.069745	50	1.199481
Allyl chloride	0.5	0.1310087	1	0.1435611	2	0.1370111	5	0.1368424	10	0.1357759	50	0.1493409
Bromobenzene	0.5	0.90889	1	0.8061332	2	0.8209024	5	0.882889	10	0.8170825	50	0.9329817
Bromochloromethane	0.5	0.1610889	1	0.1577909	2	0.1792729	5	0.1770422	10	0.1673581	50	0.185624
Tert-Amyl Methyl Ether	0.5	0.7439068	1	0.6479474	2	0.6886453	5	0.7289838	10	0.6809685	50	0.7921055
Bromodichloromethane	0.5	0.3907673	1	0.3365476	2	0.3520242	5	0.3368358	10	0.3381169	50	0.3677333
Bromoform	0.5	0.5093661	1	0.4054856	2	0.4845479	5	0.4818895	10	0.4735353	50	0.579258
Bromomethane	0.5	0.1841724	1	0.2058691	2	0.2506388	5	0.1939631	10	0.1944006	50	0.1894968
Bromofluorobenzene	30	0.9391599	35	0.9494201	40	0.9293135	50	0.9247217	60	0.9581467	70	0.9110248
n-Butylbenzene	0.5	2.409612	1	2.065617	2	2.172321	5	2.193437	10	2.142322	50	2.352639
2-Butanone	1	0.1382533	2	0.1057833	4	0.1312618	10	0.1166689	20	0.1161908	100	0.1254166
sec-Butylbenzene	0.5	3.169549	1	2.750405	2	2.810001	5	2.964219	10	2.686046	50	3.091139
tert-Butylbenzene	0.5	2.380146	1	2.118643	2	2.181312	5	2.253757	10	2.186482	50	2.325544
Carbon disulfide	0.5	1.070933	1	0.9481206	2	0.9683454	5	0.9716864	10	0.9616436	50	1.05807
Carbon tetrachloride	0.5	0.2121041	1	0.2014346	2	0.2358508	5	0.2477608	10	0.2415741	50	0.286572
Chlorobenzene	0.5	2.200468	1	1.933398	2	1.977781	5	2.015167	10	1.933084	50	2.085386
Chloroethane	0.5	0.186927	1	0.1709261	2	0.197379	5	0.1828464	10	0.1960114	50	0.206345
Chloroform	0.5	0.6695327	1	0.546346	2	0.5322124	5	0.4811834	10	0.4548504	50	0.4887831
2-Chloroethyl vinyl ether	1	0.1206239	2	0.1078322	4	0.1282012	10	0.1379388	20	0.129948	100	0.1603262
Chloromethane	0.5	0.352809	1	0.298826	2	0.2967192	5	0.2762053	10	0.2937779	50	0.3022843
1-Chlorohexane	0.5	1.225866	1	0.9389138	2	0.9295456	5	0.9445241	10	0.8957081	50	0.965071
2-Chlorotoluene	0.5	2.223827	1	1.9745	2	2.035407	5	2.057971	10	1.942763	50	2.215288
Chloroprene	0.5	0.454068	1	0.404918	2	0.4321142	5	0.436954	10	0.4048802	50	0.433481
4-Chlorotoluene	0.5	2.668032	1	2.244389	2	2.411246	5	2.502923	10	2.272734	50	2.522702
Cyclohexane	0.5	0.5030447	1	0.4220387	2	0.4652657	5	0.4443632	10	0.4532019	50	0.4753354
Dibromochloromethane	0.5	0.8092674	1	0.7144747	2	0.7554703	5	0.7808806	10	0.7468648	50	0.8516464
1,2-Dibromo-3-chloropropane	0.5	0.1530778	1	0.1392372	2	0.1311763	5	0.1468469	10	0.1378116	50	0.1769119

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4121002	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	4/30/14 9:51 4/30/14 13:33

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,2-Dibromoethane (EDB)	0.5	0.7753926	1	0.6894257	2	0.7372944	5	0.7340963	10	0.7040239	50	0.8114991
Dibromomethane	0.5	0.1902877	1	0.1832754	2	0.1960346	5	0.1861413	10	0.1812757	50	0.2017381
1,2-Dichlorobenzene	0.5	1.671627	1	1.388982	2	1.506791	5	1.539036	10	1.409603	50	1.586458
1,3-Dichlorobenzene	0.5	1.641424	1	1.492941	2	1.528319	5	1.583196	10	1.455644	50	1.626502
trans-1,4-Dichloro-2-butene	0.5	0.1563191	1	0.1491209	2	0.1648018	5	0.1763327	10	0.1693639	50	0.2064786
cis-1,4-Dichloro-2-butene	0.5	0.1716416	1	0.1547481	2	0.1734641	5	0.1845581	10	0.1879078	50	0.2308343
1,4-Dichlorobenzene	0.5	1.810561	1	1.506287	2	1.577222	5	1.621979	10	1.501006	50	1.647057
Dichlorodifluoromethane	0.5	0.2456551	1	0.17595	2	0.1935604	5	0.184395	10	0.2335299	50	0.2574903
1,1-Dichloroethane	0.5	0.5476692	1	0.4910547	2	0.5201417	5	0.5282952	10	0.5038926	50	0.5566434
1,2-Dichloroethane	0.5	0.3755068	1	0.3300081	2	0.347705	5	0.3517277	10	0.3399479	50	0.3667524
1,1-Dichloroethene	0.5	0.2641109	1	0.2472113	2	0.2741796	5	0.2618389	10	0.2502066	50	0.2728008
cis-1,2-Dichloroethene	0.5	0.3089558	1	0.3015204	2	0.309934	5	0.3139241	10	0.2942624	50	0.3214382
trans-1,2-Dichloroethene	0.5	0.2858171	1	0.2558839	2	0.2954463	5	0.2857113	10	0.2821568	50	0.3098574
1,2-Dichloroethene (total)	1	0.2973864	2	0.2787022	4	0.3026902	10	0.2998177	20	0.2882096	100	0.3156478
1,2-Dichloropropane	0.5	0.3132529	1	0.2892272	2	0.3056578	5	0.3041017	10	0.3056382	50	0.3234583
1,3-Dichloropropane	0.5	1.181891	1	1.074487	2	1.155301	5	1.16296	10	1.102055	50	1.156439
2,2-Dichloropropane	0.5	0.3460326	1	0.30138	2	0.3184293	5	0.3245435	10	0.3139183	50	0.3597761
1,1-Dichloropropene	0.5	0.4054218	1	0.3501599	2	0.3764087	5	0.3809748	10	0.374462	50	0.3914983
cis-1,3-Dichloropropene	0.5	0.4220596	1	0.393523	2	0.4378492	5	0.429703	10	0.4180774	50	0.4706478
trans-1,3-Dichloropropene	0.5	1.00972	1	0.9253488	2	1.017422	5	1.02511	10	0.9912139	50	1.139428
Diisopropyl Ether	0.5	1.128834	1	0.9883963	2	1.077053	5	1.041919	10	1.013866	50	1.103467
1,4-Dioxane	10	1.807017E-03	20	1.507181E-03	40	2.299012E-03	100	2.302465E-03	200	2.327529E-03	1000	2.434169E-03
Ethylbenzene	0.5	3.544896	1	2.998636	2	3.151726	5	3.209458	10	2.951225	50	3.388356
Ethyl tert-Butyl Ether	0.5	0.8393261	1	0.8009389	2	0.8316632	5	0.834341	10	0.8148505	50	0.9109219
Ethyl Methacrylate	0.5	0.8686261	1	0.6799456	2	0.7648703	5	0.7667249	10	0.7198941	50	0.8729463
Hexachlorobutadiene	0.5	0.4965082	1	0.3579768	2	0.3815405	5	0.3737574	10	0.336414	50	0.3915018
Hexane	0.5	0.3632213	1	0.2939985	2	0.2984068	5	0.2890966	10	0.2873099	50	0.2992115
2-Hexanone	1	0.3845885	2	0.3649448	4	0.3929858	10	0.3853646	20	0.3765719	100	0.4420311
Iodomethane	0.5	0.3703833	1	0.3587203	2	0.4038825	5	0.4379769	10	0.4512703	50	0.5358046
Isobutyl alcohol	10	4.206272E-03	20	3.473252E-03	40	2.821027E-03	100	3.337274E-03	200	3.186844E-03	1000	4.659908E-03
Isopropylbenzene	0.5	2.949289	1	2.665523	2	2.668114	5	2.7627	10	2.584417	50	2.937137

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4121002	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	4/30/14 9:51 4/30/14 13:33

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
p-Isopropyltoluene	0.5	2.656393	1	2.313142	2	2.437634	5	2.454842	10	2.314695	50	2.519653
Methacrylonitrile	5	0.1841559	10	0.1661772	20	0.177847	50	0.1745482	100	0.1674764	500	0.1815732
Methylene chloride	0.5	0.3939627	1	0.3420206	2	0.3243216	5	0.318242	10	0.2992456	50	0.3260946
Methyl Acetate	0.5	0.1652759	1	0.1941653	2	0.2011689	5	0.201508	10	0.1976095	50	0.2230158
Methylcyclohexane	0.5	0.4423885	1	0.3790405	2	0.3830305	5	0.3635961	10	0.3619254	50	0.385471
Naphthalene	0.5	2.082977	1	1.86614	2	2.067278	5	2.141986	10	2.064026	50	2.44111
Methyl Methacrylate	0.5	0.2216901	1	0.1956528	2	0.2142837	5	0.2109632	10	0.2078212	50	0.2237999
4-Methyl-2-pentanone	1	0.2343612	2	0.1920322	4	0.227427	10	0.2244027	20	0.2071999	100	0.2480953
Methyl t-Butyl Ether	0.5	0.7035244	1	0.6482	2	0.6945234	5	0.6874953	10	0.6632977	50	0.7578136
n-Propylbenzene	0.5	3.650883	1	3.126057	2	3.294465	5	3.474469	10	3.281003	50	3.625457
Propionitrile	5	3.723115E-02	10	2.888904E-02	20	3.297563E-02	50	3.288953E-02	100	3.173788E-02	500	3.643836E-02
Styrene	0.5	1.965208	1	1.797131	2	2.024625	5	2.085852	10	1.957812	50	2.193793
1,1,2,2-Tetrachloroethane	0.5	0.8506939	1	0.7086671	2	0.7497039	5	0.7924864	10	0.7476411	50	0.8672889
1,1,1,2-Tetrachloroethane	0.5	0.6650662	1	0.5549318	2	0.6174348	5	0.6574989	10	0.6407415	50	0.7286473
tert-Butyl alcohol	2.5	6.633073E-03	5	8.453685E-03	10	1.077497E-02	25	1.109976E-02	50	1.097055E-02	250	0.0133053
Tetrachloroethene	0.5	0.8836989	1	0.7847661	2	0.8071117	5	0.8085977	10	0.7643392	50	0.861337
Toluene	0.5	1.90414	1	1.651616	2	1.744887	5	1.754436	10	1.640374	50	1.826152
1,2,3-Trichlorobenzene	0.5	0.9273065	1	0.8168826	2	0.8501786	5	0.883272	10	0.8189058	50	0.9584372
1,2,4-Trichlorobenzene	0.5	1.132687	1	0.9334667	2	0.9715596	5	1.017712	10	0.9591294	50	1.079941
1,1,2-Trichloroethane	0.5	0.6364745	1	0.5435249	2	0.5854905	5	0.579306	10	0.5570004	50	0.5973508
1,1,1-Trichloroethane	0.5	0.3417355	1	0.304299	2	0.3195734	5	0.3318002	10	0.3223746	50	0.3603617
Tetrahydrofuran	0.5	~~1.465446E-02~~	1	2.309888E-02	2	2.683015E-02	5	2.427365E-02	10	0.0260044	50	2.905933E-02
Trichloroethene	0.5	0.3136386	1	0.2681772	2	0.2929292	5	0.283349	10	0.274811	50	0.2919594
Trichlorofluoromethane	0.5	0.3721462	1	0.3365195	2	0.3387807	5	0.3375874	10	0.3442893	50	0.380655
1,2,3-Trichloropropane	0.5	0.2015399	1	0.180507	2	0.1958396	5	0.1987591	10	0.188769	50	0.2121457
1,3,5-Trimethylbenzene	0.5	2.450423	1	2.163011	2	2.227877	5	2.381319	10	2.271966	50	2.465807
1,2,4-Trimethylbenzene	0.5	2.635177	1	2.337887	2	2.455032	5	2.531965	10	2.414135	50	2.558534
1,1,2-Trichloro-1,2,2-trifluoroethar	0.5	0.3101678	1	0.2513091	2	0.2574465	5	0.2442568	10	0.2566054	50	0.2886251
Vinyl chloride	0.5	0.2605299	1	0.2269191	2	0.2429731	5	0.2194519	10	0.2364179	50	0.2400536
m,p-Xylene	1	2.658633	2	2.370253	4	2.398245	10	2.422978	20	2.320398	100	2.521458
o-Xylene	0.5	2.643016	1	2.389444	2	2.5543	5	2.565677	10	2.380468	50	2.582297

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4121002	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	4/30/14 9:51 4/30/14 13:33

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Vinyl acetate	1	0.4224727	2	0.383868	4	0.4600599	10	0.4862727	20	0.4667893	100	0.577018
Xylenes (total)	1.5	2.653427	3	2.37665	6	2.450263	15	2.470544	30	2.340421	150	2.541737
Dibromofluoromethane	30	0.2778554	35	0.2902392	40	0.2915512	50	0.2781218	60	0.309536	70	0.2870809
1,2-Dichloroethane-d4	30	5.976468E-02	35	6.005468E-02	40	6.136754E-02	50	5.863825E-02	60	6.681467E-02	70	6.165184E-02
Toluene-d8	30	2.428255	35	2.399508	40	2.447893	50	2.415387	60	2.543597	70	2.410825
tert-Amyl alcohol	2.5	7.712875E-03	5	5.916457E-03	10	7.731546E-03	25	7.697488E-03	50	8.190787E-03	250	1.071437E-02
tert-Amyl ethyl ether	0.5	0.6868866	1	0.6218174	2	0.6640034	5	0.6593221	10	0.6395238	50	0.7129801
1,3,5-Trichlorobenzene	0.5	1.231399	1	1.089513	2	1.056647	5	1.078368	10	1.030149	50	1.159354
Diethyl ether	0.5	0.2217452	1	0.202894	2	0.2311884	5	0.218655	10	0.2225631	50	0.242641

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4121002	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	4/30/14 9:51 4/30/14 13:33

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone	200	8.594272E-02	300	8.588847E-02	400	7.993424E-02						
Acetonitrile	1000	4.396394E-02	1500	4.424399E-02	2000	4.121359E-02						
Acrolein	500	4.115966E-02	750	4.187339E-02	1000	3.956549E-02						
Acrylonitrile	500	0.1079298	750	0.1069915	1000	9.952534E-02						
Benzene	100	1.17974	150	1.161681	200	1.069067						
Allyl chloride	100	0.146763	150	0.144436	200	0.1356849						
Bromobenzene	100	0.9105797	150	0.9357183	200	0.9199202						
Bromochloromethane	100	0.1802861	150	0.1805208	200	0.1725348						
Tert-Amyl Methyl Ether	100	0.7887946	150	0.7964491	200	0.743217						
Bromodichloromethane	100	0.3816631	150	0.3819084	200	0.364352						
Bromoform	100	0.6000219	150	0.6230489	200	~~0.6405285~~						
Bromomethane	100	0.2059428	150	0.2167991	200	0.2078102						
Bromofluorobenzene	30	0.9589591	30	0.9627761	30	1.0014						
n-Butylbenzene	100	2.169323	150	2.23318	200	2.165161						
2-Butanone	200	0.1302018	300	0.1341525	400	0.1217112						
sec-Butylbenzene	100	2.735478	150	2.878059	200	2.824222						
tert-Butylbenzene	100	2.194537	150	2.20583	200	2.17652						
Carbon disulfide	100	1.007229	150	1.045139	200	0.9539881						
Carbon tetrachloride	100	0.2833959	150	0.3063317	200	0.2797648						
Chlorobenzene	100	2.10027	150	2.044575	200	2.024686						
Chloroethane	100	0.203582	150	0.1993293	200	0.1859412						
Chloroform	100	0.4794411	150	0.4783145	200	0.4582594						
2-Chloroethyl vinyl ether	200	0.1748681	300	0.1822042	400	0.1690123						
Chloromethane	100	0.3063691	150	0.3055648	200	0.281226						
1-Chlorohexane	100	0.892995	150	0.9285405	200	0.8661562						
2-Chlorotoluene	100	2.117985	150	2.113403	200	2.090086						
Chloroprene	100	0.4117995	150	0.4280399	200	0.3906515						
4-Chlorotoluene	100	2.425551	150	2.490613	200	2.368844						
Cyclohexane	100	0.4331833	150	0.4550656	200	0.40633						
Dibromochloromethane	100	0.9085691	150	0.8646752	200	0.8952681						
1,2-Dibromo-3-chloropropane	100	0.1727545	150	0.1824842	200	0.1781825						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Calibration: 4121002
Instrument: MS-VOA4
Matrix: Water
Calibration Dates: 4/30/14 9:51 4/30/14 13:33

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,2-Dibromoethane (EDB)	100	0.8194091	150	0.794062	200	0.8047482						
Dibromomethane	100	0.203031	150	0.2039674	200	0.1927247						
1,2-Dichlorobenzene	100	1.524967	150	1.575586	200	1.5418						
1,3-Dichlorobenzene	100	1.566486	150	1.624157	200	1.548926						
trans-1,4-Dichloro-2-butene	100	0.2080614	150	0.2188643	200	~~0.2203383~~						
cis-1,4-Dichloro-2-butene	100	0.2254271	150	0.2374201	200	0.2327504						
1,4-Dichlorobenzene	100	1.62653	150	1.619151	200	1.567949						
Dichlorodifluoromethane	100	0.234075	150	0.251273	200	0.235836						
1,1-Dichloroethane	100	0.5460186	150	0.5553872	200	0.5205716						
1,2-Dichloroethane	100	0.3642015	150	0.3628341	200	0.3364169						
1,1-Dichloroethene	100	0.2672969	150	0.2676841	200	0.2463081						
cis-1,2-Dichloroethene	100	0.3119116	150	0.3085671	200	0.2961186						
trans-1,2-Dichloroethene	100	0.2947852	150	0.3016656	200	0.2783789						
1,2-Dichloroethene (total)	200	0.3033484	300	0.3051164	400	0.2872488						
1,2-Dichloropropane	100	0.3308804	150	0.3209802	200	0.3050273						
1,3-Dichloropropane	100	1.197368	150	1.179078	200	1.142983						
2,2-Dichloropropane	100	0.3412867	150	0.345989	200	0.3183612						
1,1-Dichloropropene	100	0.3727482	150	0.3809938	200	0.3460957						
cis-1,3-Dichloropropene	100	0.4663375	150	0.4630694	200	0.4340152						
trans-1,3-Dichloropropene	100	1.119611	150	1.090127	200	1.037851						
Diisopropyl Ether	100	1.090854	150	1.104281	200	1.00492						
1,4-Dioxane	2000	2.582625E-03	3000	2.676124E-03	4000	2.643462E-03						
Ethylbenzene	100	3.357531	150	3.297385	200	3.18664						
Ethyl tert-Butyl Ether	100	0.8920782	150	0.8793955	200	0.8179252						
Ethyl Methacrylate	100	0.8820304	150	0.8594972	200	0.8612845						
Hexachlorobutadiene	100	0.3634366	150	0.3904798	200	0.3760421						
Hexane	100	0.259317	150	0.2757956	200	0.2468172						
2-Hexanone	200	0.4343356	300	0.4398793	400	0.4264847						
Iodomethane	100	0.5514029	150	0.5532612	200	0.521102						
Isobutyl alcohol	2000	5.084157E-03	3000	5.374009E-03	4000	5.472701E-03						
Isopropylbenzene	100	2.78896	150	2.762461	200	2.73533						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4121002	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	4/30/14 9:51 4/30/14 13:33

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
p-Isopropyltoluene	100	2.408809	150	2.466652	200	2.375233						
Methacrylonitrile	1000	0.1726021	1500	0.1670936	2000	0.1546568						
Methylene chloride	100	0.3204047	150	0.3200468	200	0.3033162						
Methyl Acetate	100	0.2261538	150	0.2256376	200	0.2095568						
Methylcyclohexane	100	0.3497312	150	0.3748783	200	0.3463029						
Naphthalene	100	2.441837	150	2.436145	200	2.362388						
Methyl Methacrylate	100	0.2495188	150	0.2485945	200	0.2374096						
4-Methyl-2-pentanone	200	0.2526922	300	0.2493677	400	0.2348552						
Methyl t-Butyl Ether	100	0.7434996	150	0.7479664	200	0.701661						
n-Propylbenzene	100	3.413832	150	3.399418	200	3.288873						
Propionitrile	1000	3.664899E-02	1500	3.770076E-02	2000	3.482666E-02						
Styrene	100	2.130371	150	1.97973	200	2.085319						
1,1,2,2-Tetrachloroethane	100	0.8395112	150	0.8655361	200	0.8422236						
1,1,1,2-Tetrachloroethane	100	0.758941	150	0.7480274	200	0.7504474						
tert-Butyl alcohol	500	1.456274E-02	750	1.633277E-02	1000	1.552403E-02						
Tetrachloroethene	100	0.8292059	150	0.8094277	200	0.8108706						
Toluene	100	1.741641	150	1.698627	200	1.600251						
1,2,3-Trichlorobenzene	100	0.9191353	150	0.9638748	200	0.9604978						
1,2,4-Trichlorobenzene	100	1.022609	150	1.083989	200	1.058337						
1,1,2-Trichloroethane	100	0.6073032	150	0.5869252	200	0.5860108						
1,1,1-Trichloroethane	100	0.3514725	150	0.3633537	200	0.339404						
Tetrahydrofuran	100	2.941261E-02	150	2.963383E-02	200	2.781575E-02						
Trichloroethene	100	0.2951115	150	0.2983697	200	0.2683572						
Trichlorofluoromethane	100	0.3548613	150	0.3884788	200	0.3664874						
1,2,3-Trichloropropane	100	0.2136294	150	0.2181735	200	0.2198844						
1,3,5-Trimethylbenzene	100	2.359686	150	2.435307	200	2.237029						
1,2,4-Trimethylbenzene	100	2.411949	150	2.363102	200	2.392129						
1,1,2-Trichloro-1,2,2-trifluoroethan	100	0.2560479	150	0.2710003	200	0.2525113						
Vinyl chloride	100	0.2310933	150	0.2306124	200	0.1919947						
m,p-Xylene	200	2.395183	300	2.286485	400	2.214697						
o-Xylene	100	2.471625	150	2.404961	200	2.426139						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4121002	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	4/30/14 9:51 4/30/14 13:33

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Vinyl acetate	200	0.6224729	300	0.6303002	400	0.5955738						
Xylenes (total)	300	2.420664	450	2.325976	600	2.285177						
Dibromofluoromethane	30	0.2815389	30	0.2865071	30	0.2810754						
1,2-Dichloroethane-d4	30	5.881231E-02	30	5.961672E-02	30	5.866989E-02						
Toluene-d8	30	2.452662	30	2.434145	30	2.55253						
tert-Amyl alcohol	500	1.192875E-02	750	1.291379E-02	1000	1.247049E-02						
tert-Amyl ethyl ether	100	0.7233047	150	0.7290993	200	0.6965774						
1,3,5-Trichlorobenzene	100	1.113644	150	1.143402	200	1.142594						
Diethyl ether	100	0.2382636	150	0.2401872	200	0.22451						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Calibration:	4121002		Instrument:	MS-VOA4	
Matrix:	Water		Calibration Dates:	4/30/14 9:51	4/30/14 13:33

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Acetone	7.696467E-02	12.72488	3.573333	0.3427767			15	
Acetonitrile	4.329035E-02	5.511037	3.66	0.4096888			15	
Acrolein	3.744229E-02	9.922087	3.462222	0.1281559			15	
Acrylonitrile	9.698581E-02	9.003213	4.388889	0.0747695			15	
Benzene	1.131841	4.694333	7.471111	0.0424634			15	
Allyl chloride	0.1400471	4.38381	4.467778	9.776547E-02			15	
Bromobenzene	0.8816774	5.97012	12.21444	4.315983E-02			15	
Bromochloromethane	0.1735021	5.496909	6.56	0.0125684			15	
Tert-Amyl Methyl Ether	0.7345576	7.261076	7.665556	6.766433E-02			15	
Bromodichloromethane	0.3611054	5.868574	8.46	1.386061E-02			15	
Bromoform	0.5196442	14.29538	11.62125	3.120534E-02			SPCC (0.1)	
Bromomethane	0.2054548	9.639889	2.678889	0.1237775			15	
Bromofluorobenzene	0.9483247	2.797478	12.05556	0.0380547			15	
n-Butylbenzene	2.211512	4.835714	13.64889	2.898423E-02			15	
2-Butanone	0.1244045	8.284591	6.017778	7.058969E-02			15	
sec-Butylbenzene	2.878791	5.744869	13.10667	3.669346E-02			15	
tert-Butylbenzene	2.224752	3.670845	12.87444	4.522135E-02			15	
Carbon disulfide	0.9983505	4.823589	4.56	1.808086E-02			15	
Carbon tetrachloride	0.2549765	14.11351	7.44	1.627392E-02	0.9971628		0.99	
Chlorobenzene	2.034979	4.211267	10.89778	0.0394222			SPCC (0.3)	
Chloroethane	0.192143	5.902015	2.802222	0.157045			15	
Chloroform	0.5098803	13.19327	6.534445	8.082206E-02			CCC (30)	
2-Chloroethyl vinyl ether	0.1456617	18.19294	8.825555	5.825645E-02	0.9976851		0.99	
Chloromethane	0.3015313	7.241186	2.126667	0.2352885			SPCC (0.1)	
1-Chlorohexane	0.9541467	11.14304	10.87	0.0096915			15	
2-Chlorotoluene	2.085692	4.604899	12.43667	3.967089E-02			15	
Chloroprene	0.4218785	4.736337	5.83	6.31657E-03			15	
4-Chlorotoluene	2.434115	5.38379	12.5	0			15	
Cyclohexane	0.4508698	6.428773	7.37	2.606681E-03			15	
Dibromochloromethane	0.8141241	8.520016	10.13111	3.753366E-02			15	
1,2-Dibromo-3-chloropropane	0.1576092	12.70653	14.24556	3.508717E-02			15	
1,2-Dibromoethane (EDB)	0.7633279	6.347677	10.34556	4.959635E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4121002	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	4/30/14 9:51 4/30/14 13:33

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Dibromomethane	0.193164	4.456141	8.395555	5.974052E-02			15	
1,2-Dichlorobenzene	1.527206	5.690456	13.60222	2.858589E-02			15	
1,3-Dichlorobenzene	1.563066	4.057448	13.19222	3.281583E-02			15	
trans-1,4-Dichloro-2-butene	0.1811678	14.54406	12.02	1.613154E-02			15	
cis-1,4-Dichloro-2-butene	0.1998613	15.83297	11.71	9.763698E-03	0.9994739		0.99	
1,4-Dichlorobenzene	1.608638	5.712727	13.28667	0.0395644			15	
Dichlorodifluoromethane	0.2235294	13.6692	1.921111	0.1742731			15	
1,1-Dichloroethane	0.5299638	4.379972	5.564444	0.0947144			SPCC (0.1)	
1,2-Dichloroethane	0.3527889	4.39253	7.3	1.986468E-02			15	
1,1-Dichloroethene	0.261293	4.12502	4.025556	0.1319421			CCC (30)	
cis-1,2-Dichloroethene	0.3074036	2.828074	6.282222	7.193083E-02			15	
trans-1,2-Dichloroethene	0.2877447	5.40288	5.19	1.566896E-02			15	
1,2-Dichloroethene (total)	0.2975742	3.754485	6.282222	7.193083E-02			15	
1,2-Dichloropropane	0.3109138	4.051903	8.285555	6.266308E-02			CCC (30)	
1,3-Dichloropropane	1.150285	3.421728	9.876667	5.209005E-02			15	
2,2-Dichloropropane	0.3299685	5.773586	6.387778	0.0721274			15	
1,1-Dichloropropene	0.3754181	4.918408	7.32	1.611891E-02			15	
cis-1,3-Dichloropropene	0.4372536	5.834272	9.04	2.209459E-02			15	
trans-1,3-Dichloropropene	1.039537	6.44523	9.511111	3.055844E-02			15	
Diisopropyl Ether	1.06151	4.760247	5.94	1.623114E-02			15	
1,4-Dioxane	2.28662E-03	17.13448	8.444444	8.374883E-02	0.9994284		0.99	
Ethylbenzene	3.231761	5.837124	11.04778	0.036907			CCC (30)	
Ethyl tert-Butyl Ether	0.8468267	4.500958	6.411111	4.828384E-02			15	
Ethyl Methacrylate	0.8084244	9.439583	9.706667	5.353675E-02			15	
Hexachlorobutadiene	0.3852952	11.70817	15.61	5.513455E-03			15	
Hexane	0.2903527	11.25786	5.778889	0.1033899			15	
2-Hexanone	0.4052429	7.438148	9.817778	4.644141E-02			15	
Iodomethane	0.4648671	16.71785	4.221111	7.571197E-02	0.9985408		0.99	
Isobutyl alcohol	4.179494E-03	24.20596	6.632222	6.712258E-02	0.997703		0.99	
Isopropylbenzene	2.761548	4.376304	11.95	2.025372E-02			15	
p-Isopropyltoluene	2.438561	4.374835	13.24778	3.290399E-02			15	
Methacrylonitrile	0.1717923	5.284339	6.188889	0.1707575			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4121002	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	4/30/14 9:51 4/30/14 13:33

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Methylene chloride	0.3275172	8.510228	4.511111	7.071844E-02			15	
Methyl Acetate	0.2048991	9.44389	4.373333	0.114007			15	
Methylcyclohexane	0.3762627	7.564202	8.614444	6.179515E-02			15	
Naphthalene	2.211543	9.62105	15.47444	3.396107E-02			15	
Methyl Methacrylate	0.2233038	8.327849	8.422222	5.071582E-02			15	
4-Methyl-2-pentanone	0.2300482	8.774159	8.963333	5.691437E-02			15	
Methyl t-Butyl Ether	0.7053313	5.378058	5.18	1.785826E-02			15	
n-Propylbenzene	3.39494	5.01581	12.35333	3.903645E-02			15	
Propionitrile	3.437089E-02	8.610275	5.738889	0.1051358			15	
Styrene	2.024427	5.765764	11.52222	2.959411E-02			15	
1,1,2,2-Tetrachloroethane	0.8070836	7.324202	11.87222	3.555006E-02			SPCC (0.3)	
1,1,1,2-Tetrachloroethane	0.6801929	10.39769	10.94	1.659903E-02			15	
tert-Butyl alcohol	1.196188E-02	27.12156	4.171111	0.2798001	0.9965662		0.99	
Tetrachloroethene	0.8177061	4.458787	10.24111	3.540944E-02			15	
Toluene	1.729125	5.506021	9.51	1.842727E-02			CCC (30)	
1,2,3-Trichlorobenzene	0.8998323	6.634634	15.76111	2.327247E-02			15	
1,2,4-Trichlorobenzene	1.028826	6.402027	15.32222	2.968378E-02			15	
1,1,2-Trichloroethane	0.5865985	4.597343	9.667778	0.047783			15	
1,1,1-Trichloroethane	0.3371527	5.830792	7.098889	4.906959E-02			15	
Tetrahydrofuran	2.701608E-02	8.994586	6.74625	7.679882E-02			15	
Trichloroethene	0.2874114	5.257538	8.236666	0.0636001			15	
Trichlorofluoromethane	0.3577562	5.554588	3.275556	0.1609281			15	
1,2,3-Trichloropropane	0.2032497	6.717336	11.99778	3.832871E-02			15	
1,3,5-Trimethylbenzene	2.332492	4.740778	12.53556	0.0459753			15	
1,2,4-Trimethylbenzene	2.455546	4.040238	12.90556	3.766389E-02			15	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.26533	8.01127	4.104444	0.1289885			15	
Vinyl chloride	0.2311162	8.092088	2.261111	0.1457988			CCC (30)	
m,p-Xylene	2.398703	5.448119	11.16111	2.423645E-02			15	
o-Xylene	2.490881	3.901206	11.55	2.462521E-02			15	
Vinyl acetate	0.5160919	17.74515	5.643333	8.886108E-02	0.9985646		0.99	
Xylenes (total)	2.429429	4.765022	11.55	2.462521E-02			15	
Dibromofluoromethane	0.2870562	3.410313	6.71	1.364728E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4121002	Instrument:	MS-VOA4
Matrix:	Water	Calibration Dates:	4/30/14 9:51 4/30/14 13:33

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
1,2-Dichloroethane-d4	6.059895E-02	4.249408	7.206667	6.868515E-02			15	
Toluene-d8	2.453867	2.285201	9.431111	3.263084E-02			15	
tert-Amyl alcohol	9.475173E-03	26.89998	6.91	7.059944E-02	0.9975798		0.99	
tert-Amyl ethyl ether	0.6815016	5.534904	8.555556	5.897422E-02			15	
1,3,5-Trichlorobenzene	1.116119	5.45645	14.77111	1.691945E-02			15	
Diethyl ether	0.2269608	5.545274	3.677778	0.1196366			15	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA3	Calibration:	4120001
Lab File ID:	SEQICV2.D	Calibration Date:	04/25/14 03:16
Sequence:	4D11911	Injection Date:	04/25/14
Lab Sample ID:	4D11911-ICV2	Injection Time:	19:54

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Acetone	A	200.0	196.2	0.1522009	0.14932		-1.9	20
Benzene	A	100.0	97.29	1.017489	0.989961		-2.7	20
Bromobenzene	A	100.0	97.15	0.8087865	0.7857196		-2.9	20
Bromochloromethane	A	100.0	96.32	0.1425964	0.137355		-3.7	20
Bromodichloromethane	A	100.0	99.47	0.3957471	0.3936413		-0.5	20
Bromoform	A	100.0	96.58	0.5027956	0.5808739	0.1	-3.4	20
Bromomethane	A	100.0	88.83	0.1851011	0.1644193		-11.2	20
n-Butylbenzene	A	100.0	97.69	2.358482	2.303922		-2.3	20
2-Butanone	A	200.0	212.7	0.2346556	0.2495135		6.3	20
sec-Butylbenzene	A	100.0	98.14	2.985903	2.930357		-1.9	20
tert-Butylbenzene	A	100.0	107.5	2.168952	2.331512		7.5	20
Carbon disulfide	A	100.0	93.66	0.6969197	0.6527079		-6.3	20
Carbon tetrachloride	A	100.0	97.21	0.3595227	0.3494776		-2.8	20
Chlorobenzene	A	100.0	96.35	1.868208	1.800031	0.3	-3.6	20
Chloroethane	A	100.0	91.53	0.201035	0.1839987		-8.5	20
Chloroform	A	100.0	97.07	0.5489754	0.4811278		-2.9	20
Chloromethane	A	100.0	92.85	0.5519961	0.5125214	0.1	-7.2	20
2-Chlorotoluene	A	100.0	96.30	2.131609	2.052702		-3.7	20
4-Chlorotoluene	A	100.0	99.05	2.190353	2.169528		-1.0	20
Dibromochloromethane	A	100.0	105.9	0.6882604	0.7290815		5.9	20
1,2-Dibromo-3-chloropropane	A	100.0	99.62	0.2205363	0.2409606		-0.4	20
1,2-Dibromoethane (EDB)	A	100.0	99.53	0.6915721	0.6883375		-0.5	20
Dibromomethane	A	100.0	98.40	0.1908816	0.1878341		-1.6	20
1,2-Dichlorobenzene	A	100.0	98.49	1.518108	1.49516		-1.5	20
1,3-Dichlorobenzene	A	100.0	98.91	1.503339	1.486964		-1.1	20
1,4-Dichlorobenzene	A	100.0	98.71	1.523752	1.504105		-1.3	20
Dichlorodifluoromethane	A	100.0	91.53	0.2608049	0.2387093		-8.5	20
1,1-Dichloroethane	A	100.0	98.24	0.5679661	0.5579749	0.1	-1.8	20
1,2-Dichloroethane	A	100.0	96.92	0.5223875	0.5062865		-3.1	20

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA3	Calibration:	4120001
Lab File ID:	SEQICV2.D	Calibration Date:	04/25/14 03:16
Sequence:	4D11911	Injection Date:	04/25/14
Lab Sample ID:	4D11911-ICV2	Injection Time:	19:54

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
1,1-Dichloroethene	A	100.0	92.51	0.2201966	0.2037046		-7.5	20
cis-1,2-Dichloroethene	A	100.0	98.99	0.2779171	0.2751136		-1.0	20
trans-1,2-Dichloroethene	A	100.0	92.23	0.2584626	0.2383678		-7.8	20
1,2-Dichloroethene (total)	A	200.0	191.2	0.2681898	0.2567407		-4.3	20
1,2-Dichloropropane	A	100.0	100.6	0.3112176	0.3129363		0.6	20
1,3-Dichloropropane	A	100.0	97.88	1.075786	1.052927		-2.1	20
2,2-Dichloropropane	A	100.0	89.58	0.3892748	0.3486996		-10.4	20
1,1-Dichloropropene	A	100.0	95.97	0.3459916	0.3320557		-4.0	20
cis-1,3-Dichloropropene	A	100.0	102.4	0.4102498	0.4201523		2.4	20
trans-1,3-Dichloropropene	A	100.0	104.1	1.010607	1.051551		4.1	20
Ethylbenzene	A	100.0	97.04	3.008644	2.919719		-3.0	20
Hexachlorobutadiene	A	100.0	95.49	0.5718699	0.5460621		-4.5	20
2-Hexanone	A	200.0	204.4	0.8454539	0.864123		2.2	20
Isopropylbenzene	A	100.0	98.72	2.777793	2.742223		-1.3	20
p-Isopropyltoluene	A	100.0	99.44	2.585621	2.571214		-0.6	20
Methylene chloride	A	100.0	100.1	0.2885778	0.260439		0.1	20
Naphthalene	A	100.0	110.6	2.967243	3.282979		10.6	20
4-Methyl-2-pentanone	A	200.0	203.2	0.5123006	0.5204794		1.6	20
Methyl t-Butyl Ether	A	100.0	100.9	0.822306	0.8299401		0.9	20
n-Propylbenzene	A	100.0	97.19	3.20308	3.113117		-2.8	20
Styrene	A	100.0	103.2	1.928481	1.990268		3.2	20
1,1,2,2-Tetrachloroethane	A	100.0	101.6	0.8373097	0.8506941	0.3	1.6	20
1,1,1,2-Tetrachloroethane	A	100.0	104.1	0.6672276	0.6945575		4.1	20
Tetrachloroethene	A	100.0	94.25	0.7081879	0.6674519		-5.8	20
Toluene	A	100.0	93.93	1.611157	1.513412		-6.1	20
1,2,3-Trichlorobenzene	A	100.0	103.1	1.1268	1.161396		3.1	20
1,2,4-Trichlorobenzene	A	100.0	104.0	1.124242	1.168958		4.0	20
1,1,2-Trichloroethane	A	100.0	97.33	0.5094666	0.4958541		-2.7	20
1,1,1-Trichloroethane	A	100.0	93.37	0.4430452	0.4136582		-6.6	20

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA3	Calibration:	4120001
Lab File ID:	SEQICV2.D	Calibration Date:	04/25/14 03:16
Sequence:	4D11911	Injection Date:	04/25/14
Lab Sample ID:	4D11911-ICV2	Injection Time:	19:54

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Trichloroethene	A	100.0	94.02	0.2782947	0.2616506		-6.0	20
Trichlorofluoromethane	A	100.0	89.76	0.4305957	0.386513		-10.2	20
1,2,3-Trichloropropane	A	100.0	100.9	0.3033978	0.3061307		0.9	20
1,3,5-Trimethylbenzene	A	100.0	98.28	2.455337	2.413222		-1.7	20
1,2,4-Trimethylbenzene	A	100.0	100.6	2.54175	2.556801		0.6	20
Vinyl chloride	A	100.0	95.74	0.2533873	0.2426052		-4.3	20
m,p-Xylene	A	200.0	192.9	2.37607	2.29145		-3.6	20
o-Xylene	A	100.0	99.10	2.561499	2.538515		-0.9	20
Xylenes (total)	A	300.0	292.0	2.437879	2.373805		-2.6	20
Bromofluorobenzene	A	30.00	30.75	0.9553584	0.979272		2.5	20
Dibromofluoromethane	A	30.00	29.68	0.2691806	0.2662678		-1.1	20
1,2-Dichloroethane-d4	A	30.00	29.99	6.021219E-02	6.018552E-02		-0.04	20
Toluene-d8	A	30.00	29.64	2.229904	2.20346		-1.2	20

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4121002
Lab File ID:	0430ICV2.D	Calibration Date:	04/30/14 09:51
Sequence:	4E12105	Injection Date:	04/30/14
Lab Sample ID:	4E12105-ICV2	Injection Time:	14:56

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Acetone	A	200.0	201.1	7.696467E-02	7.740048E-02		0.6	20
Benzene	A	100.0	101.4	1.131841	1.148129		1.4	20
Bromobenzene	A	100.0	103.0	0.8816774	0.9084893		3.0	20
Bromochloromethane	A	100.0	101.4	0.1735021	0.1759274		1.4	20
Bromodichloromethane	A	100.0	102.4	0.3611054	0.3696336		2.4	20
Bromoform	A	100.0	116.9	0.5196442	0.6076755	0.1	16.9	20
Bromomethane	A	100.0	103.2	0.2054548	0.2120881		3.2	20
n-Butylbenzene	A	100.0	101.2	2.211512	2.237441		1.2	20
2-Butanone	A	200.0	194.0	0.1244045	0.1206505		-3.0	20
sec-Butylbenzene	A	100.0	97.94	2.878791	2.819626		-2.1	20
tert-Butylbenzene	A	100.0	102.3	2.224752	2.275038		2.3	20
Carbon disulfide	A	100.0	99.82	0.9983505	0.9965062		-0.2	20
Carbon tetrachloride	A	100.0	100.3	0.2549765	0.2890874		0.3	20
Chlorobenzene	A	100.0	103.4	2.034979	2.104303	0.3	3.4	20
Chloroethane	A	100.0	100.6	0.192143	0.1932955		0.6	20
Chloroform	A	100.0	92.68	0.5098803	0.4725827		-7.3	20
Chloromethane	A	100.0	93.38	0.3015313	0.281566	0.1	-6.6	20
2-Chlorotoluene	A	100.0	102.8	2.085692	2.144247		2.8	20
4-Chlorotoluene	A	100.0	106.3	2.434115	2.587159		6.3	20
Dibromochloromethane	A	100.0	112.0	0.8141241	0.911457		12.0	20
1,2-Dibromo-3-chloropropane	A	100.0	110.5	0.1576092	0.1742366		10.5	20
1,2-Dibromoethane (EDB)	A	100.0	107.4	0.7633279	0.8195242		7.4	20
Dibromomethane	A	100.0	92.11	0.193164	0.1779249		-7.9	20
1,2-Dichlorobenzene	A	100.0	102.6	1.527206	1.566312		2.6	20
1,3-Dichlorobenzene	A	100.0	101.5	1.563066	1.585744		1.5	20
1,4-Dichlorobenzene	A	100.0	100.2	1.608638	1.611263		0.2	20
Dichlorodifluoromethane	A	100.0	105.2	0.2235294	0.2351175		5.2	20
1,1-Dichloroethane	A	100.0	101.0	0.5299638	0.5351409	0.1	1.0	20
1,2-Dichloroethane	A	100.0	99.13	0.3527889	0.3497362		-0.9	20

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4121002
Lab File ID:	0430ICV2.D	Calibration Date:	04/30/14 09:51
Sequence:	4E12105	Injection Date:	04/30/14
Lab Sample ID:	4E12105-ICV2	Injection Time:	14:56

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
1,1-Dichloroethene	A	100.0	97.81	0.261293	0.2555639		-2.2	20
cis-1,2-Dichloroethene	A	100.0	98.65	0.3074036	0.3032669		-1.3	20
trans-1,2-Dichloroethene	A	100.0	98.23	0.2877447	0.2826617		-1.8	20
1,2-Dichloroethene (total)	A	200.0	196.9	0.2975742	0.2929643		-1.5	20
1,2-Dichloropropane	A	100.0	98.51	0.3109138	0.3062917		-1.5	20
1,3-Dichloropropane	A	100.0	105.7	1.150285	1.215353		5.7	20
2,2-Dichloropropane	A	100.0	98.49	0.3299685	0.3249822		-1.5	20
1,1-Dichloropropene	A	100.0	97.53	0.3754181	0.3661408		-2.5	20
cis-1,3-Dichloropropene	A	100.0	103.8	0.4372536	0.4538316		3.8	20
trans-1,3-Dichloropropene	A	100.0	107.1	1.039537	1.113171		7.1	20
Ethylbenzene	A	100.0	103.7	3.231761	3.351769		3.7	20
Hexachlorobutadiene	A	100.0	99.52	0.3852952	0.3834528		-0.5	20
2-Hexanone	A	200.0	205.2	0.4052429	0.4156938		2.6	20
Isopropylbenzene	A	100.0	104.1	2.761548	2.874434		4.1	20
p-Isopropyltoluene	A	100.0	100.1	2.438561	2.442162		0.1	20
Methylene chloride	A	100.0	95.54	0.3275172	0.3129045		-4.5	20
Naphthalene	A	100.0	110.3	2.211543	2.438507		10.3	20
4-Methyl-2-pentanone	A	200.0	205.8	0.2300482	0.2367514		2.9	20
Methyl t-Butyl Ether	A	100.0	98.35	0.7053313	0.6937002		-1.6	20
n-Propylbenzene	A	100.0	101.0	3.39494	3.429586		1.0	20
Styrene	A	100.0	107.9	2.024427	2.183631		7.9	20
1,1,2,2-Tetrachloroethane	A	100.0	103.1	0.8070836	0.8320841	0.3	3.1	20
1,1,1,2-Tetrachloroethane	A	100.0	111.6	0.6801929	0.7590555		11.6	20
Tetrachloroethene	A	100.0	103.8	0.8177061	0.848563		3.8	20
Toluene	A	100.0	101.3	1.729125	1.752258		1.3	20
1,2,3-Trichlorobenzene	A	100.0	105.8	0.8998323	0.9515998		5.8	20
1,2,4-Trichlorobenzene	A	100.0	103.0	1.028826	1.059502		3.0	20
1,1,2-Trichloroethane	A	100.0	101.9	0.5865985	0.5977483		1.9	20
1,1,1-Trichloroethane	A	100.0	103.2	0.3371527	0.3478461		3.2	20

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4121002
Lab File ID:	0430ICV2.D	Calibration Date:	04/30/14 09:51
Sequence:	4E12105	Injection Date:	04/30/14
Lab Sample ID:	4E12105-ICV2	Injection Time:	14:56

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Trichloroethene	A	100.0	99.60	0.2874114	0.2862712		-0.4	20
Trichlorofluoromethane	A	100.0	99.04	0.3577562	0.3543194		-1.0	20
1,2,3-Trichloropropane	A	100.0	107.8	0.2032497	0.2190769		7.8	20
1,3,5-Trimethylbenzene	A	100.0	106.3	2.332492	2.480167		6.3	20
1,2,4-Trimethylbenzene	A	100.0	101.9	2.455546	2.50319		1.9	20
Vinyl chloride	A	100.0	102.5	0.2311162	0.2367988		2.5	20
m,p-Xylene	A	200.0	207.7	2.398703	2.491539		3.9	20
o-Xylene	A	100.0	103.8	2.490881	2.586318		3.8	20
Xylenes (total)	A	300.0	311.6	2.429429	2.523132		3.9	20
Bromofluorobenzene	A	30.00	30.96	0.9483247	0.9787296		3.2	20
Dibromofluoromethane	A	30.00	28.95	0.2870562	0.2769727		-3.5	20
1,2-Dichloroethane-d4	A	30.00	28.67	6.059895E-02	5.791706E-02		-4.4	20
Toluene-d8	A	30.00	30.57	2.453867	2.50058		1.9	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4121002
Lab File ID:	0501CCV1.D	Calibration Date:	04/30/14 09:51
Sequence:	4E12206	Injection Date:	05/01/14
Lab Sample ID:	4E12206-CCV1	Injection Time:	12:19

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acetone	A	200.0	224.4	7.696467E-02	0.0863409		12.2	20
Benzene	A	100.0	102.8	1.131841	1.163383		2.8	20
Bromobenzene	A	100.0	98.91	0.8816774	0.8720375		-1.1	20
Bromochloromethane	A	100.0	96.92	0.1735021	0.1681602		-3.1	20
Bromodichloromethane	A	100.0	100.1	0.3611054	0.3614814		0.1	20
Bromoform	A	100.0	115.0	0.5196442	0.5976486	0.1	15.0	20
Bromomethane	A	100.0	101.0	0.2054548	0.2074528		1.0	20
n-Butylbenzene	A	100.0	100.6	2.211512	2.224837		0.6	20
2-Butanone	A	200.0	191.6	0.1244045	0.1192058		-4.2	20
sec-Butylbenzene	A	100.0	100.6	2.878791	2.894795		0.6	20
tert-Butylbenzene	A	100.0	99.41	2.224752	2.211662		-0.6	20
Carbon disulfide	A	100.0	105.3	0.9983505	1.051068		5.3	20
Carbon tetrachloride	A	100.0	108.9	0.2549765	0.3139807		8.9	20
Chlorobenzene	A	100.0	101.7	2.034979	2.0688	0.3	1.7	20
Chloroethane	A	100.0	104.7	0.192143	0.2011144		4.7	20
Chloroform	A	100.0	90.96	0.5098803	0.4637681		-9.0	20
Chloromethane	A	100.0	97.45	0.3015313	0.2938327	0.1	-2.6	20
2-Chlorotoluene	A	100.0	101.5	2.085692	2.116745		1.5	20
4-Chlorotoluene	A	100.0	99.96	2.434115	2.433155		-0.04	20
Dibromochloromethane	A	100.0	106.6	0.8141241	0.8677312		6.6	20
1,2-Dibromo-3-chloropropane	A	100.0	102.4	0.1576092	0.1614026		2.4	20
1,2-Dibromoethane (EDB)	A	100.0	102.3	0.7633279	0.7807427		2.3	20
Dibromomethane	A	100.0	96.19	0.193164	0.1858002		-3.8	20
1,2-Dichlorobenzene	A	100.0	96.91	1.527206	1.480076		-3.1	20
1,3-Dichlorobenzene	A	100.0	98.67	1.563066	1.542259		-1.3	20
1,4-Dichlorobenzene	A	100.0	98.29	1.608638	1.581098		-1.7	20
Dichlorodifluoromethane	A	100.0	118.8	0.2235294	0.2655874		18.8	20
1,1-Dichloroethane	A	100.0	99.09	0.5299638	0.5251558	0.1	-0.9	20
1,2-Dichloroethane	A	100.0	101.3	0.3527889	0.3572611		1.3	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4121002
Lab File ID:	0501CCV1.D	Calibration Date:	04/30/14 09:51
Sequence:	4E12206	Injection Date:	05/01/14
Lab Sample ID:	4E12206-CCV1	Injection Time:	12:19

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,1-Dichloroethene	A	100.0	108.8	0.261293	0.2841563		8.8	20
cis-1,2-Dichloroethene	A	100.0	96.13	0.3074036	0.2955015		-3.9	20
trans-1,2-Dichloroethene	A	100.0	101.7	0.2877447	0.2925119		1.7	20
1,2-Dichloroethene (total)	A	200.0	197.8	0.2975742	0.2940067		-1.2	20
1,2-Dichloropropane	A	100.0	97.97	0.3109138	0.3046088		-2.0	20
1,3-Dichloropropane	A	100.0	99.12	1.150285	1.140117		-0.9	20
2,2-Dichloropropane	A	100.0	114.4	0.3299685	0.377577		14.4	20
1,1-Dichloropropene	A	100.0	105.8	0.3754181	0.3971989		5.8	20
cis-1,3-Dichloropropene	A	100.0	102.3	0.4372536	0.4473213		2.3	20
trans-1,3-Dichloropropene	A	100.0	110.0	1.039537	1.143292		10.0	20
Ethylbenzene	A	100.0	105.8	3.231761	3.41912		5.8	20
Hexachlorobutadiene	A	100.0	101.2	0.3852952	0.3899381		1.2	20
2-Hexanone	A	200.0	205.4	0.4052429	0.4161533		2.7	20
Isopropylbenzene	A	100.0	106.6	2.761548	2.944007		6.6	20
p-Isopropyltoluene	A	100.0	104.1	2.438561	2.538607		4.1	20
Methylene chloride	A	100.0	93.21	0.3275172	0.3052641		-6.8	20
Naphthalene	A	100.0	99.35	2.211543	2.197218		-0.6	20
4-Methyl-2-pentanone	A	200.0	194.2	0.2300482	0.2233728		-2.9	20
Methyl t-Butyl Ether	A	100.0	96.00	0.7053313	0.6770988		-4.0	20
n-Propylbenzene	A	100.0	101.0	3.39494	3.42942		1.0	20
Styrene	A	100.0	106.5	2.024427	2.155351		6.5	20
1,1,2,2-Tetrachloroethane	A	100.0	96.23	0.8070836	0.776619	0.3	-3.8	20
1,1,1,2-Tetrachloroethane	A	100.0	110.4	0.6801929	0.7511971		10.4	20
Tetrachloroethene	A	100.0	108.9	0.8177061	0.8903845		8.9	20
Toluene	A	100.0	106.0	1.729125	1.833058		6.0	20
1,2,3-Trichlorobenzene	A	100.0	97.53	0.8998323	0.8776351		-2.5	20
1,2,4-Trichlorobenzene	A	100.0	98.18	1.028826	1.010117		-1.8	20
1,1,2-Trichloroethane	A	100.0	97.04	0.5865985	0.5692207		-3.0	20
1,1,1-Trichloroethane	A	100.0	108.1	0.3371527	0.3645766		8.1	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4121002
Lab File ID:	0501CCV1.D	Calibration Date:	04/30/14 09:51
Sequence:	4E12206	Injection Date:	05/01/14
Lab Sample ID:	4E12206-CCV1	Injection Time:	12:19

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Trichloroethene	A	100.0	103.4	0.2874114	0.2972343		3.4	20
Trichlorofluoromethane	A	100.0	113.0	0.3577562	0.4044164		13.0	20
1,2,3-Trichloropropane	A	100.0	103.6	0.2032497	0.210651		3.6	20
1,3,5-Trimethylbenzene	A	100.0	103.7	2.332492	2.418934		3.7	20
1,2,4-Trimethylbenzene	A	100.0	98.71	2.455546	2.423977		-1.3	20
Vinyl chloride	A	100.0	112.2	0.2311162	0.2592553		12.2	20
m,p-Xylene	A	200.0	204.9	2.398703	2.457717		2.5	20
o-Xylene	A	100.0	102.0	2.490881	2.540137		2.0	20
Xylenes (total)	A	300.0	306.9	2.429429	2.485191		2.3	20
Bromofluorobenzene	A	30.00	31.09	0.9483247	0.9828022		3.6	20
Dibromofluoromethane	A	30.00	29.23	0.2870562	0.2797288		-2.6	20
1,2-Dichloroethane-d4	A	30.00	29.64	6.059895E-02	5.987262E-02		-1.2	20
Toluene-d8	A	30.00	31.21	2.453867	2.552519		4.0	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA3	Calibration:	4120001
Lab File ID:	0502CCV1.D	Calibration Date:	04/25/14 03:16
Sequence:	4E12501	Injection Date:	05/02/14
Lab Sample ID:	4E12501-CCV1	Injection Time:	07:50

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)	
Acetone	A	200.0	217.7	0.1522009	0.165642		8.8	20	
Benzene	A	100.0	94.68	1.017489	0.9633626		-5.3	20	
Bromobenzene	A	100.0	93.47	0.8087865	0.7559741		-6.5	20	
Bromochloromethane	A	100.0	88.36	0.1425964	0.1260022		-11.6	20	
Bromodichloromethane	A	100.0	89.69	0.3957471	0.3549635		-10.3	20	
Bromoform	A	100.0	84.03	0.5027956	0.5053866	0.1	-16.0	20	
Bromomethane	A	100.0	72.87	0.1851011	0.1348804		-27.1	20	*
n-Butylbenzene	A	100.0	105.4	2.358482	2.485107		5.4	20	
2-Butanone	A	200.0	204.6	0.2346556	0.2400818		2.3	20	
sec-Butylbenzene	A	100.0	101.3	2.985903	3.023418		1.3	20	
tert-Butylbenzene	A	100.0	95.84	2.168952	2.07863		-4.2	20	
Carbon disulfide	A	100.0	97.49	0.6969197	0.6793987		-2.5	20	
Carbon tetrachloride	A	100.0	87.43	0.3595227	0.3143434		-12.6	20	
Chlorobenzene	A	100.0	92.05	1.868208	1.719595	0.3	-8.0	20	
Chloroethane	A	100.0	84.38	0.201035	0.1696359		-15.6	20	
Chloroform	A	100.0	88.85	0.5489754	0.4403941		-11.1	20	
Chloromethane	A	100.0	82.21	0.5519961	0.4538094	0.1	-17.8	20	
2-Chlorotoluene	A	100.0	95.09	2.131609	2.026861		-4.9	20	
4-Chlorotoluene	A	100.0	98.78	2.190353	2.163561		-1.2	20	
Dibromochloromethane	A	100.0	95.93	0.6882604	0.6602356		-4.1	20	
1,2-Dibromo-3-chloropropane	A	100.0	84.49	0.2205363	0.2043577		-15.5	20	
1,2-Dibromoethane (EDB)	A	100.0	92.81	0.6915721	0.6418168		-7.2	20	
Dibromomethane	A	100.0	88.76	0.1908816	0.1694169		-11.2	20	
1,2-Dichlorobenzene	A	100.0	95.21	1.518108	1.445388		-4.8	20	
1,3-Dichlorobenzene	A	100.0	97.77	1.503339	1.469826		-2.2	20	
1,4-Dichlorobenzene	A	100.0	96.35	1.523752	1.468178		-3.6	20	
Dichlorodifluoromethane	A	100.0	94.30	0.2608049	0.2459489		-5.7	20	
1,1-Dichloroethane	A	100.0	87.10	0.5679661	0.4946715	0.1	-12.9	20	
1,2-Dichloroethane	A	100.0	81.93	0.5223875	0.4279732		-18.1	20	

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA3	Calibration:	4120001
Lab File ID:	0502CCV1.D	Calibration Date:	04/25/14 03:16
Sequence:	4E12501	Injection Date:	05/02/14
Lab Sample ID:	4E12501-CCV1	Injection Time:	07:50

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,1-Dichloroethene	A	100.0	93.42	0.2201966	0.2057032		-6.6	20
cis-1,2-Dichloroethene	A	100.0	94.54	0.2779171	0.2627351		-5.5	20
trans-1,2-Dichloroethene	A	100.0	89.48	0.2584626	0.2312724		-10.5	20
1,2-Dichloroethene (total)	A	200.0	184.0	0.2681898	0.2470037		-7.9	20
1,2-Dichloropropane	A	100.0	92.85	0.3112176	0.2889677		-7.1	20
1,3-Dichloropropane	A	100.0	89.85	1.075786	0.9665817		-10.2	20
2,2-Dichloropropane	A	100.0	92.41	0.3892748	0.3597127		-7.6	20
1,1-Dichloropropene	A	100.0	92.59	0.3459916	0.3203662		-7.4	20
cis-1,3-Dichloropropene	A	100.0	94.10	0.4102498	0.3860339		-5.9	20
trans-1,3-Dichloropropene	A	100.0	94.87	1.010607	0.9587768		-5.1	20
Ethylbenzene	A	100.0	95.20	3.008644	2.864302		-4.8	20
Hexachlorobutadiene	A	100.0	95.59	0.5718699	0.5466671		-4.4	20
2-Hexanone	A	200.0	198.4	0.8454539	0.8388943		-0.8	20
Isopropylbenzene	A	100.0	96.84	2.777793	2.690064		-3.2	20
p-Isopropyltoluene	A	100.0	100.5	2.585621	2.597789		0.5	20
Methylene chloride	A	100.0	95.07	0.2885778	0.2473299		-4.9	20
Naphthalene	A	100.0	103.3	2.967243	3.063842		3.3	20
4-Methyl-2-pentanone	A	200.0	177.0	0.5123006	0.4534821		-11.5	20
Methyl t-Butyl Ether	A	100.0	86.75	0.822306	0.7133323		-13.3	20
n-Propylbenzene	A	100.0	100.9	3.20308	3.23176		0.9	20
Styrene	A	100.0	100.0	1.928481	1.928415		-0.003	20
1,1,2,2-Tetrachloroethane	A	100.0	96.36	0.8373097	0.8068106	0.3	-3.6	20
1,1,1,2-Tetrachloroethane	A	100.0	91.43	0.6672276	0.6100351		-8.6	20
Tetrachloroethene	A	100.0	94.19	0.7081879	0.6670529		-5.8	20
Toluene	A	100.0	94.34	1.611157	1.519929		-5.7	20
1,2,3-Trichlorobenzene	A	100.0	99.49	1.1268	1.121085		-0.5	20
1,2,4-Trichlorobenzene	A	100.0	99.43	1.124242	1.117864		-0.6	20
1,1,2-Trichloroethane	A	100.0	92.81	0.5094666	0.4728154		-7.2	20
1,1,1-Trichloroethane	A	100.0	86.46	0.4430452	0.3830757		-13.5	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA3	Calibration:	4120001
Lab File ID:	0502CCV1.D	Calibration Date:	04/25/14 03:16
Sequence:	4E12501	Injection Date:	05/02/14
Lab Sample ID:	4E12501-CCV1	Injection Time:	07:50

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Trichloroethene	A	100.0	90.89	0.2782947	0.2529348		-9.1	20
Trichlorofluoromethane	A	100.0	83.99	0.4305957	0.3616547		-16.0	20
1,2,3-Trichloropropane	A	100.0	91.10	0.3033978	0.2764041		-8.9	20
1,3,5-Trimethylbenzene	A	100.0	98.89	2.455337	2.428055		-1.1	20
1,2,4-Trimethylbenzene	A	100.0	100.7	2.54175	2.55892		0.7	20
Vinyl chloride	A	100.0	84.82	0.2533873	0.2149337		-15.2	20
m,p-Xylene	A	200.0	190.8	2.37607	2.26679		-4.6	20
o-Xylene	A	100.0	95.05	2.561499	2.434689		-5.0	20
Xylenes (total)	A	300.0	285.9	2.437879	2.322756		-4.7	20
Bromofluorobenzene	A	30.00	30.17	0.9553584	0.9608491		0.6	20
Dibromofluoromethane	A	30.00	28.44	0.2691806	0.2551445		-5.2	20
1,2-Dichloroethane-d4	A	30.00	29.20	6.021219E-02	5.860668E-02		-2.7	20
Toluene-d8	A	30.00	30.10	2.229904	2.23756		0.3	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4121002
Lab File ID:	0505CC1.D	Calibration Date:	04/30/14 09:51
Sequence:	4E12606	Injection Date:	05/05/14
Lab Sample ID:	4E12606-CCV1	Injection Time:	07:27

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acetone	A	200.0	248.3	7.696467E-02	9.555591E-02		24.2	20 *
Benzene	A	100.0	93.37	1.131841	1.056791		-6.6	20
Bromobenzene	A	100.0	96.14	0.8816774	0.8476062		-3.9	20
Bromochloromethane	A	100.0	100.9	0.1735021	0.1750518		0.9	20
Bromodichloromethane	A	100.0	111.4	0.3611054	0.4022847		11.4	20
Bromoform	A	100.0	124.6	0.5196442	0.6474371	0.1	24.6	20 *
Bromomethane	A	100.0	94.78	0.2054548	0.1947223		-5.2	20
n-Butylbenzene	A	100.0	95.32	2.211512	2.108034		-4.7	20
2-Butanone	A	200.0	224.6	0.1244045	0.1396805		12.3	20
sec-Butylbenzene	A	100.0	91.53	2.878791	2.635034		-8.5	20
tert-Butylbenzene	A	100.0	96.64	2.224752	2.150069		-3.4	20
Carbon disulfide	A	100.0	88.84	0.9983505	0.8868939		-11.2	20
Carbon tetrachloride	A	100.0	109.2	0.2549765	0.3148424		9.2	20
Chlorobenzene	A	100.0	92.88	2.034979	1.890167	0.3	-7.1	20
Chloroethane	A	100.0	90.99	0.192143	0.1748369		-9.0	20
Chloroform	A	100.0	96.24	0.5098803	0.490696		-3.8	20
Chloromethane	A	100.0	90.51	0.3015313	0.2729246	0.1	-9.5	20
2-Chlorotoluene	A	100.0	94.64	2.085692	1.973841		-5.4	20
4-Chlorotoluene	A	100.0	98.17	2.434115	2.389488		-1.8	20
Dibromochloromethane	A	100.0	111.6	0.8141241	0.9086417		11.6	20
1,2-Dibromo-3-chloropropane	A	100.0	114.8	0.1576092	0.1809606		14.8	20
1,2-Dibromoethane (EDB)	A	100.0	102.2	0.7633279	0.7800584		2.2	20
Dibromomethane	A	100.0	105.2	0.193164	0.2033038		5.2	20
1,2-Dichlorobenzene	A	100.0	97.05	1.527206	1.482224		-2.9	20
1,3-Dichlorobenzene	A	100.0	95.07	1.563066	1.486032		-4.9	20
1,4-Dichlorobenzene	A	100.0	93.60	1.608638	1.505607		-6.4	20
Dichlorodifluoromethane	A	100.0	110.5	0.2235294	0.2470588		10.5	20
1,1-Dichloroethane	A	100.0	97.55	0.5299638	0.5169998	0.1	-2.4	20
1,2-Dichloroethane	A	100.0	119.4	0.3527889	0.4211709		19.4	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4121002
Lab File ID:	0505CC1.D	Calibration Date:	04/30/14 09:51
Sequence:	4E12606	Injection Date:	05/05/14
Lab Sample ID:	4E12606-CCV1	Injection Time:	07:27

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,1-Dichloroethene	A	100.0	91.26	0.261293	0.2384601		-8.7	20
cis-1,2-Dichloroethene	A	100.0	95.26	0.3074036	0.2928335		-4.7	20
trans-1,2-Dichloroethene	A	100.0	94.92	0.2877447	0.2731303		-5.1	20
1,2-Dichloroethene (total)	A	200.0	190.2	0.2975742	0.2829819		-4.9	20
1,2-Dichloropropane	A	100.0	94.67	0.3109138	0.2943407		-5.3	20
1,3-Dichloropropane	A	100.0	96.38	1.150285	1.108619		-3.6	20
2,2-Dichloropropane	A	100.0	116.5	0.3299685	0.3845043		16.5	20
1,1-Dichloropropene	A	100.0	96.02	0.3754181	0.3604625		-4.0	20
cis-1,3-Dichloropropene	A	100.0	104.4	0.4372536	0.4565041		4.4	20
trans-1,3-Dichloropropene	A	100.0	111.7	1.039537	1.161628		11.7	20
Ethylbenzene	A	100.0	93.57	3.231761	3.024104		-6.4	20
Hexachlorobutadiene	A	100.0	93.96	0.3852952	0.3620139		-6.0	20
2-Hexanone	A	200.0	204.8	0.4052429	0.4149294		2.4	20
Isopropylbenzene	A	100.0	89.80	2.761548	2.479948		-10.2	20
p-Isopropyltoluene	A	100.0	94.67	2.438561	2.308636		-5.3	20
Methylene chloride	A	100.0	91.79	0.3275172	0.3006144		-8.2	20
Naphthalene	A	100.0	106.8	2.211543	2.362905		6.8	20
4-Methyl-2-pentanone	A	200.0	211.7	0.2300482	0.2434811		5.8	20
Methyl t-Butyl Ether	A	100.0	111.1	0.7053313	0.7836597		11.1	20
n-Propylbenzene	A	100.0	93.28	3.39494	3.166855		-6.7	20
Styrene	A	100.0	96.21	2.024427	1.947691		-3.8	20
1,1,2,2-Tetrachloroethane	A	100.0	97.42	0.8070836	0.7862974	0.3	-2.6	20
1,1,1,2-Tetrachloroethane	A	100.0	107.9	0.6801929	0.7337724		7.9	20
Tetrachloroethene	A	100.0	94.21	0.8177061	0.7703662		-5.8	20
Toluene	A	100.0	90.12	1.729125	1.558375		-9.9	20
1,2,3-Trichlorobenzene	A	100.0	105.1	0.8998323	0.9460614		5.1	20
1,2,4-Trichlorobenzene	A	100.0	100.5	1.028826	1.034265		0.5	20
1,1,2-Trichloroethane	A	100.0	92.46	0.5865985	0.5423926		-7.5	20
1,1,1-Trichloroethane	A	100.0	115.0	0.3371527	0.387828		15.0	20

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Instrument ID:	MS-VOA4	Calibration:	4121002
Lab File ID:	0505CC1.D	Calibration Date:	04/30/14 09:51
Sequence:	4E12606	Injection Date:	05/05/14
Lab Sample ID:	4E12606-CCV1	Injection Time:	07:27

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Trichloroethene	A	100.0	99.21	0.2874114	0.2851296		-0.8	20
Trichlorofluoromethane	A	100.0	103.8	0.3577562	0.3713282		3.8	20
1,2,3-Trichloropropane	A	100.0	112.7	0.2032497	0.2291564		12.7	20
1,3,5-Trimethylbenzene	A	100.0	97.97	2.332492	2.285236		-2.0	20
1,2,4-Trimethylbenzene	A	100.0	96.66	2.455546	2.373607		-3.3	20
Vinyl chloride	A	100.0	95.16	0.2311162	0.2199268		-4.8	20
m,p-Xylene	A	200.0	186.0	2.398703	2.230241		-7.0	20
o-Xylene	A	100.0	95.64	2.490881	2.382221		-4.4	20
Xylenes (total)	A	300.0	281.6	2.429429	2.280901		-6.1	20
Bromofluorobenzene	A	30.00	29.45	0.9483247	0.931057		-1.8	20
Dibromofluoromethane	A	30.00	31.60	0.2870562	0.3023905		5.3	20
1,2-Dichloroethane-d4	A	30.00	29.38	6.059895E-02	5.935503E-02		-2.1	20
Toluene-d8	A	30.00	29.31	2.453867	2.397188		-2.3	20

HOLDING TIME SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LF008-30005	04/21/14 10:56	04/23/14 08:40	05/01/14 15:33	N/A	14.00	05/01/14 15:33	10.15	14.00	
LF008-30006	04/21/14 10:56	04/23/14 08:40	05/01/14 16:01	N/A	14.00	05/01/14 16:01	10.17	14.00	
LF008-30007	04/21/14 15:26	04/23/14 08:40	05/01/14 16:28	N/A	14.00	05/01/14 16:28	10.00	14.00	
LF008-80004	04/20/14 08:00	04/23/14 08:40	05/01/14 16:56	N/A	14.00	05/01/14 16:56	11.33	14.00	
LF008-30002	04/24/14 13:46	04/25/14 08:50	05/02/14 16:23	N/A	14.00	05/02/14 16:23	8.07	14.00	
LF008-30004	04/23/14 15:51	04/25/14 08:50	05/02/14 16:48	N/A	14.00	05/02/14 16:48	9.00	14.00	
LF008-80005	04/23/14 08:00	04/25/14 08:50	05/02/14 17:13	N/A	14.00	05/02/14 17:13	9.34	14.00	
LF008-30008	04/28/14 12:17	04/30/14 08:50	05/05/14 12:06	N/A	14.00	05/05/14 12:06	6.95	14.00	
LF008-80006	04/28/14 08:00	04/30/14 08:50	05/05/14 12:34	N/A	14.00	05/05/14 12:34	7.15	14.00	

PREPARATION BENCH SHEET

4E01023

Empirical Laboratories, LLC

Instrument: VOA4

Printed: 5/14/2014 2:16:28PM

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404147-13	B	VOC_8260B_REG	05/01/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404149-01	B	VOC_8260B_REG	05/01/2014	5	5				1	2	see versions
1404149-03	B	VOC_8260B_REG	05/01/2014	5	5				1	2	see versions
1404149-05	B	VOC_8260B_REG	05/01/2014	5	5				1	2	see versions
1404149-07	B	VOC_8260B_REG	05/01/2014	5	5				1	2	see versions
1404158-02	B	VOC_8260B_REG	05/01/2014	5	5				1	2	
1404158-03	B	VOC_8260B_REG	05/01/2014	5	5				1	2	
1404162-02	B	VOC_8260B_REG	05/01/2014	5	5				1	2	
1404162-04	B	VOC_8260B_REG	05/01/2014	5	5				1	2	2x-F
1404162-05	B	VOC_8260B_REG	05/01/2014	5	5				1	2	5x-T
1404166-01	B	VOC_8260B_REG	05/01/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL 5X-T/F
1404166-03	B	VOC_8260B_REG	05/01/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404166-05	B	VOC_8260B_REG	05/01/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404166-07	B	VOC_8260B_REG	05/01/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404166-09	B	VOC_8260B_REG	05/01/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404166-11	B	VOC_8260B_REG	05/01/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404166-15	B	VOC_8260B_REG	05/01/2014	5	5				1	2	MS/MSD; ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
4E01023-BLK1		QC	05/01/2014	5	5				1	NA	
4E01023-BS1		QC	05/01/2014	5	5	14D0902		2.5	1	NA	
4E01023-MS1		QC	05/01/2014	5	5	14D0902	1404166-15	2.5	1	NA	
4E01023-MSD1		QC	05/01/2014	5	5	14D0902	1404166-15	2.5	1	NA	

PREPARATION BENCH SHEET

4E01023

Empirical Laboratories, LLC

Printed: 5/14/2014 2:16:28PM

Instrument: VOA4

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description
12A0699	Anti-foam-JT Baker_AFB

PREPARATION BENCH SHEET

4E02004

Empirical Laboratories, LLC

Instrument: VOA3

Printed: 5/15/2014 12:14:00PM

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404165-01	F	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!
1404165-04	A	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!-EB
1404165-05	B	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!
1404165-06	B	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!
1404165-07	B	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!
1404165-08	B	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!
1404165-09	B	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!
1404165-10	B	VOC_8260B_REG	05/02/2014	5	5				1	2	2X-F
1404165-11	B	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!
1404165-12	B	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!
1404165-13	B	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!
1404165-14	A	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!-TB
1404165-15	B	VOC_8260B_REG	05/02/2014	5	5				1	2	Good CCVs!
1404166-01RE1	C	VOC_8260B_REG	05/02/2014	5	5				1	2	Re added 5/2/2014 by ADM-RR 2X-F lower
1404166-13	B	VOC_8260B_REG	05/02/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404166-17	B	VOC_8260B_REG	05/02/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404166-19	B	VOC_8260B_REG	05/02/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404166-21	A	VOC_8260B_REG	05/02/2014	5	5				1	2	ANALYZE UNPRESERVED? naphthalene must be reported / IS-ICAL
1404168-01	B	VOC_8260B_REG	05/02/2014	5	5				1	2	MS/MSD
1404168-03	B	VOC_8260B_REG	05/02/2014	5	5				1	2	see versions
1404168-05	B	VOC_8260B_REG	05/02/2014	5	5				1	2	see versions
4E02004-BLK1		QC	05/02/2014	5	5				1	NA	

PREPARATION BENCH SHEET

4E02004

Empirical Laboratories, LLC

Printed: 5/15/2014 12:14:00PM

Instrument: VOA3

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E02004-BS1		QC	05/02/2014	5	5	14D0902		2.5	1	NA	
4E02004-MS1		QC	05/02/2014	5	5	14D0902	1404168-01	2.5	1	NA	
4E02004-MSD1		QC	05/02/2014	5	5	14D0902	1404168-01	2.5	1	NA	

Reagents Used:

Standard	Description
12A0699	Anti-foam-JT Baker_AFB

PREPARATION BENCH SHEET

4E05011

Empirical Laboratories, LLC

Instrument: VOA3

Printed: 5/9/2014 11:34:19AM

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404087-02RE1	C	VOC_8260B_REG	05/05/2014	5	5				1	2	RR 250X(TCE) OOH
1404087-04RE1	C	VOC_8260B_REG	05/05/2014	5	5				1	2	RR 500X w/ms/msd OOH
1404194-06	B	VOC_8260B_REG	05/05/2014	5	5				1	2	
1404201-01	A	VOC_8260B_REG	05/05/2014	5	5				1	2	
1404201-02	B	VOC_8260B_REG	05/05/2014	5	5				1	2	
1404201-04	B	VOC_8260B_REG	05/05/2014	5	5				1	2	
1404203-01	B	VOC_8260B_REG	05/05/2014	5	5				1	2	see versions
1404203-03	B	VOC_8260B_REG	05/05/2014	5	5				1	2	see versions
1405007-08	C	VOC_8260B_REG	05/05/2014	5	5				1	7	Analyze Unpres 1st. no quadratic calib-2X-F
1405007-13	C	VOC_8260B_REG	05/05/2014	5	5				1	7	Analyze Unpres 1st. no quadratic calib-2X-F
1405007-14	C	VOC_8260B_REG	05/05/2014	5	5				1	7	Analyze Unpres 1st. no quadratic calib-2X-F
1405007-21	C	VOC_8260B_REG	05/05/2014	5	5				1	7	Analyze Unpres 1st. no quadratic calib
1405007-23	C	VOC_8260B_REG	05/05/2014	5	5				1	7	MS/MSD; Analyze Unpres 1st. no quadratic calib 10x-T
1405009-02	B	VOC_8260B_REG	05/05/2014	5	5				1	2	Low VOC volume
1405011-01	B	VOC_8260B_REG	05/05/2014	5	5				1	2	select version
4E05011-BLK1		QC	05/05/2014	5	5				1	NA	
4E05011-BS1		QC	05/05/2014	5	5	14D0902		2.5	1	NA	
4E05011-MS1		QC	05/05/2014	5	5	14D0902	1405007-23	25	1	NA	10x
4E05011-MS2		QC	05/05/2014	5	5	14D0902	1404087-04RE1	1250	1	NA	500x
4E05011-MSD1		QC	05/05/2014	5	5	14D0902	1405007-23	25	1	NA	10x
4E05011-MSD2		QC	05/05/2014	5	5	14D0902	1404087-04RE1	1250	1	NA	500x

PREPARATION BENCH SHEET

4E05011

Empirical Laboratories, LLC

Printed: 5/9/2014 11:34:19AM

Instrument: VOA3

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 13K0592**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description
12A0699	Anti-foam-JT Baker_AFB

Data for SW6010C / SW7470A Forms

Sample Extraction Data

Prep Method: pMercury-W SW 7470A-SW7470A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404149-06 [LF008-30007]	4D29005	30.00/30.00	30.0	30.0	1.00			04/29/14

Sample Extraction Data

Prep Method: pMercury-W SW 7470A-SW7470A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404149-01 [LF008-30005]	4D29006	30.00/30.00	30.0	30.0	1.00			04/29/14
1404149-02 [LF008-30005]	4D29006	30.00/30.00	30.0	30.0	1.00			04/29/14
1404149-03 [LF008-30006]	4D29006	30.00/30.00	30.0	30.0	1.00			04/29/14
1404149-04 [LF008-30006]	4D29006	30.00/30.00	30.0	30.0	1.00			04/29/14
1404149-05 [LF008-30007]	4D29006	30.00/30.00	30.0	30.0	1.00			04/29/14

Sample Extraction Data

Prep Method: pMercury-W SW 7470A-SW7470A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404168-01 [LF008-30002]	4D29007	30.00/30.00	30.0	30.0	1.00			04/29/14
1404168-02 [LF008-30002]	4D29007	30.00/30.00	30.0	30.0	1.00			04/29/14
1404168-03 [LF008-30004]	4D29007	30.00/30.00	30.0	30.0	1.00			04/29/14
1404168-04 [LF008-30004]	4D29007	30.00/30.00	30.0	30.0	1.00			04/29/14

Sample Extraction Data

Prep Method: MET_3005A_LOW-SW6010C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404149-01 [LF008-30005]	4D29021	100.00/25.00	100	25.0	1.00			04/29/14
1404149-02 [LF008-30005]	4D29021	100.00/25.00	100	25.0	1.00			04/29/14
1404149-04 [LF008-30006]	4D29021	100.00/25.00	100	25.0	1.00			04/29/14
1404149-06 [LF008-30007]	4D29021	100.00/25.00	100	25.0	1.00			04/29/14
1404149-06RE1 [LF008-30007]	4D29021	100.00/25.00	100	25.0	2.00			04/29/14
1404168-01 [LF008-30002]	4D29021	100.00/25.00	100	25.0	1.00			04/29/14
1404168-02 [LF008-30002]	4D29021	100.00/25.00	100	25.0	1.00			04/29/14
1404168-03 [LF008-30004]	4D29021	100.00/25.00	100	25.0	1.00			04/29/14
1404168-04 [LF008-30004]	4D29021	100.00/25.00	100	25.0	1.00			04/29/14

Sample Extraction Data

Prep Method: MET_3005A_LOW-SW6010C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404149-03 [LF008-30006]	4E06002	100.00/25.00	100	25.0	1.00			05/06/14
1404149-05 [LF008-30007]	4E06002	100.00/25.00	100	25.0	1.00			05/06/14
1404203-01 [LF008-30008]	4E06002	100.00/25.00	100	25.0	1.00			05/06/14
1404203-02 [LF008-30008]	4E06002	100.00/25.00	100	25.0	1.00			05/06/14

Sample Extraction Data

Prep Method: pMercury-W SW 7470A-SW7470A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404203-01 [LF008-30008]	4E07020	30.00/30.00	30.0	30.0	1.00			05/07/14
1404203-02 [LF008-30008]	4E07020	30.00/30.00	30.0	30.0	1.00			05/07/14

ANALYSIS DATA SHEET

LF008-30005

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-01
Sampled:	04/21/14 10:56	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:43
7429-90-5	Aluminum	**61.4**	**12.5**	25.0	50.0	1		SW6010C	4D29021	05/02/14 12:11
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:11
7440-39-3	Barium	**43.7**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:11
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:11
7440-42-8	Boron	**24.8**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:11
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:11
7440-47-3	Chromium	**5.42**	**0.500**	1.00	2.50	1	N*	SW6010C	4D29021	05/02/14 12:11
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:11
7440-50-8	Copper	**1.98**	**1.00**	2.00	2.50	1	J	SW6010C	4D29021	05/02/14 12:11
7439-89-6	Iron	**117**	**7.50**	15.0	25.0	1	N*	SW6010C	4D29021	05/02/14 12:11
7439-92-1	Lead	**0.701**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 12:11
7439-96-5	Manganese	**5.82**	**0.750**	1.50	3.75	1	N*	SW6010C	4D29021	05/02/14 12:11
7439-98-7	Molybdenum	**1.76**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:11
7440-02-0	Nickel	**1.63**	**0.750**	1.50	2.50	1	J	SW6010C	4D29021	05/02/14 12:11
7782-49-2	Selenium	**4.64**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:11
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:11
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:11
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:11
7440-62-2	Vanadium	**5.38**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:11
7440-66-6	Zinc	**3.46**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:11

ANALYSIS DATA SHEET

LF008-30005

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-02
Sampled:	04/21/14 10:56	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:44
7429-90-5	Aluminum (dissolved)	**30.7**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 12:15
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:15
7440-39-3	Barium (dissolved)	**43.5**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:15
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:15
7440-42-8	Boron (dissolved)	**25.2**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:15
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:15
7440-47-3	Chromium (dissolved)	**1.39**	**0.500**	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 12:15
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:15
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 12:15
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U N*	SW6010C	4D29021	05/02/14 12:15
7439-92-1	Lead (dissolved)	**0.581**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 12:15
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U N*	SW6010C	4D29021	05/02/14 12:15
7439-98-7	Molybdenum (dissolved)	**1.82**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:15
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:15
7782-49-2	Selenium (dissolved)	**4.37**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:15
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:15
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:15
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:15
7440-62-2	Vanadium (dissolved)	**4.87**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:15
7440-66-6	Zinc (dissolved)	**1.56**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:15

ANALYSIS DATA SHEET

LF008-30006

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-03
Sampled:	04/21/14 10:56	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:45
7429-90-5	Aluminum	**30.2**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 14:09
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:09
7440-39-3	Barium	**41.8**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 14:09
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:09
7440-42-8	Boron	**24.8**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 14:09
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:09
7440-47-3	Chromium	**2.59**	**0.500**	1.00	2.50	1		SW6010C	4E06002	05/07/14 14:09
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:09
7440-50-8	Copper		1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 14:09
7439-89-6	Iron	**39.8**	**7.50**	15.0	25.0	1		SW6010C	4E06002	05/07/14 14:09
7439-92-1	Lead	**0.430**	**0.375**	0.750	0.750	1	J	SW6010C	4E06002	05/07/14 14:09
7439-96-5	Manganese	**2.74**	**0.750**	1.50	3.75	1	J	SW6010C	4E06002	05/07/14 14:09
7439-98-7	Molybdenum	**1.73**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 14:09
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:09
7782-49-2	Selenium	**4.32**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 14:09
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 14:09
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 14:09
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 14:09
7440-62-2	Vanadium	**4.93**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 14:09
7440-66-6	Zinc	**1.94**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 14:09

ANALYSIS DATA SHEET

LF008-30006

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-04
Sampled:	04/21/14 10:56	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:46
7429-90-5	Aluminum (dissolved)	**27.2**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 12:20
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:20
7440-39-3	Barium (dissolved)	**43.9**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:20
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:20
7440-42-8	Boron (dissolved)	**24.3**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:20
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:20
7440-47-3	Chromium (dissolved)	**1.55**	**0.500**	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 12:20
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:20
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 12:20
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U N*	SW6010C	4D29021	05/02/14 12:20
7439-92-1	Lead (dissolved)	**0.566**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 12:20
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U N*	SW6010C	4D29021	05/02/14 12:20
7439-98-7	Molybdenum (dissolved)	**1.77**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:20
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:20
7782-49-2	Selenium (dissolved)	**4.62**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:20
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:20
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:20
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:20
7440-62-2	Vanadium (dissolved)	**4.73**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:20
7440-66-6	Zinc (dissolved)	**3.61**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:20

ANALYSIS DATA SHEET

LF008-30007

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-05
Sampled:	04/21/14 15:26	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:48
7429-90-5	Aluminum		12.5	25.0	50.0	1	U	SW6010C	4E06002	05/07/14 14:14
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:14
7440-39-3	Barium	**39.0**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 14:14
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:14
7440-42-8	Boron	**25.2**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 14:14
7440-43-9	Cadmium		0.500	0.500	1.25	1	MU	SW6010C	4E06002	05/07/14 14:14
7440-47-3	Chromium	**14.6**	**0.500**	1.00	2.50	1		SW6010C	4E06002	05/07/14 14:14
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:14
7440-50-8	Copper		1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 14:14
7439-89-6	Iron	**64.1**	**7.50**	15.0	25.0	1		SW6010C	4E06002	05/07/14 14:14
7439-92-1	Lead	**0.407**	**0.375**	0.750	0.750	1	J	SW6010C	4E06002	05/07/14 14:14
7439-96-5	Manganese	**1.80**	**0.750**	1.50	3.75	1	J	SW6010C	4E06002	05/07/14 14:14
7439-98-7	Molybdenum	**1.42**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 14:14
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:14
7782-49-2	Selenium	**12.3**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 14:14
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 14:14
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 14:14
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 14:14
7440-62-2	Vanadium	**4.19**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 14:14
7440-66-6	Zinc	**1.70**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 14:14

ANALYSIS DATA SHEET

LF008-30007

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-06
Sampled:	04/21/14 15:26	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:26
7429-90-5	Aluminum (dissolved)	**46.4**	**25.0**	50.0	100	2	JD	SW6010C	4D29021	05/05/14 16:37
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:24
7440-39-3	Barium (dissolved)	**40.7**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:24
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:24
7440-42-8	Boron (dissolved)	**25.5**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:24
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:24
7440-47-3	Chromium (dissolved)	**1.52**	**0.500**	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 12:24
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:24
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 12:24
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U N*	SW6010C	4D29021	05/02/14 12:24
7439-92-1	Lead (dissolved)	**0.825**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 12:24
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U N*	SW6010C	4D29021	05/02/14 12:24
7439-98-7	Molybdenum (dissolved)	**1.34**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:24
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:24
7782-49-2	Selenium (dissolved)	**12.9**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:24
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:24
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:24
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:24
7440-62-2	Vanadium (dissolved)	**4.08**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:24
7440-66-6	Zinc (dissolved)		2.50	5.00	10.0	2	U	SW6010C	4D29021	05/05/14 16:37

ANALYSIS DATA SHEET

LF008-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-01
Sampled:	04/24/14 13:46	Received:	04/25/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29007	04/29/14 12:34
7429-90-5	Aluminum	**24.6**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 13:04
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:04
7440-39-3	Barium	**66.7**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 13:04
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:04
7440-42-8	Boron	**24.1**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 13:04
7440-43-9	Cadmium		0.500	0.500	1.25	1	MU	SW6010C	4D29021	05/02/14 13:04
7440-47-3	Chromium	**218**	**0.500**	1.00	2.50	1	N*	SW6010C	4D29021	05/02/14 13:04
7440-48-4	Cobalt	**3.16**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:04
7440-50-8	Copper	**16.6**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 13:04
7439-89-6	Iron	**897**	**7.50**	15.0	25.0	1	N*	SW6010C	4D29021	05/02/14 13:04
7439-92-1	Lead	**0.663**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 13:04
7439-96-5	Manganese	**19.2**	**0.750**	1.50	3.75	1	N*	SW6010C	4D29021	05/02/14 13:04
7439-98-7	Molybdenum	**2.87**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 13:04
7440-02-0	Nickel	**5.33**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 13:04
7782-49-2	Selenium	**8.23**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 13:04
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 13:04
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 13:04
7440-31-5	Tin	**5.56**	**2.50**	5.00	7.50	1	J	SW6010C	4D29021	05/02/14 13:04
7440-62-2	Vanadium	**7.33**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:04
7440-66-6	Zinc	**17.0**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 13:04

ANALYSIS DATA SHEET

LF008-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-02
Sampled:	04/24/14 13:46	Received:	04/25/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29007	04/29/14 12:38
7429-90-5	Aluminum (dissolved)	**25.0**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 13:26
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:26
7440-39-3	Barium (dissolved)	**65.0**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 13:26
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:26
7440-42-8	Boron (dissolved)	**24.4**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 13:26
7440-43-9	Cadmium (dissolved)		0.500	0.500	1.25	1	MU	SW6010C	4D29021	05/02/14 13:26
7440-47-3	Chromium (dissolved)	**1.01**	**0.500**	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 13:26
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 13:26
7440-50-8	Copper (dissolved)	**10.5**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 13:26
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U N*	SW6010C	4D29021	05/02/14 13:26
7439-92-1	Lead (dissolved)	**0.767**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 13:26
7439-96-5	Manganese (dissolved)	**1.76**	**0.750**	1.50	3.75	1	J N*	SW6010C	4D29021	05/02/14 13:26
7439-98-7	Molybdenum (dissolved)	**1.56**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 13:26
7440-02-0	Nickel (dissolved)	**0.799**	**0.750**	1.50	2.50	1	J	SW6010C	4D29021	05/02/14 13:26
7782-49-2	Selenium (dissolved)	**8.37**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 13:26
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 13:26
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 13:26
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 13:26
7440-62-2	Vanadium (dissolved)	**4.56**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:26
7440-66-6	Zinc (dissolved)	**17.0**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 13:26

ANALYSIS DATA SHEET

LF008-30004

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-03
Sampled:	04/23/14 15:51	Received:	04/25/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29007	04/29/14 12:39
7429-90-5	Aluminum	**41.7**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 13:31
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:31
7440-39-3	Barium	**168**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 13:31
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:31
7440-42-8	Boron	**44.4**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 13:31
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:31
7440-47-3	Chromium	**1.05**	**0.500**	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 13:31
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 13:31
7440-50-8	Copper		1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 13:31
7439-89-6	Iron	**19.5**	**7.50**	15.0	25.0	1	J N*	SW6010C	4D29021	05/02/14 13:31
7439-92-1	Lead	**0.832**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 13:31
7439-96-5	Manganese	**1.36**	**0.750**	1.50	3.75	1	J N*	SW6010C	4D29021	05/02/14 13:31
7439-98-7	Molybdenum	**1.98**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 13:31
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:31
7782-49-2	Selenium	**4.40**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 13:31
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 13:31
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 13:31
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 13:31
7440-62-2	Vanadium	**4.62**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:31
7440-66-6	Zinc		1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 13:31

ANALYSIS DATA SHEET

LF008-30004

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-04
Sampled:	04/23/14 15:51	Received:	04/25/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29007	04/29/14 12:40
7429-90-5	Aluminum (dissolved)	**32.4**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 13:35
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:35
7440-39-3	Barium (dissolved)	**166**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 13:35
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:35
7440-42-8	Boron (dissolved)	**42.8**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 13:35
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:35
7440-47-3	Chromium (dissolved)	**0.974**	**0.500**	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 13:35
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 13:35
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 13:35
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U N*	SW6010C	4D29021	05/02/14 13:35
7439-92-1	Lead (dissolved)	**0.702**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 13:35
7439-96-5	Manganese (dissolved)	**0.781**	**0.750**	1.50	3.75	1	J N*	SW6010C	4D29021	05/02/14 13:35
7439-98-7	Molybdenum (dissolved)	**1.81**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 13:35
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:35
7782-49-2	Selenium (dissolved)	**3.88**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 13:35
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 13:35
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 13:35
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 13:35
7440-62-2	Vanadium (dissolved)	**4.35**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:35
7440-66-6	Zinc (dissolved)		1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 13:35

ANALYSIS DATA SHEET

LF008-30008

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404203-01
Sampled:	04/28/14 12:17	Received:	04/30/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4E07020	05/07/14 11:52
7429-90-5	Aluminum	**32.8**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 15:42
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 15:42
7440-39-3	Barium	**74.3**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 15:42
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 15:42
7440-42-8	Boron	**23.7**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 15:42
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 15:42
7440-47-3	Chromium	**0.884**	**0.500**	1.00	2.50	1	J	SW6010C	4E06002	05/07/14 15:42
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 15:42
7440-50-8	Copper		1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 15:42
7439-89-6	Iron	**16.4**	**7.50**	15.0	25.0	1	J	SW6010C	4E06002	05/07/14 15:42
7439-92-1	Lead		0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 15:42
7439-96-5	Manganese	**0.997**	**0.750**	1.50	3.75	1	J	SW6010C	4E06002	05/07/14 15:42
7439-98-7	Molybdenum	**1.38**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 15:42
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 15:42
7782-49-2	Selenium	**7.02**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 15:42
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 15:42
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 15:42
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 15:42
7440-62-2	Vanadium	**3.89**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 15:42
7440-66-6	Zinc		1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 15:42

ANALYSIS DATA SHEET

LF008-30008

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404203-02
Sampled:	04/28/14 12:17	Received:	04/30/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4E07020	05/07/14 11:53
7429-90-5	Aluminum (dissolved)	**19.4**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 15:46
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 15:46
7440-39-3	Barium (dissolved)	**77.4**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 15:46
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 15:46
7440-42-8	Boron (dissolved)	**25.0**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 15:46
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 15:46
7440-47-3	Chromium (dissolved)	**0.797**	**0.500**	1.00	2.50	1	J	SW6010C	4E06002	05/07/14 15:46
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 15:46
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 15:46
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4E06002	05/07/14 15:46
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 15:46
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4E06002	05/07/14 15:46
7439-98-7	Molybdenum (dissolved)	**1.47**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 15:46
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 15:46
7782-49-2	Selenium (dissolved)	**7.38**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 15:46
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 15:46
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 15:46
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 15:46
7440-62-2	Vanadium (dissolved)	**4.15**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 15:46
7440-66-6	Zinc (dissolved)		1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 15:46

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29005-BLK1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)	ND	0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:06

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D29005-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)	**2.098**	**0.0800**	0.160	0.200	1		SW7470A	4D29005	04/29/14 11:07

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29006-BLK1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	ND	0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:40
7439-97-6	Mercury (dissolved)	ND	0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:40

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D29006-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	**2.046**	**0.0800**	0.160	0.200	1		SW7470A	4D29006	04/29/14 11:41
7439-97-6	Mercury (dissolved)	**2.046**	**0.0800**	0.160	0.200	1		SW7470A	4D29006	04/29/14 11:41

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29007-BLK1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	ND	0.0800	0.160	0.200	1	U	SW7470A	4D29007	04/29/14 12:14
7439-97-6	Mercury (dissolved)	ND	0.0800	0.160	0.200	1	U	SW7470A	4D29007	04/29/14 12:14

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29007-BLK2

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)	ND	0.0800	0.160	0.200	1	U	SW7470A	4D29007	05/27/14 14:36

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D29007-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	**2.193**	**0.0800**	0.160	0.200	1		SW7470A	4D29007	04/29/14 12:15
7439-97-6	Mercury (dissolved)	**2.193**	**0.0800**	0.160	0.200	1		SW7470A	4D29007	04/29/14 12:15

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29007-BS2

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)	**2.028**	**0.0800**	0.160	0.200	1		SW7470A	4D29007	05/27/14 14:37

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D29007-MS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	**2.075**	**0.0800**	0.160	0.200	1		SW7470A	4D29007	04/29/14 12:36

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D29007-MS2

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)	**2.145**	**0.0800**	0.160	0.200	1		SW7470A	4D29007	05/27/14 14:38

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D29007-MSD1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	**2.146**	**0.0800**	0.160	0.200	1		SW7470A	4D29007	04/29/14 12:37

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids: 0.00

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29007-MSD2

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)	**1.974**	**0.0800**	0.160	0.200	1		SW7470A	4D29007	05/27/14 14:39

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4D29021-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum	ND	12.5	25.0	50.0	1	U	SW6010C	4D29021	05/02/14 11:48
7429-90-5	Aluminum (dissolved)	ND	12.5	25.0	50.0	1	U	SW6010C	4D29021	05/02/14 11:48
7440-38-2	Arsenic	ND	0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-38-2	Arsenic (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-39-3	Barium	ND	1.25	2.50	10.0	1	U	SW6010C	4D29021	05/02/14 11:48
7440-39-3	Barium (dissolved)	ND	1.25	2.50	10.0	1	U	SW6010C	4D29021	05/02/14 11:48
7440-41-7	Beryllium	ND	0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:48
7440-41-7	Beryllium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:48
7440-42-8	Boron	ND	2.50	5.00	10.0	1	U	SW6010C	4D29021	05/02/14 11:48
7440-42-8	Boron (dissolved)	ND	2.50	5.00	10.0	1	U	SW6010C	4D29021	05/02/14 11:48
7440-43-9	Cadmium	ND	0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:48
7440-43-9	Cadmium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:48
7440-47-3	Chromium	ND	0.500	1.00	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-47-3	Chromium (dissolved)	ND	0.500	1.00	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-48-4	Cobalt	ND	1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 11:48
7440-48-4	Cobalt (dissolved)	ND	1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 11:48
7440-50-8	Copper	ND	1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-50-8	Copper (dissolved)	ND	1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7439-89-6	Iron	ND	7.50	15.0	25.0	1	U	SW6010C	4D29021	05/02/14 11:48
7439-89-6	Iron (dissolved)	ND	7.50	15.0	25.0	1	U	SW6010C	4D29021	05/02/14 11:48
7439-92-1	Lead	ND	0.375	0.750	0.750	1	U	SW6010C	4D29021	05/02/14 11:48
7439-92-1	Lead (dissolved)	ND	0.375	0.750	0.750	1	U	SW6010C	4D29021	05/02/14 11:48
7439-96-5	Manganese	ND	0.750	1.50	3.75	1	U	SW6010C	4D29021	05/02/14 11:48
7439-96-5	Manganese (dissolved)	ND	0.750	1.50	3.75	1	U	SW6010C	4D29021	05/02/14 11:48
7439-98-7	Molybdenum	ND	1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 11:48
7439-98-7	Molybdenum (dissolved)	ND	1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 11:48
7440-02-0	Nickel	ND	0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-02-0	Nickel (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7782-49-2	Selenium	ND	0.750	1.25	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7782-49-2	Selenium (dissolved)	ND	0.750	1.25	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-22-4	Silver	ND	0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-22-4	Silver (dissolved)	ND	0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-28-0	Thallium	ND	0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 11:48

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4D29021-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-28-0	Thallium (dissolved)	ND	0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 11:48
7440-31-5	Tin	ND	2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-31-5	Tin (dissolved)	ND	2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 11:48
7440-62-2	Vanadium	ND	1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 11:48
7440-62-2	Vanadium (dissolved)	ND	1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 11:48
7440-66-6	Zinc	ND	1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 11:48
7440-66-6	Zinc (dissolved)	ND	1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 11:48

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4D29021-BLK2
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum (dissolved)	ND	12.5	25.0	50.0	1	U	SW6010C	4D29021	05/28/14 12:01
7440-38-2	Arsenic (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4D29021	05/28/14 12:01
7440-39-3	Barium (dissolved)	ND	1.25	2.50	10.0	1	U	SW6010C	4D29021	05/28/14 12:01
7440-41-7	Beryllium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4D29021	05/28/14 12:01
7440-42-8	Boron (dissolved)	ND	2.50	5.00	10.0	1	U	SW6010C	4D29021	05/28/14 12:01
7440-43-9	Cadmium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4D29021	05/28/14 12:01
7440-47-3	Chromium (dissolved)	ND	0.500	1.00	2.50	1	U	SW6010C	4D29021	05/28/14 12:01
7440-48-4	Cobalt (dissolved)	ND	1.25	2.50	3.12	1	U	SW6010C	4D29021	05/28/14 12:01
7440-50-8	Copper (dissolved)	ND	1.00	2.00	2.50	1	U	SW6010C	4D29021	05/28/14 12:01
7439-89-6	Iron (dissolved)	ND	7.50	15.0	25.0	1	U	SW6010C	4D29021	05/28/14 12:01
7439-92-1	Lead (dissolved)	ND	0.375	0.750	1.25	1	U	SW6010C	4D29021	05/28/14 12:01
7439-96-5	Manganese (dissolved)	ND	0.750	1.50	3.75	1	UX	SW6010C	4D29021	05/28/14 12:01
7439-98-7	Molybdenum (dissolved)	ND	1.25	2.50	5.00	1	U	SW6010C	4D29021	05/28/14 12:01
7440-02-0	Nickel (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4D29021	05/28/14 12:01
7782-49-2	Selenium (dissolved)	ND	0.750	1.25	2.50	1	U	SW6010C	4D29021	05/28/14 12:01
7440-22-4	Silver (dissolved)	ND	0.250	0.500	2.50	1	U	SW6010C	4D29021	05/28/14 12:01
7440-28-0	Thallium (dissolved)	ND	0.750	1.00	2.00	1	U	SW6010C	4D29021	05/28/14 12:01
7440-31-5	Tin (dissolved)	ND	2.50	5.00	7.50	1	U	SW6010C	4D29021	05/28/14 12:01
7440-62-2	Vanadium (dissolved)	ND	1.25	2.50	3.12	1	U	SW6010C	4D29021	05/28/14 12:01
7440-66-6	Zinc (dissolved)	ND	1.25	2.50	5.00	1	U	SW6010C	4D29021	05/28/14 12:01

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29021-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum	**40.30**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 11:52
7429-90-5	Aluminum (dissolved)	**40.30**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 11:52
7440-38-2	Arsenic	**4.390**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-38-2	Arsenic (dissolved)	**4.390**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-39-3	Barium	**34.96**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 11:52
7440-39-3	Barium (dissolved)	**34.96**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 11:52
7440-41-7	Beryllium	**0.9114**	**0.250**	0.500	1.25	1	J	SW6010C	4D29021	05/02/14 11:52
7440-41-7	Beryllium (dissolved)	**0.9114**	**0.250**	0.500	1.25	1	J	SW6010C	4D29021	05/02/14 11:52
7440-42-8	Boron	**18.00**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 11:52
7440-42-8	Boron (dissolved)	**18.00**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 11:52
7440-43-9	Cadmium	**2.318**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/02/14 11:52
7440-43-9	Cadmium (dissolved)	**2.318**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/02/14 11:52
7440-47-3	Chromium	**3.624**	**0.500**	1.00	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-47-3	Chromium (dissolved)	**3.624**	**0.500**	1.00	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-48-4	Cobalt	**8.840**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 11:52
7440-48-4	Cobalt (dissolved)	**8.840**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 11:52
7440-50-8	Copper	**4.934**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-50-8	Copper (dissolved)	**4.934**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 11:52
7439-89-6	Iron	**19.48**	**7.50**	15.0	25.0	1	J	SW6010C	4D29021	05/02/14 11:52
7439-89-6	Iron (dissolved)	**19.48**	**7.50**	15.0	25.0	1	J	SW6010C	4D29021	05/02/14 11:52
7439-92-1	Lead	**4.763**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 11:52
7439-92-1	Lead (dissolved)	**4.763**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 11:52
7439-96-5	Manganese	**8.280**	**0.750**	1.50	3.75	1		SW6010C	4D29021	05/02/14 11:52
7439-96-5	Manganese (dissolved)	**8.280**	**0.750**	1.50	3.75	1		SW6010C	4D29021	05/02/14 11:52
7439-98-7	Molybdenum	**17.12**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 11:52
7439-98-7	Molybdenum (dissolved)	**17.12**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 11:52
7440-02-0	Nickel	**9.129**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-02-0	Nickel (dissolved)	**9.129**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 11:52
7782-49-2	Selenium	**4.786**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 11:52
7782-49-2	Selenium (dissolved)	**4.786**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-22-4	Silver	**4.652**	**0.250**	0.500	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-22-4	Silver (dissolved)	**4.652**	**0.250**	0.500	2.50	1		SW6010C	4D29021	05/02/14 11:52
7440-28-0	Thallium	**4.752**	**0.750**	1.00	2.00	1		SW6010C	4D29021	05/02/14 11:52

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29021-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-28-0	Thallium (dissolved)	**4.752**	**0.750**	1.00	2.00	1		SW6010C	4D29021	05/02/14 11:52
7440-31-5	Tin	**16.87**	**2.50**	5.00	7.50	1		SW6010C	4D29021	05/02/14 11:52
7440-31-5	Tin (dissolved)	**16.87**	**2.50**	5.00	7.50	1		SW6010C	4D29021	05/02/14 11:52
7440-62-2	Vanadium	**8.961**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 11:52
7440-62-2	Vanadium (dissolved)	**8.961**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 11:52
7440-66-6	Zinc	**9.132**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 11:52
7440-66-6	Zinc (dissolved)	**9.132**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 11:52

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29021-BS2

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum (dissolved)	**45.58**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/28/14 12:06
7440-38-2	Arsenic (dissolved)	**4.267**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/28/14 12:06
7440-39-3	Barium (dissolved)	**36.50**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/28/14 12:06
7440-41-7	Beryllium (dissolved)	**0.9997**	**0.250**	0.500	1.25	1	J	SW6010C	4D29021	05/28/14 12:06
7440-42-8	Boron (dissolved)	**20.76**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/28/14 12:06
7440-43-9	Cadmium (dissolved)	**2.149**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/28/14 12:06
7440-47-3	Chromium (dissolved)	**4.014**	**0.500**	1.00	2.50	1		SW6010C	4D29021	05/28/14 12:06
7440-48-4	Cobalt (dissolved)	**8.864**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/28/14 12:06
7440-50-8	Copper (dissolved)	**5.753**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/28/14 12:06
7439-89-6	Iron (dissolved)	**22.04**	**7.50**	15.0	25.0	1	J	SW6010C	4D29021	05/28/14 12:06
7439-92-1	Lead (dissolved)	**4.568**	**0.375**	0.750	1.25	1		SW6010C	4D29021	05/28/14 12:06
7439-96-5	Manganese (dissolved)	**11.13**	**0.750**	1.50	3.75	1	X	SW6010C	4D29021	05/28/14 12:06
7439-98-7	Molybdenum (dissolved)	**16.95**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/28/14 12:06
7440-02-0	Nickel (dissolved)	**8.449**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/28/14 12:06
7782-49-2	Selenium (dissolved)	**4.680**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/28/14 12:06
7440-22-4	Silver (dissolved)	**5.114**	**0.250**	0.500	2.50	1		SW6010C	4D29021	05/28/14 12:06
7440-28-0	Thallium (dissolved)	**4.679**	**0.750**	1.00	2.00	1		SW6010C	4D29021	05/28/14 12:06
7440-31-5	Tin (dissolved)	**18.59**	**2.50**	5.00	7.50	1		SW6010C	4D29021	05/28/14 12:06
7440-62-2	Vanadium (dissolved)	**10.10**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/28/14 12:06
7440-66-6	Zinc (dissolved)	**8.822**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/28/14 12:06

ANALYSIS DATA SHEET

Duplicate

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids: 0.00

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29021-DUP1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum	**85.03**	**62.5**	125	250	5	JD	SW6010C	4D29021	05/02/14 13:22
7440-38-2	Arsenic	ND	3.75	7.50	12.5	5	U	SW6010C	4D29021	05/02/14 13:22
7440-39-3	Barium	**64.40**	**6.25**	12.5	50.0	5	D	SW6010C	4D29021	05/02/14 13:22
7440-41-7	Beryllium	ND	1.25	2.50	6.25	5	U	SW6010C	4D29021	05/02/14 13:22
7440-42-8	Boron	**24.47**	**12.5**	25.0	50.0	5	JD	SW6010C	4D29021	05/02/14 13:22
7440-43-9	Cadmium	ND	1.25	2.50	6.25	5	U	SW6010C	4D29021	05/02/14 13:22
7440-47-3	Chromium	**218.7**	**2.50**	5.00	12.5	5	D	SW6010C	4D29021	05/02/14 13:22
7440-48-4	Cobalt	ND	6.25	12.5	15.6	5	U	SW6010C	4D29021	05/02/14 13:22
7440-50-8	Copper	**17.51**	**5.00**	10.0	12.5	5	D	SW6010C	4D29021	05/02/14 13:22
7439-89-6	Iron	**904.6**	**37.5**	75.0	125	5	D	SW6010C	4D29021	05/02/14 13:22
7439-92-1	Lead	ND	1.88	3.75	3.75	5	U	SW6010C	4D29021	05/02/14 13:22
7439-96-5	Manganese	**19.28**	**3.75**	7.50	18.8	5	D	SW6010C	4D29021	05/02/14 13:22
7439-98-7	Molybdenum	ND	6.25	12.5	25.0	5	U	SW6010C	4D29021	05/02/14 13:22
7440-02-0	Nickel	**5.621**	**3.75**	7.50	12.5	5	JD	SW6010C	4D29021	05/02/14 13:22
7782-49-2	Selenium	**8.830**	**3.75**	6.25	12.5	5	JD	SW6010C	4D29021	05/02/14 13:22
7440-22-4	Silver	ND	1.25	2.50	12.5	5	U	SW6010C	4D29021	05/02/14 13:22
7440-28-0	Thallium	ND	3.75	5.00	10.0	5	U	SW6010C	4D29021	05/02/14 13:22
7440-31-5	Tin	ND	12.5	25.0	37.5	5	U	SW6010C	4D29021	05/02/14 13:22
7440-62-2	Vanadium	**7.259**	**6.25**	12.5	15.6	5	JD	SW6010C	4D29021	05/02/14 13:22
7440-66-6	Zinc	**16.50**	**6.25**	12.5	25.0	5	JD	SW6010C	4D29021	05/02/14 13:22

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids: 0.00

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29021-MS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum	**488.0**	**12.5**	25.0	50.0	1		SW6010C	4D29021	05/02/14 13:08
7440-38-2	Arsenic	**145.4**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 13:08
7440-39-3	Barium	**555.7**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 13:08
7440-41-7	Beryllium	**12.25**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/02/14 13:08
7440-43-9	Cadmium	**65.92**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/02/14 13:08
7440-47-3	Chromium	**365.1**	**0.500**	1.00	2.50	1		SW6010C	4D29021	05/02/14 13:08
7440-48-4	Cobalt	**125.0**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:08
7440-50-8	Copper	**76.90**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 13:08
7439-89-6	Iron	**1526**	**7.50**	15.0	25.0	1		SW6010C	4D29021	05/02/14 13:08
7439-92-1	Lead	**126.8**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 13:08
7439-96-5	Manganese	**143.4**	**0.750**	1.50	3.75	1		SW6010C	4D29021	05/02/14 13:08
7440-02-0	Nickel	**129.2**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 13:08
7782-49-2	Selenium	**144.8**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 13:08
7440-22-4	Silver	**58.25**	**0.250**	0.500	2.50	1		SW6010C	4D29021	05/02/14 13:08
7440-28-0	Thallium	**121.0**	**0.750**	1.00	2.00	1		SW6010C	4D29021	05/02/14 13:08
7440-62-2	Vanadium	**130.1**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:08
7440-66-6	Zinc	**147.6**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 13:08

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids: 0.00

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29021-MS2

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum (dissolved)	**496.9**	**12.5**	25.0	50.0	1		SW6010C	4D29021	05/28/14 12:11
7440-38-2	Arsenic (dissolved)	**128.7**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/28/14 12:11
7440-39-3	Barium (dissolved)	**530.9**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/28/14 12:11
7440-41-7	Beryllium (dissolved)	**12.06**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/28/14 12:11
7440-42-8	Boron (dissolved)	**278.7**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/28/14 12:11
7440-43-9	Cadmium (dissolved)	**58.06**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/28/14 12:11
7440-47-3	Chromium (dissolved)	**46.73**	**0.500**	1.00	2.50	1		SW6010C	4D29021	05/28/14 12:11
7440-48-4	Cobalt (dissolved)	**109.1**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/28/14 12:11
7440-50-8	Copper (dissolved)	**65.97**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/28/14 12:11
7439-89-6	Iron (dissolved)	**247.7**	**7.50**	15.0	25.0	1		SW6010C	4D29021	05/28/14 12:11
7439-92-1	Lead (dissolved)	**116.6**	**0.375**	0.750	1.25	1		SW6010C	4D29021	05/28/14 12:11
7439-96-5	Manganese (dissolved)	**129.0**	**0.750**	1.50	3.75	1	X	SW6010C	4D29021	05/28/14 12:11
7439-98-7	Molybdenum (dissolved)	**237.5**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/28/14 12:11
7440-02-0	Nickel (dissolved)	**104.7**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/28/14 12:11
7782-49-2	Selenium (dissolved)	**139.6**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/28/14 12:11
7440-22-4	Silver (dissolved)	**56.47**	**0.250**	0.500	2.50	1		SW6010C	4D29021	05/28/14 12:11
7440-28-0	Thallium (dissolved)	**108.1**	**0.750**	1.00	2.00	1		SW6010C	4D29021	05/28/14 12:11
7440-31-5	Tin (dissolved)	**246.9**	**2.50**	5.00	7.50	1		SW6010C	4D29021	05/28/14 12:11
7440-62-2	Vanadium (dissolved)	**125.6**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/28/14 12:11
7440-66-6	Zinc (dissolved)	**130.3**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/28/14 12:11

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids: 0.00

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29021-MSD1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum	**484.6**	**12.5**	25.0	50.0	1		SW6010C	4D29021	05/02/14 13:13
7440-38-2	Arsenic	**145.6**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 13:13
7440-39-3	Barium	**558.7**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 13:13
7440-41-7	Beryllium	**12.27**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/02/14 13:13
7440-43-9	Cadmium	**66.22**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/02/14 13:13
7440-47-3	Chromium	**116.6**	**0.500**	1.00	2.50	1		SW6010C	4D29021	05/02/14 13:13
7440-48-4	Cobalt	**120.8**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:13
7440-50-8	Copper	**70.30**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 13:13
7439-89-6	Iron	**536.2**	**7.50**	15.0	25.0	1		SW6010C	4D29021	05/02/14 13:13
7439-92-1	Lead	**127.6**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 13:13
7439-96-5	Manganese	**113.5**	**0.750**	1.50	3.75	1		SW6010C	4D29021	05/02/14 13:13
7440-02-0	Nickel	**124.7**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 13:13
7782-49-2	Selenium	**145.0**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 13:13
7440-22-4	Silver	**57.75**	**0.250**	0.500	2.50	1		SW6010C	4D29021	05/02/14 13:13
7440-28-0	Thallium	**122.1**	**0.750**	1.00	2.00	1		SW6010C	4D29021	05/02/14 13:13
7440-62-2	Vanadium	**127.8**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:13
7440-66-6	Zinc	**149.9**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 13:13

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4D29021-MSD2
% Solids: 0.00

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum (dissolved)	**518.2**	**12.5**	25.0	50.0	1		SW6010C	4D29021	05/28/14 12:16
7440-38-2	Arsenic (dissolved)	**132.7**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/28/14 12:16
7440-39-3	Barium (dissolved)	**551.2**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/28/14 12:16
7440-41-7	Beryllium (dissolved)	**12.55**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/28/14 12:16
7440-42-8	Boron (dissolved)	**290.9**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/28/14 12:16
7440-43-9	Cadmium (dissolved)	**60.20**	**0.250**	0.500	1.25	1		SW6010C	4D29021	05/28/14 12:16
7440-47-3	Chromium (dissolved)	**49.10**	**0.500**	1.00	2.50	1		SW6010C	4D29021	05/28/14 12:16
7440-48-4	Cobalt (dissolved)	**113.9**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/28/14 12:16
7440-50-8	Copper (dissolved)	**69.76**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/28/14 12:16
7439-89-6	Iron (dissolved)	**256.1**	**7.50**	15.0	25.0	1		SW6010C	4D29021	05/28/14 12:16
7439-92-1	Lead (dissolved)	**120.0**	**0.375**	0.750	1.25	1		SW6010C	4D29021	05/28/14 12:16
7439-96-5	Manganese (dissolved)	**136.1**	**0.750**	1.50	3.75	1	X	SW6010C	4D29021	05/28/14 12:16
7439-98-7	Molybdenum (dissolved)	**247.4**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/28/14 12:16
7440-02-0	Nickel (dissolved)	**109.5**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/28/14 12:16
7782-49-2	Selenium (dissolved)	**143.2**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/28/14 12:16
7440-22-4	Silver (dissolved)	**59.86**	**0.250**	0.500	2.50	1		SW6010C	4D29021	05/28/14 12:16
7440-28-0	Thallium (dissolved)	**112.2**	**0.750**	1.00	2.00	1		SW6010C	4D29021	05/28/14 12:16
7440-31-5	Tin (dissolved)	**253.8**	**2.50**	5.00	7.50	1		SW6010C	4D29021	05/28/14 12:16
7440-62-2	Vanadium (dissolved)	**132.5**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/28/14 12:16
7440-66-6	Zinc (dissolved)	**136.1**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/28/14 12:16

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4E06002-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum	ND	12.5	25.0	50.0	1	U	SW6010C	4E06002	05/07/14 13:51
7429-90-5	Aluminum (dissolved)	ND	12.5	25.0	50.0	1	U	SW6010C	4E06002	05/07/14 13:51
7440-38-2	Arsenic	ND	0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-38-2	Arsenic (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-39-3	Barium	ND	1.25	2.50	10.0	1	U	SW6010C	4E06002	05/07/14 13:51
7440-39-3	Barium (dissolved)	ND	1.25	2.50	10.0	1	U	SW6010C	4E06002	05/07/14 13:51
7440-41-7	Beryllium	ND	0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 13:51
7440-41-7	Beryllium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 13:51
7440-42-8	Boron	ND	2.50	5.00	10.0	1	U	SW6010C	4E06002	05/07/14 13:51
7440-42-8	Boron (dissolved)	ND	2.50	5.00	10.0	1	U	SW6010C	4E06002	05/07/14 13:51
7440-43-9	Cadmium	ND	0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 13:51
7440-43-9	Cadmium (dissolved)	ND	0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 13:51
7440-47-3	Chromium	ND	0.500	1.00	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-47-3	Chromium (dissolved)	ND	0.500	1.00	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-48-4	Cobalt	ND	1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 13:51
7440-48-4	Cobalt (dissolved)	ND	1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 13:51
7440-50-8	Copper	ND	1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-50-8	Copper (dissolved)	ND	1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7439-89-6	Iron	ND	7.50	15.0	25.0	1	U	SW6010C	4E06002	05/07/14 13:51
7439-89-6	Iron (dissolved)	ND	7.50	15.0	25.0	1	U	SW6010C	4E06002	05/07/14 13:51
7439-92-1	Lead	ND	0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 13:51
7439-92-1	Lead (dissolved)	ND	0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 13:51
7439-96-5	Manganese	ND	0.750	1.50	3.75	1	U	SW6010C	4E06002	05/07/14 13:51
7439-96-5	Manganese (dissolved)	ND	0.750	1.50	3.75	1	U	SW6010C	4E06002	05/07/14 13:51
7439-98-7	Molybdenum	ND	1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 13:51
7439-98-7	Molybdenum (dissolved)	ND	1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 13:51
7440-02-0	Nickel	ND	0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-02-0	Nickel (dissolved)	ND	0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7782-49-2	Selenium	ND	0.750	1.25	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7782-49-2	Selenium (dissolved)	ND	0.750	1.25	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-22-4	Silver	ND	0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-22-4	Silver (dissolved)	ND	0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-28-0	Thallium	ND	0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 13:51

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4E06002-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-28-0	Thallium (dissolved)	ND	0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 13:51
7440-31-5	Tin	ND	2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-31-5	Tin (dissolved)	ND	2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 13:51
7440-62-2	Vanadium	ND	1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 13:51
7440-62-2	Vanadium (dissolved)	ND	1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 13:51
7440-66-6	Zinc	ND	1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 13:51
7440-66-6	Zinc (dissolved)	ND	1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 13:51

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E06002-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7429-90-5	Aluminum	**36.89**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 13:55
7429-90-5	Aluminum (dissolved)	**36.89**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 13:55
7440-38-2	Arsenic	**4.380**	**0.750**	1.50	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-38-2	Arsenic (dissolved)	**4.380**	**0.750**	1.50	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-39-3	Barium	**34.62**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 13:55
7440-39-3	Barium (dissolved)	**34.62**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 13:55
7440-41-7	Beryllium	**0.8969**	**0.250**	0.500	1.25	1	J	SW6010C	4E06002	05/07/14 13:55
7440-41-7	Beryllium (dissolved)	**0.8969**	**0.250**	0.500	1.25	1	J	SW6010C	4E06002	05/07/14 13:55
7440-42-8	Boron	**18.08**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 13:55
7440-42-8	Boron (dissolved)	**18.08**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 13:55
7440-43-9	Cadmium	**2.119**	**0.250**	0.500	1.25	1		SW6010C	4E06002	05/07/14 13:55
7440-43-9	Cadmium (dissolved)	**2.119**	**0.250**	0.500	1.25	1		SW6010C	4E06002	05/07/14 13:55
7440-47-3	Chromium	**3.715**	**0.500**	1.00	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-47-3	Chromium (dissolved)	**3.715**	**0.500**	1.00	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-48-4	Cobalt	**8.880**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 13:55
7440-48-4	Cobalt (dissolved)	**8.880**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 13:55
7440-50-8	Copper	**5.203**	**1.00**	2.00	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-50-8	Copper (dissolved)	**5.203**	**1.00**	2.00	2.50	1		SW6010C	4E06002	05/07/14 13:55
7439-89-6	Iron	**19.53**	**7.50**	15.0	25.0	1	J	SW6010C	4E06002	05/07/14 13:55
7439-89-6	Iron (dissolved)	**19.53**	**7.50**	15.0	25.0	1	J	SW6010C	4E06002	05/07/14 13:55
7439-92-1	Lead	**4.453**	**0.375**	0.750	0.750	1		SW6010C	4E06002	05/07/14 13:55
7439-92-1	Lead (dissolved)	**4.453**	**0.375**	0.750	0.750	1		SW6010C	4E06002	05/07/14 13:55
7439-96-5	Manganese	**10.17**	**0.750**	1.50	3.75	1		SW6010C	4E06002	05/07/14 13:55
7439-96-5	Manganese (dissolved)	**10.17**	**0.750**	1.50	3.75	1		SW6010C	4E06002	05/07/14 13:55
7439-98-7	Molybdenum	**17.18**	**1.25**	2.50	5.00	1		SW6010C	4E06002	05/07/14 13:55
7439-98-7	Molybdenum (dissolved)	**17.18**	**1.25**	2.50	5.00	1		SW6010C	4E06002	05/07/14 13:55
7440-02-0	Nickel	**8.617**	**0.750**	1.50	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-02-0	Nickel (dissolved)	**8.617**	**0.750**	1.50	2.50	1		SW6010C	4E06002	05/07/14 13:55
7782-49-2	Selenium	**4.658**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 13:55
7782-49-2	Selenium (dissolved)	**4.658**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-22-4	Silver	**4.644**	**0.250**	0.500	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-22-4	Silver (dissolved)	**4.644**	**0.250**	0.500	2.50	1		SW6010C	4E06002	05/07/14 13:55
7440-28-0	Thallium	**4.342**	**0.750**	1.00	2.00	1		SW6010C	4E06002	05/07/14 13:55

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E06002-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-28-0	Thallium (dissolved)	**4.342**	**0.750**	1.00	2.00	1		SW6010C	4E06002	05/07/14 13:55
7440-31-5	Tin	**17.25**	**2.50**	5.00	7.50	1		SW6010C	4E06002	05/07/14 13:55
7440-31-5	Tin (dissolved)	**17.25**	**2.50**	5.00	7.50	1		SW6010C	4E06002	05/07/14 13:55
7440-62-2	Vanadium	**9.096**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 13:55
7440-62-2	Vanadium (dissolved)	**9.096**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 13:55
7440-66-6	Zinc	**8.400**	**1.25**	2.50	5.00	1		SW6010C	4E06002	05/07/14 13:55
7440-66-6	Zinc (dissolved)	**8.400**	**1.25**	2.50	5.00	1		SW6010C	4E06002	05/07/14 13:55

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E07020-BLK1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	ND	0.0800	0.160	0.200	1	U	SW7470A	4E07020	05/07/14 11:43
7439-97-6	Mercury (dissolved)	ND	0.0800	0.160	0.200	1	U	SW7470A	4E07020	05/07/14 11:43

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E07020-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury	**2.106**	**0.0800**	0.160	0.200	1		SW7470A	4E07020	05/07/14 11:44
7439-97-6	Mercury (dissolved)	**2.106**	**0.0800**	0.160	0.200	1		SW7470A	4E07020	05/07/14 11:44

INITIAL AND CONTINUING CALIBRATION CHECK

SW7470A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4120004
Sequence: 4D12014

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4D12014-ICV1	Mercury	4.000	4.186	105	ug/L	+/- 20.00%
4D12014-CCV1	Mercury	2.000	2.007	100	ug/L	+/- 20.00%
4D12014-CCV2	Mercury	2.000	2.039	102	ug/L	+/- 20.00%
4D12014-CCV3	Mercury	4.000	4.040	101	ug/L	+/- 20.00%
4D12014-CCV4	Mercury	4.000	3.932	98.3	ug/L	+/- 20.00%
4D12014-CCV5	Mercury	2.000	2.065	103	ug/L	+/- 20.00%
4D12014-CCV6	Mercury	2.000	2.027	101	ug/L	+/- 20.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4125002
Sequence: 4E12503

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12503-ICV1	Aluminum	10000	10000	100	ug/L	+/- 10.00%
	Arsenic	1000	1081	108	ug/L	+/- 10.00%
	Barium	1000	997.2	99.7	ug/L	+/- 10.00%
	Beryllium	1000	1012	101	ug/L	+/- 10.00%
	Boron	1000	1040	104	ug/L	+/- 10.00%
	Cadmium	1000	1038	104	ug/L	+/- 10.00%
	Chromium	1000	977.1	97.7	ug/L	+/- 10.00%
	Cobalt	1000	991.0	99.1	ug/L	+/- 10.00%
	Copper	1000	997.7	99.8	ug/L	+/- 10.00%
	Iron	10000	10040	100	ug/L	+/- 10.00%
	Lead	1000	995.9	99.6	ug/L	+/- 10.00%
	Manganese	1000	932.5	93.2	ug/L	+/- 10.00%
	Molybdenum	1000	1058	106	ug/L	+/- 10.00%
	Nickel	1000	1012	101	ug/L	+/- 10.00%
	Selenium	1000	1048	105	ug/L	+/- 10.00%
	Silver	500.0	496.6	99.3	ug/L	+/- 10.00%
	Thallium	1000	1012	101	ug/L	+/- 10.00%
	Tin	1000	979.9	98.0	ug/L	+/- 10.00%
	Vanadium	1000	1027	103	ug/L	+/- 10.00%
	Zinc	1000	1047	105	ug/L	+/- 10.00%
4E12503-CCV1	Aluminum	10000	9999	100	ug/L	+/- 10.00%
	Arsenic	1000	1071	107	ug/L	+/- 10.00%
	Barium	1000	1005	101	ug/L	+/- 10.00%
	Beryllium	1000	1040	104	ug/L	+/- 10.00%
	Boron	1000	1042	104	ug/L	+/- 10.00%
	Cadmium	1000	1035	103	ug/L	+/- 10.00%
	Chromium	1000	1012	101	ug/L	+/- 10.00%
	Cobalt	1000	999.3	99.9	ug/L	+/- 10.00%
	Copper	1000	1002	100	ug/L	+/- 10.00%
	Iron	10000	10030	100	ug/L	+/- 10.00%
	Lead	1000	1017	102	ug/L	+/- 10.00%
	Manganese	1000	941.8	94.2	ug/L	+/- 10.00%
	Molybdenum	1000	1038	104	ug/L	+/- 10.00%
	Nickel	1000	1036	104	ug/L	+/- 10.00%
	Selenium	1000	1063	106	ug/L	+/- 10.00%
	Silver	500.0	493.7	98.7	ug/L	+/- 10.00%
	Thallium	1000	1014	101	ug/L	+/- 10.00%
	Tin	1000	999.6	100	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4125002
Sequence: 4E12503

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12503-CCV1	Vanadium	1000	1038	104	ug/L	+/- 10.00%
	Zinc	1000	1052	105	ug/L	+/- 10.00%
4E12503-CCV2	Aluminum	10000	9915	99.2	ug/L	+/- 10.00%
	Arsenic	1000	1073	107	ug/L	+/- 10.00%
	Barium	1000	1009	101	ug/L	+/- 10.00%
	Beryllium	1000	1032	103	ug/L	+/- 10.00%
	Boron	1000	1027	103	ug/L	+/- 10.00%
	Cadmium	1000	1036	104	ug/L	+/- 10.00%
	Chromium	1000	1006	101	ug/L	+/- 10.00%
	Cobalt	1000	1003	100	ug/L	+/- 10.00%
	Copper	1000	983.1	98.3	ug/L	+/- 10.00%
	Iron	10000	9962	99.6	ug/L	+/- 10.00%
	Lead	1000	1018	102	ug/L	+/- 10.00%
	Manganese	1000	930.9	93.1	ug/L	+/- 10.00%
	Molybdenum	1000	1043	104	ug/L	+/- 10.00%
	Nickel	1000	1038	104	ug/L	+/- 10.00%
	Selenium	1000	1060	106	ug/L	+/- 10.00%
	Silver	500.0	485.5	97.1	ug/L	+/- 10.00%
	Thallium	1000	1011	101	ug/L	+/- 10.00%
	Tin	1000	1005	101	ug/L	+/- 10.00%
	Vanadium	1000	1034	103	ug/L	+/- 10.00%
	Zinc	1000	1055	105	ug/L	+/- 10.00%
4E12503-CCV3	Aluminum	10000	9826	98.3	ug/L	+/- 10.00%
	Arsenic	1000	1064	106	ug/L	+/- 10.00%
	Barium	1000	1003	100	ug/L	+/- 10.00%
	Beryllium	1000	1030	103	ug/L	+/- 10.00%
	Boron	1000	1027	103	ug/L	+/- 10.00%
	Cadmium	1000	1033	103	ug/L	+/- 10.00%
	Chromium	1000	1003	100	ug/L	+/- 10.00%
	Cobalt	1000	995.0	99.5	ug/L	+/- 10.00%
	Copper	1000	979.0	97.9	ug/L	+/- 10.00%
	Iron	10000	9856	98.6	ug/L	+/- 10.00%
	Lead	1000	1011	101	ug/L	+/- 10.00%
	Manganese	1000	911.0	91.1	ug/L	+/- 10.00%
	Molybdenum	1000	1036	104	ug/L	+/- 10.00%
	Nickel	1000	1035	104	ug/L	+/- 10.00%
	Selenium	1000	1052	105	ug/L	+/- 10.00%
	Silver	500.0	482.1	96.4	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4125002
Sequence: 4E12503

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12503-CCV3	Thallium	1000	1002	100	ug/L	+/- 10.00%
	Tin	1000	997.7	99.8	ug/L	+/- 10.00%
	Vanadium	1000	1042	104	ug/L	+/- 10.00%
	Zinc	1000	1051	105	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4126004
Sequence: 4E12611

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12611-ICV1	Aluminum (dissolved)	10000	10280	103	ug/L	+/- 10.00%
	Zinc (dissolved)	1000	1043	104	ug/L	+/- 10.00%
4E12611-CCV1	Aluminum (dissolved)	10000	10300	103	ug/L	+/- 10.00%
	Zinc (dissolved)	1000	1038	104	ug/L	+/- 10.00%
4E12611-CCV5	Aluminum (dissolved)	10000	10550	105	ug/L	+/- 10.00%
	Zinc (dissolved)	1000	1053	105	ug/L	+/- 10.00%
4E12611-CCV6	Aluminum (dissolved)	10000	10450	104	ug/L	+/- 10.00%
	Zinc (dissolved)	1000	1043	104	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12803-ICV1	Aluminum	10000	10150	102	ug/L	+/- 10.00%
	Arsenic	1000	1042	104	ug/L	+/- 10.00%
	Barium	1000	1004	100	ug/L	+/- 10.00%
	Beryllium	1000	1012	101	ug/L	+/- 10.00%
	Boron	1000	1019	102	ug/L	+/- 10.00%
	Cadmium	1000	996.5	99.7	ug/L	+/- 10.00%
	Chromium	1000	975.4	97.5	ug/L	+/- 10.00%
	Cobalt	1000	978.5	97.9	ug/L	+/- 10.00%
	Copper	1000	1010	101	ug/L	+/- 10.00%
	Iron	10000	10260	103	ug/L	+/- 10.00%
	Lead	1000	955.6	95.6	ug/L	+/- 10.00%
	Manganese	1000	1052	105	ug/L	+/- 10.00%
	Molybdenum	1000	1051	105	ug/L	+/- 10.00%
	Nickel	1000	971.9	97.2	ug/L	+/- 10.00%
	Selenium	1000	1046	105	ug/L	+/- 10.00%
	Silver	500.0	499.1	99.8	ug/L	+/- 10.00%
	Thallium	1000	974.1	97.4	ug/L	+/- 10.00%
	Tin	1000	976.0	97.6	ug/L	+/- 10.00%
	Vanadium	1000	1010	101	ug/L	+/- 10.00%
	Zinc	1000	1005	101	ug/L	+/- 10.00%
4E12803-CCV1	Aluminum	10000	10280	103	ug/L	+/- 10.00%
	Arsenic	1000	1007	101	ug/L	+/- 10.00%
	Barium	1000	987.8	98.8	ug/L	+/- 10.00%
	Beryllium	1000	1033	103	ug/L	+/- 10.00%
	Boron	1000	999.4	99.9	ug/L	+/- 10.00%
	Cadmium	1000	971.0	97.1	ug/L	+/- 10.00%
	Chromium	1000	992.7	99.3	ug/L	+/- 10.00%
	Cobalt	1000	979.4	97.9	ug/L	+/- 10.00%
	Copper	1000	1013	101	ug/L	+/- 10.00%
	Iron	10000	10450	104	ug/L	+/- 10.00%
	Lead	1000	954.1	95.4	ug/L	+/- 10.00%
	Manganese	1000	1040	104	ug/L	+/- 10.00%
	Molybdenum	1000	1026	103	ug/L	+/- 10.00%
	Nickel	1000	971.7	97.2	ug/L	+/- 10.00%
	Selenium	1000	1054	105	ug/L	+/- 10.00%
	Silver	500.0	485.6	97.1	ug/L	+/- 10.00%
	Thallium	1000	946.8	94.7	ug/L	+/- 10.00%
	Tin	1000	987.2	98.7	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12803-CCV1	Vanadium	1000	1001	100	ug/L	+/- 10.00%
	Zinc	1000	984.4	98.4	ug/L	+/- 10.00%
4E12803-CCV3	Aluminum	10000	10440	104	ug/L	+/- 10.00%
	Arsenic	1000	981.0	98.1	ug/L	+/- 10.00%
	Barium	1000	977.8	97.8	ug/L	+/- 10.00%
	Beryllium	1000	1035	104	ug/L	+/- 10.00%
	Boron	1000	1016	102	ug/L	+/- 10.00%
	Cadmium	1000	947.7	94.8	ug/L	+/- 10.00%
	Chromium	1000	999.5	100	ug/L	+/- 10.00%
	Cobalt	1000	986.4	98.6	ug/L	+/- 10.00%
	Copper	1000	1040	104	ug/L	+/- 10.00%
	Iron	10000	10600	106	ug/L	+/- 10.00%
	Lead	1000	949.4	94.9	ug/L	+/- 10.00%
	Manganese	1000	1065	106	ug/L	+/- 10.00%
	Molybdenum	1000	1026	103	ug/L	+/- 10.00%
	Nickel	1000	963.4	96.3	ug/L	+/- 10.00%
	Selenium	1000	1055	106	ug/L	+/- 10.00%
	Silver	500.0	485.0	97.0	ug/L	+/- 10.00%
	Thallium	1000	924.5	92.4	ug/L	+/- 10.00%
	Tin	1000	989.4	98.9	ug/L	+/- 10.00%
	Vanadium	1000	1019	102	ug/L	+/- 10.00%
	Zinc	1000	963.6	96.4	ug/L	+/- 10.00%
4E12803-CCV4	Aluminum	10000	10470	105	ug/L	+/- 10.00%
	Arsenic	1000	980.1	98.0	ug/L	+/- 10.00%
	Barium	1000	976.6	97.7	ug/L	+/- 10.00%
	Beryllium	1000	1039	104	ug/L	+/- 10.00%
	Boron	1000	1027	103	ug/L	+/- 10.00%
	Cadmium	1000	943.8	94.4	ug/L	+/- 10.00%
	Chromium	1000	1006	101	ug/L	+/- 10.00%
	Cobalt	1000	988.6	98.9	ug/L	+/- 10.00%
	Copper	1000	1054	105	ug/L	+/- 10.00%
	Iron	10000	10720	107	ug/L	+/- 10.00%
	Lead	1000	949.3	94.9	ug/L	+/- 10.00%
	Manganese	1000	1076	108	ug/L	+/- 10.00%
	Molybdenum	1000	1031	103	ug/L	+/- 10.00%
	Nickel	1000	963.8	96.4	ug/L	+/- 10.00%
	Selenium	1000	1059	106	ug/L	+/- 10.00%
	Silver	500.0	486.1	97.2	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12803-CCV4	Thallium	1000	921.3	92.1	ug/L	+/- 10.00%
	Tin	1000	994.4	99.4	ug/L	+/- 10.00%
	Vanadium	1000	1030	103	ug/L	+/- 10.00%
	Zinc	1000	959.5	95.9	ug/L	+/- 10.00%
4E12803-CCV5	Aluminum	10000	10450	104	ug/L	+/- 10.00%
	Arsenic	1000	969.2	96.9	ug/L	+/- 10.00%
	Barium	1000	966.2	96.6	ug/L	+/- 10.00%
	Beryllium	1000	1034	103	ug/L	+/- 10.00%
	Boron	1000	1017	102	ug/L	+/- 10.00%
	Cadmium	1000	928.1	92.8	ug/L	+/- 10.00%
	Chromium	1000	1000	100	ug/L	+/- 10.00%
	Cobalt	1000	981.9	98.2	ug/L	+/- 10.00%
	Copper	1000	1045	104	ug/L	+/- 10.00%
	Iron	10000	10690	107	ug/L	+/- 10.00%
	Lead	1000	939.2	93.9	ug/L	+/- 10.00%
	Manganese	1000	1067	107	ug/L	+/- 10.00%
	Molybdenum	1000	1030	103	ug/L	+/- 10.00%
	Nickel	1000	954.2	95.4	ug/L	+/- 10.00%
	Selenium	1000	1052	105	ug/L	+/- 10.00%
	Silver	500.0	481.6	96.3	ug/L	+/- 10.00%
	Thallium	1000	907.2	90.7	ug/L	+/- 10.00%
	Tin	1000	992.8	99.3	ug/L	+/- 10.00%
	Vanadium	1000	1017	102	ug/L	+/- 10.00%
	Zinc	1000	943.6	94.4	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW7470A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4128003
Sequence: 4E12810

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12810-ICV1	Mercury	4.000	4.294	107	ug/L	+/- 20.00%
4E12810-CCV2	Mercury	2.000	2.114	106	ug/L	+/- 20.00%
4E12810-CCV3	Mercury	4.000	4.144	104	ug/L	+/- 20.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW7470A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4147004
Sequence: 4E14713

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E14713-ICV1	Mercury (dissolved)	4.000	4.221	106	ug/L	+/- 20.00%
4E14713-CCV1	Mercury (dissolved)	2.000	1.996	99.8	ug/L	+/- 20.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4149001
Sequence: 4E14903

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E14903-ICV1	Aluminum (dissolved)	10000	10380	104	ug/L	+/- 10.00%
	Arsenic (dissolved)	1000	981.8	98.2	ug/L	+/- 10.00%
	Barium (dissolved)	1000	980.2	98.0	ug/L	+/- 10.00%
	Beryllium (dissolved)	1000	1032	103	ug/L	+/- 10.00%
	Boron (dissolved)	1000	1045	104	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	947.2	94.7	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	1008	101	ug/L	+/- 10.00%
	Cobalt (dissolved)	1000	943.8	94.4	ug/L	+/- 10.00%
	Copper (dissolved)	1000	1002	100	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10380	104	ug/L	+/- 10.00%
	Lead (dissolved)	1000	955.0	95.5	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1076	108	ug/L	+/- 10.00%
	Molybdenum (dissolved)	1000	977.6	97.8	ug/L	+/- 10.00%
	Nickel (dissolved)	1000	928.4	92.8	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1037	104	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	487.8	97.6	ug/L	+/- 10.00%
	Thallium (dissolved)	1000	946.2	94.6	ug/L	+/- 10.00%
	Tin (dissolved)	1000	989.9	99.0	ug/L	+/- 10.00%
	Vanadium (dissolved)	1000	1039	104	ug/L	+/- 10.00%
	Zinc (dissolved)	1000	978.8	97.9	ug/L	+/- 10.00%
4E14903-CCV1	Aluminum (dissolved)	10000	10550	105	ug/L	+/- 10.00%
	Arsenic (dissolved)	1000	963.1	96.3	ug/L	+/- 10.00%
	Barium (dissolved)	1000	971.9	97.2	ug/L	+/- 10.00%
	Beryllium (dissolved)	1000	1042	104	ug/L	+/- 10.00%
	Boron (dissolved)	1000	1073	107	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	993.8	99.4	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	1018	102	ug/L	+/- 10.00%
	Cobalt (dissolved)	1000	991.4	99.1	ug/L	+/- 10.00%
	Copper (dissolved)	1000	1000	100	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10540	105	ug/L	+/- 10.00%
	Lead (dissolved)	1000	951.7	95.2	ug/L	+/- 10.00%
	Manganese (dissolved)	**1000**	**1116**	**112**	**ug/L**	+/- 10.00%
	Molybdenum (dissolved)	1000	952.7	95.3	ug/L	+/- 10.00%
	Nickel (dissolved)	1000	958.4	95.8	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1042	104	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	488.4	97.7	ug/L	+/- 10.00%
	Thallium (dissolved)	1000	993.4	99.3	ug/L	+/- 10.00%
	Tin (dissolved)	1000	994.6	99.5	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4149001
Sequence: 4E14903

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E14903-CCV1	Vanadium (dissolved)	1000	1071	107	ug/L	+/- 10.00%
	Zinc (dissolved)	1000	958.7	95.9	ug/L	+/- 10.00%
4E14903-CCV2	Aluminum (dissolved)	10000	10520	105	ug/L	+/- 10.00%
	Arsenic (dissolved)	1000	949.0	94.9	ug/L	+/- 10.00%
	Barium (dissolved)	1000	959.1	95.9	ug/L	+/- 10.00%
	Beryllium (dissolved)	1000	1034	103	ug/L	+/- 10.00%
	Boron (dissolved)	1000	1060	106	ug/L	+/- 10.00%
	Cadmium (dissolved)	1000	976.7	97.7	ug/L	+/- 10.00%
	Chromium (dissolved)	1000	1004	100	ug/L	+/- 10.00%
	Cobalt (dissolved)	1000	968.4	96.8	ug/L	+/- 10.00%
	Copper (dissolved)	1000	971.7	97.2	ug/L	+/- 10.00%
	Iron (dissolved)	10000	10550	106	ug/L	+/- 10.00%
	Lead (dissolved)	1000	943.3	94.3	ug/L	+/- 10.00%
	Manganese (dissolved)	1000	1088	109	ug/L	+/- 10.00%
	Molybdenum (dissolved)	1000	935.1	93.5	ug/L	+/- 10.00%
	Nickel (dissolved)	1000	929.3	92.9	ug/L	+/- 10.00%
	Selenium (dissolved)	1000	1032	103	ug/L	+/- 10.00%
	Silver (dissolved)	500.0	478.2	95.6	ug/L	+/- 10.00%
	Thallium (dissolved)	1000	972.1	97.2	ug/L	+/- 10.00%
	Tin (dissolved)	1000	991.7	99.2	ug/L	+/- 10.00%
	Vanadium (dissolved)	1000	1045	105	ug/L	+/- 10.00%
	Zinc (dissolved)	1000	941.1	94.1	ug/L	+/- 10.00%

CRDL STANDARD

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4125002
Sequence: 4E12503

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4E12503-CRL1	Aluminum	100.0	108.1	108	ug/L	80 - 120
	Barium	10.00	10.13	101	ug/L	80 - 120
	Beryllium	2.000	2.068	103	ug/L	80 - 120
	Cadmium	2.000	1.988	99.4	ug/L	80 - 120
	Chromium	4.000	4.108	103	ug/L	80 - 120
	Cobalt	10.00	9.694	96.9	ug/L	80 - 120
	Copper	8.000	9.269	116	ug/L	80 - 120
	Iron	60.00	67.40	112	ug/L	80 - 120
	Lead	3.000	3.051	102	ug/L	80 - 120
	Manganese	6.000	5.751	95.9	ug/L	80 - 120
	Molybdenum	10.00	10.08	101	ug/L	80 - 120
	Nickel	6.000	6.120	102	ug/L	80 - 120
	Silver	2.000	2.045	102	ug/L	80 - 120
	Thallium	4.000	4.358	109	ug/L	80 - 120
	Tin	20.00	18.56	92.8	ug/L	80 - 120
	Vanadium	10.00	9.919	99.2	ug/L	80 - 120
	Zinc	10.00	10.07	101	ug/L	80 - 120
4E12503-CRL2	Arsenic	5.000	4.271	85.4	ug/L	80 - 120
	Boron	30.00	32.72	109	ug/L	80 - 120
4E12503-CRL3	Selenium	5.000	5.140	103	ug/L	80 - 120

CRDL STANDARD

SW6010C

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: ME-ICP

Calibration: 4126004

Sequence: 4E12611

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4E12611-CRL1	Aluminum (dissolved)	100.0	91.39	91.4	ug/L	80 - 120
	Zinc (dissolved)	10.00	9.866	98.7	ug/L	80 - 120

CRDL STANDARD

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4E12803-CRL1	Aluminum	100.0	87.60	87.6	ug/L	80 - 120
	Barium	10.00	9.416	94.2	ug/L	80 - 120
	Beryllium	2.000	1.881	94.0	ug/L	80 - 120
	Cadmium	2.000	1.752	87.6	ug/L	80 - 120
	Chromium	4.000	3.768	94.2	ug/L	80 - 120
	Cobalt	10.00	8.817	88.2	ug/L	80 - 120
	Copper	8.000	8.538	107	ug/L	80 - 120
	Iron	60.00	65.39	109	ug/L	80 - 120
	Lead	3.000	2.636	87.9	ug/L	80 - 120
	Manganese	6.000	6.136	102	ug/L	80 - 120
	Molybdenum	10.00	9.202	92.0	ug/L	80 - 120
	Nickel	6.000	5.323	88.7	ug/L	80 - 120
	Silver	2.000	2.018	101	ug/L	80 - 120
	Thallium	4.000	4.412	110	ug/L	80 - 120
	Tin	20.00	18.02	90.1	ug/L	80 - 120
	Vanadium	10.00	9.266	92.7	ug/L	80 - 120
	Zinc	10.00	8.915	89.2	ug/L	80 - 120
4E12803-CRL2	Arsenic	5.000	5.049	101	ug/L	80 - 120
	Boron	30.00	30.54	102	ug/L	80 - 120
	Selenium	5.000	5.759	115	ug/L	80 - 120

CRDL STANDARD

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4149001
Sequence: 4E14903

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4E14903-CRL1	Arsenic (dissolved)	5.000	4.383	87.7	ug/L	80 - 120
	Boron (dissolved)	30.00	30.39	101	ug/L	80 - 120
	Lead (dissolved)	3.000	2.805	93.5	ug/L	80 - 120
	Selenium (dissolved)	5.000	5.364	107	ug/L	80 - 120
4E14903-CRL2	Aluminum (dissolved)	100.0	104.0	104	ug/L	80 - 120
	Barium (dissolved)	10.00	8.944	89.4	ug/L	80 - 120
	Beryllium (dissolved)	2.000	1.844	92.2	ug/L	80 - 120
	Cadmium (dissolved)	2.000	1.626	81.3	ug/L	80 - 120
	Chromium (dissolved)	4.000	3.815	95.4	ug/L	80 - 120
	Cobalt (dissolved)	10.00	8.159	81.6	ug/L	80 - 120
	Copper (dissolved)	8.000	9.470	118	ug/L	80 - 120
	Iron (dissolved)	60.00	59.31	98.8	ug/L	80 - 120
	Manganese (dissolved)	6.000	6.390	107	ug/L	80 - 120
	Molybdenum (dissolved)	10.00	8.311	83.1	ug/L	80 - 120
	Nickel (dissolved)	6.000	4.842	80.7	ug/L	80 - 120
	Silver (dissolved)	2.000	2.220	111	ug/L	80 - 120
	Thallium (dissolved)	4.000	3.823	95.6	ug/L	80 - 120
	Tin (dissolved)	20.00	17.41	87.0	ug/L	80 - 120
	Vanadium (dissolved)	10.00	9.639	96.4	ug/L	80 - 120
	Zinc (dissolved)	10.00	8.835	88.4	ug/L	80 - 120

BLANKS
SW7470A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS
Project: Kirtland AFB (ECOS)
Sequence: 4D12014
Calibration: 4120004

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D12014-ICB1	Mercury	0.02903	0.0800	0.200	ug/L	U	SW7470A
4D29005-BLK1	Mercury (dissolved)	0.0282	0.0800	0.200	ug/L	U	SW7470A
4D12014-CCB1	Mercury	0.0395	0.0800	0.200	ug/L	U	SW7470A
4D12014-CCB2	Mercury	0.0374	0.0800	0.200	ug/L	U	SW7470A
4D29006-BLK1	Mercury	0.0165	0.0800	0.200	ug/L	U	SW7470A
	Mercury (dissolved)	0.0165	0.0800	0.200	ug/L	U	SW7470A
4D12014-CCB3	Mercury	0.0661	0.0800	0.200	ug/L	U	SW7470A
4D12014-CCB4	Mercury	0.0357	0.0800	0.200	ug/L	U	SW7470A
4D29007-BLK1	Mercury	0.0187	0.0800	0.200	ug/L	U	SW7470A
	Mercury (dissolved)	0.0187	0.0800	0.200	ug/L	U	SW7470A
4D12014-CCB5	Mercury	0.0300	0.0800	0.200	ug/L	U	SW7470A
4D12014-CCB6	Mercury	0.0502	0.0800	0.200	ug/L	U	SW7470A

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12503
Calibration: 4125002

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12503-ICB1	Aluminum	-5.239	50.0	200	ug/L	U	SW6010C
	Arsenic	-0.06059	3.00	10.0	ug/L	U	SW6010C
	Barium	0.01796	5.00	40.0	ug/L	U	SW6010C
	Beryllium	0.05414	1.00	5.00	ug/L	U	SW6010C
	Boron	0.2512	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.04578	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.03189	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.09234	5.00	12.5	ug/L	U	SW6010C
	Copper	0.9714	4.00	10.0	ug/L	U	SW6010C
	Iron	8.159	30.0	100	ug/L	U	SW6010C
	Lead	0.3854	1.50	5.00	ug/L	U	SW6010C
	Manganese	0.01815	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.7002	5.00	20.0	ug/L	U	SW6010C
	Nickel	-0.04911	3.00	10.0	ug/L	U	SW6010C
	Selenium	2.307	3.00	10.0	ug/L	U	SW6010C
	Silver	-0.1754	1.00	10.0	ug/L	U	SW6010C
	Thallium	0.6349	3.00	8.00	ug/L	U	SW6010C
	Tin	-0.2632	10.0	30.0	ug/L	U	SW6010C
	Vanadium	0.1981	5.00	12.5	ug/L	U	SW6010C
	Zinc	-0.006710	5.00	20.0	ug/L	U	SW6010C
4E12503-CCB1	Aluminum	4.66	50.0	200	ug/L	U	SW6010C
	Arsenic	-0.494	3.00	10.0	ug/L	U	SW6010C
	Barium	0.356	5.00	40.0	ug/L	U	SW6010C
	Beryllium	0.0970	1.00	5.00	ug/L	U	SW6010C
	Boron	-0.0720	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.333	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.421	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.393	5.00	12.5	ug/L	U	SW6010C
	Copper	1.55	4.00	10.0	ug/L	U	SW6010C
	Iron	15.0	30.0	100	ug/L	U	SW6010C
	Lead	0.591	1.50	5.00	ug/L	U	SW6010C
	Manganese	0.156	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.906	5.00	20.0	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12503
Calibration: 4125002

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12503-CCB1	Nickel	0.257	3.00	10.0	ug/L	U	SW6010C
	Selenium	2.12	3.00	10.0	ug/L	U	SW6010C
	Silver	0.0172	1.00	10.0	ug/L	U	SW6010C
	Thallium	-0.225	3.00	8.00	ug/L	U	SW6010C
	Tin	-0.341	10.0	30.0	ug/L	U	SW6010C
	Vanadium	0.0206	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.285	5.00	20.0	ug/L	U	SW6010C
4D29021-BLK1	Aluminum	2.21	12.5	50.0	ug/L	U	SW6010C
	Aluminum (dissolved)	2.21	12.5	50.0	ug/L	U	SW6010C
	Arsenic	-0.239	0.750	2.50	ug/L	U	SW6010C
	Arsenic (dissolved)	-0.239	0.750	2.50	ug/L	U	SW6010C
	Barium	0.0428	1.25	10.0	ug/L	U	SW6010C
	Barium (dissolved)	0.0428	1.25	10.0	ug/L	U	SW6010C
	Beryllium	0.0241	0.250	1.25	ug/L	U	SW6010C
	Beryllium (dissolved)	0.0241	0.250	1.25	ug/L	U	SW6010C
	Boron	0.0681	2.50	10.0	ug/L	U	SW6010C
	Boron (dissolved)	0.0681	2.50	10.0	ug/L	U	SW6010C
	Cadmium	0.0297	0.250	1.25	ug/L	U	SW6010C
	Cadmium (dissolved)	0.0297	0.250	1.25	ug/L	U	SW6010C
	Chromium	0.0698	0.500	2.50	ug/L	U	SW6010C
	Chromium (dissolved)	0.0698	0.500	2.50	ug/L	U	SW6010C
	Cobalt	0.0475	1.25	3.12	ug/L	U	SW6010C
	Cobalt (dissolved)	0.0475	1.25	3.12	ug/L	U	SW6010C
	Copper	0.369	1.00	2.50	ug/L	U	SW6010C
	Copper (dissolved)	0.369	1.00	2.50	ug/L	U	SW6010C
	Iron	1.73	7.50	25.0	ug/L	U	SW6010C
	Iron (dissolved)	1.73	7.50	25.0	ug/L	U	SW6010C
	Lead	0.0434	0.375	0.750	ug/L	U	SW6010C
	Lead (dissolved)	0.0434	0.375	0.750	ug/L	U	SW6010C
	Manganese	0.0462	0.750	3.75	ug/L	U	SW6010C
	Manganese (dissolved)	0.0462	0.750	3.75	ug/L	U	SW6010C
	Molybdenum	0.0734	1.25	5.00	ug/L	U	SW6010C
	Molybdenum (dissolved)	0.0734	1.25	5.00	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12503
Calibration: 4125002

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D29021-BLK1	Nickel	0.0217	0.750	2.50	ug/L	U	SW6010C
	Nickel (dissolved)	0.0217	0.750	2.50	ug/L	U	SW6010C
	Selenium	0.358	0.750	2.50	ug/L	U	SW6010C
	Selenium (dissolved)	0.358	0.750	2.50	ug/L	U	SW6010C
	Silver	-0.0257	0.250	2.50	ug/L	U	SW6010C
	Silver (dissolved)	-0.0257	0.250	2.50	ug/L	U	SW6010C
	Thallium	-0.00544	0.750	2.00	ug/L	U	SW6010C
	Thallium (dissolved)	-0.00544	0.750	2.00	ug/L	U	SW6010C
	Tin	-0.0512	2.50	7.50	ug/L	U	SW6010C
	Tin (dissolved)	-0.0512	2.50	7.50	ug/L	U	SW6010C
	Vanadium	-0.00498	1.25	3.12	ug/L	U	SW6010C
	Vanadium (dissolved)	-0.00498	1.25	3.12	ug/L	U	SW6010C
	Zinc	0.149	1.25	5.00	ug/L	U	SW6010C
	Zinc (dissolved)	0.149	1.25	5.00	ug/L	U	SW6010C
4E12503-CCB2	Aluminum	-2.93	50.0	200	ug/L	U	SW6010C
	Arsenic	-0.721	3.00	10.0	ug/L	U	SW6010C
	Barium	0.166	5.00	40.0	ug/L	U	SW6010C
	Beryllium	0.0537	1.00	5.00	ug/L	U	SW6010C
	Boron	-0.126	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.136	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.318	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.195	5.00	12.5	ug/L	U	SW6010C
	Copper	1.01	4.00	10.0	ug/L	U	SW6010C
	Iron	13.4	30.0	100	ug/L	U	SW6010C
	Lead	0.250	1.50	5.00	ug/L	U	SW6010C
	Manganese	0.248	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.742	5.00	20.0	ug/L	U	SW6010C
	Nickel	0.0523	3.00	10.0	ug/L	U	SW6010C
	Selenium	1.72	3.00	10.0	ug/L	U	SW6010C
	Silver	-0.0813	1.00	10.0	ug/L	U	SW6010C
	Thallium	0.0500	3.00	8.00	ug/L	U	SW6010C
	Tin	-0.254	10.0	30.0	ug/L	U	SW6010C
	Vanadium	0.174	5.00	12.5	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12503
Calibration: 4125002

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12503-CCB2	Zinc	0.136	5.00	20.0	ug/L	U	SW6010C
4E12503-CCB3	Aluminum	-2.78	50.0	200	ug/L	U	SW6010C
	Arsenic	-0.780	3.00	10.0	ug/L	U	SW6010C
	Barium	0.207	5.00	40.0	ug/L	U	SW6010C
	Beryllium	0.116	1.00	5.00	ug/L	U	SW6010C
	Boron	-0.176	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.0734	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.268	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.150	5.00	12.5	ug/L	U	SW6010C
	Copper	0.405	4.00	10.0	ug/L	U	SW6010C
	Iron	2.18	30.0	100	ug/L	U	SW6010C
	Lead	0.261	1.50	5.00	ug/L	U	SW6010C
	Manganese	0.0919	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.697	5.00	20.0	ug/L	U	SW6010C
	Nickel	0.0312	3.00	10.0	ug/L	U	SW6010C
	Selenium	1.63	3.00	10.0	ug/L	U	SW6010C
	Silver	-0.0623	1.00	10.0	ug/L	U	SW6010C
	Thallium	-0.00845	3.00	8.00	ug/L	U	SW6010C
	Tin	-0.346	10.0	30.0	ug/L	U	SW6010C
	Vanadium	0.121	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.181	5.00	20.0	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12611
Calibration: 4126004

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12611-ICB1	Aluminum (dissolved)	-1.977	50.0	200	ug/L	U	SW6010C
	Zinc (dissolved)	-0.04191	5.00	20.0	ug/L	U	SW6010C
4E12611-CCB1	Aluminum (dissolved)	-3.35	50.0	200	ug/L	U	SW6010C
	Zinc (dissolved)	0.138	5.00	20.0	ug/L	U	SW6010C
4E12611-CCB5	Aluminum (dissolved)	-8.62	50.0	200	ug/L	U	SW6010C
	Zinc (dissolved)	0.0929	5.00	20.0	ug/L	U	SW6010C
4E12611-CCB6	Aluminum (dissolved)	-14.0	50.0	200	ug/L	U	SW6010C
	Zinc (dissolved)	-0.0250	5.00	20.0	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12803
Calibration: 4128001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12803-ICB1	Aluminum	-9.207	50.0	200	ug/L	U	SW6010C
	Arsenic	0.1520	3.00	10.0	ug/L	U	SW6010C
	Barium	-0.03482	5.00	40.0	ug/L	U	SW6010C
	Beryllium	-0.05570	1.00	5.00	ug/L	U	SW6010C
	Boron	1.004	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.006030	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.1701	2.00	10.0	ug/L	U	SW6010C
	Cobalt	-0.02673	5.00	12.5	ug/L	U	SW6010C
	Copper	0.7971	4.00	10.0	ug/L	U	SW6010C
	Iron	8.534	30.0	100	ug/L	U	SW6010C
	Lead	-0.3428	1.50	5.00	ug/L	U	SW6010C
	Manganese	0.002780	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.6983	5.00	20.0	ug/L	U	SW6010C
	Nickel	0.02989	3.00	10.0	ug/L	U	SW6010C
	Selenium	0.7415	3.00	10.0	ug/L	U	SW6010C
	Silver	-0.02247	1.00	10.0	ug/L	U	SW6010C
	Thallium	0.1348	3.00	8.00	ug/L	U	SW6010C
	Tin	0.09091	10.0	30.0	ug/L	U	SW6010C
	Vanadium	-0.03970	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.2155	5.00	20.0	ug/L	U	SW6010C
4E12803-CCB1	Aluminum	-19.6	50.0	200	ug/L	U	SW6010C
	Arsenic	0.152	3.00	10.0	ug/L	U	SW6010C
	Barium	0.00199	5.00	40.0	ug/L	U	SW6010C
	Beryllium	-0.0462	1.00	5.00	ug/L	U	SW6010C
	Boron	-0.00179	10.0	40.0	ug/L	U	SW6010C
	Cadmium	-0.00624	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.0961	2.00	10.0	ug/L	U	SW6010C
	Cobalt	-0.0354	5.00	12.5	ug/L	U	SW6010C
	Copper	0.983	4.00	10.0	ug/L	U	SW6010C
	Iron	7.54	30.0	100	ug/L	U	SW6010C
	Lead	0.0478	1.50	5.00	ug/L	U	SW6010C
	Manganese	0.000600	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.627	5.00	20.0	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12803
Calibration: 4128001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12803-CCB1	Nickel	0.0901	3.00	10.0	ug/L	U	SW6010C
	Selenium	0.790	3.00	10.0	ug/L	U	SW6010C
	Silver	-0.115	1.00	10.0	ug/L	U	SW6010C
	Thallium	-0.0881	3.00	8.00	ug/L	U	SW6010C
	Tin	0.0726	10.0	30.0	ug/L	U	SW6010C
	Vanadium	0.0906	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.0935	5.00	20.0	ug/L	U	SW6010C
4E12803-CCB3	Aluminum	-7.33	50.0	200	ug/L	U	SW6010C
	Arsenic	-0.339	3.00	10.0	ug/L	U	SW6010C
	Barium	0.0636	5.00	40.0	ug/L	U	SW6010C
	Beryllium	-0.0359	1.00	5.00	ug/L	U	SW6010C
	Boron	0.129	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.00891	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.0314	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.0407	5.00	12.5	ug/L	U	SW6010C
	Copper	1.11	4.00	10.0	ug/L	U	SW6010C
	Iron	1.25	30.0	100	ug/L	U	SW6010C
	Lead	-0.557	1.50	5.00	ug/L	U	SW6010C
	Manganese	0.0225	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.718	5.00	20.0	ug/L	U	SW6010C
	Nickel	0.0702	3.00	10.0	ug/L	U	SW6010C
	Selenium	0.818	3.00	10.0	ug/L	U	SW6010C
	Silver	0.0185	1.00	10.0	ug/L	U	SW6010C
	Thallium	0.581	3.00	8.00	ug/L	U	SW6010C
	Tin	0.265	10.0	30.0	ug/L	U	SW6010C
	Vanadium	-0.117	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.224	5.00	20.0	ug/L	U	SW6010C
4E06002-BLK1	Aluminum	-1.41	12.5	50.0	ug/L	U	SW6010C
	Aluminum (dissolved)	-1.41	12.5	50.0	ug/L	U	SW6010C
	Arsenic	0.148	0.750	2.50	ug/L	U	SW6010C
	Arsenic (dissolved)	0.148	0.750	2.50	ug/L	U	SW6010C
	Barium	0.00889	1.25	10.0	ug/L	U	SW6010C
	Barium (dissolved)	0.00889	1.25	10.0	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12803
Calibration: 4128001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E06002-BLK1	Beryllium	-0.0156	0.250	1.25	ug/L	U	SW6010C
	Beryllium (dissolved)	-0.0156	0.250	1.25	ug/L	U	SW6010C
	Boron	0.158	2.50	10.0	ug/L	U	SW6010C
	Boron (dissolved)	0.158	2.50	10.0	ug/L	U	SW6010C
	Cadmium	0.0146	0.250	1.25	ug/L	U	SW6010C
	Cadmium (dissolved)	0.0146	0.250	1.25	ug/L	U	SW6010C
	Chromium	0.00912	0.500	2.50	ug/L	U	SW6010C
	Chromium (dissolved)	0.00912	0.500	2.50	ug/L	U	SW6010C
	Cobalt	-0.00887	1.25	3.12	ug/L	U	SW6010C
	Cobalt (dissolved)	-0.00887	1.25	3.12	ug/L	U	SW6010C
	Copper	0.228	1.00	2.50	ug/L	U	SW6010C
	Copper (dissolved)	0.228	1.00	2.50	ug/L	U	SW6010C
	Iron	0.225	7.50	25.0	ug/L	U	SW6010C
	Iron (dissolved)	0.225	7.50	25.0	ug/L	U	SW6010C
	Lead	0.0188	0.375	0.750	ug/L	U	SW6010C
	Lead (dissolved)	0.0188	0.375	0.750	ug/L	U	SW6010C
	Manganese	0.0504	0.750	3.75	ug/L	U	SW6010C
	Manganese (dissolved)	0.0504	0.750	3.75	ug/L	U	SW6010C
	Molybdenum	0.0961	1.25	5.00	ug/L	U	SW6010C
	Molybdenum (dissolved)	0.0961	1.25	5.00	ug/L	U	SW6010C
	Nickel	0.0165	0.750	2.50	ug/L	U	SW6010C
	Nickel (dissolved)	0.0165	0.750	2.50	ug/L	U	SW6010C
	Selenium	0.179	0.750	2.50	ug/L	U	SW6010C
	Selenium (dissolved)	0.179	0.750	2.50	ug/L	U	SW6010C
	Silver	-0.0676	0.250	2.50	ug/L	U	SW6010C
	Silver (dissolved)	-0.0676	0.250	2.50	ug/L	U	SW6010C
	Thallium	-0.0399	0.750	2.00	ug/L	U	SW6010C
	Thallium (dissolved)	-0.0399	0.750	2.00	ug/L	U	SW6010C
	Tin	0.0843	2.50	7.50	ug/L	U	SW6010C
	Tin (dissolved)	0.0843	2.50	7.50	ug/L	U	SW6010C
	Vanadium	0.00157	1.25	3.12	ug/L	U	SW6010C
	Vanadium (dissolved)	0.00157	1.25	3.12	ug/L	U	SW6010C
	Zinc	0.129	1.25	5.00	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12803
Calibration: 4128001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E06002-BLK1	Zinc (dissolved)	0.129	1.25	5.00	ug/L	U	SW6010C
4E12803-CCB4	Aluminum	-8.45	50.0	200	ug/L	U	SW6010C
	Arsenic	0.0474	3.00	10.0	ug/L	U	SW6010C
	Barium	0.181	5.00	40.0	ug/L	U	SW6010C
	Beryllium	-0.0262	1.00	5.00	ug/L	U	SW6010C
	Boron	0.191	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.148	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.172	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.161	5.00	12.5	ug/L	U	SW6010C
	Copper	1.06	4.00	10.0	ug/L	U	SW6010C
	Iron	1.32	30.0	100	ug/L	U	SW6010C
	Lead	0.0529	1.50	5.00	ug/L	U	SW6010C
	Manganese	0.0275	3.00	15.0	ug/L	U	SW6010C
	Molybdenum	0.771	5.00	20.0	ug/L	U	SW6010C
	Nickel	0.135	3.00	10.0	ug/L	U	SW6010C
	Selenium	1.00	3.00	10.0	ug/L	U	SW6010C
	Silver	-0.0553	1.00	10.0	ug/L	U	SW6010C
	Thallium	-0.152	3.00	8.00	ug/L	U	SW6010C
	Tin	0.131	10.0	30.0	ug/L	U	SW6010C
	Vanadium	-0.294	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.207	5.00	20.0	ug/L	U	SW6010C
4E12803-CCB5	Aluminum	-12.1	50.0	200	ug/L	U	SW6010C
	Arsenic	-0.0807	3.00	10.0	ug/L	U	SW6010C
	Barium	0.180	5.00	40.0	ug/L	U	SW6010C
	Beryllium	0.0255	1.00	5.00	ug/L	U	SW6010C
	Boron	0.0994	10.0	40.0	ug/L	U	SW6010C
	Cadmium	0.126	1.00	5.00	ug/L	U	SW6010C
	Chromium	0.0966	2.00	10.0	ug/L	U	SW6010C
	Cobalt	0.144	5.00	12.5	ug/L	U	SW6010C
	Copper	0.919	4.00	10.0	ug/L	U	SW6010C
	Iron	3.20	30.0	100	ug/L	U	SW6010C
	Lead	0.185	1.50	5.00	ug/L	U	SW6010C
	Manganese	0.0868	3.00	15.0	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12803
Calibration: 4128001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12803-CCB5	Molybdenum	0.715	5.00	20.0	ug/L	U	SW6010C
	Nickel	0.0551	3.00	10.0	ug/L	U	SW6010C
	Selenium	0.345	3.00	10.0	ug/L	U	SW6010C
	Silver	0.0698	1.00	10.0	ug/L	U	SW6010C
	Thallium	0.370	3.00	8.00	ug/L	U	SW6010C
	Tin	0.297	10.0	30.0	ug/L	U	SW6010C
	Vanadium	-0.0491	5.00	12.5	ug/L	U	SW6010C
	Zinc	0.212	5.00	20.0	ug/L	U	SW6010C

BLANKS
SW7470A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS
Project: Kirtland AFB (ECOS)
Sequence: 4E12810
Calibration: 4128003

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12810-ICB1	Mercury	-0.008514	0.0800	0.200	ug/L	U	SW7470A
4E12810-CCB2	Mercury	0.0109	0.0800	0.200	ug/L	U	SW7470A
4E07020-BLK1	Mercury	0.00318	0.0800	0.200	ug/L	U	SW7470A
	Mercury (dissolved)	0.00318	0.0800	0.200	ug/L	U	SW7470A
4E12810-CCB3	Mercury	0.00667	0.0800	0.200	ug/L	U	SW7470A

BLANKS
SW7470A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-FIMS
Project: Kirtland AFB (ECOS)
Sequence: 4E14713
Calibration: 4147004

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E14713-ICB1	Mercury (dissolved)	0.04344	0.0800	0.200	ug/L	U	SW7470A
4D29007-BLK2	Mercury (dissolved)	0.0475	0.0800	0.200	ug/L	U	SW7470A
4E14713-CCB1	Mercury (dissolved)	0.0389	0.0800	0.200	ug/L	U	SW7470A

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E14903
Calibration: 4149001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E14903-ICB1	Aluminum (dissolved)	8.205	50.0	200	ug/L	U	SW6010C
	Arsenic (dissolved)	-0.3807	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	-0.01342	5.00	40.0	ug/L	U	SW6010C
	Beryllium (dissolved)	-0.02856	1.00	5.00	ug/L	U	SW6010C
	Boron (dissolved)	1.029	10.0	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	0.008760	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	0.09913	2.00	10.0	ug/L	U	SW6010C
	Cobalt (dissolved)	-0.09368	5.00	12.5	ug/L	U	SW6010C
	Copper (dissolved)	1.286	4.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	4.311	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.3271	1.50	5.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.007920	3.00	15.0	ug/L	U	SW6010C
	Molybdenum (dissolved)	0.5841	5.00	20.0	ug/L	U	SW6010C
	Nickel (dissolved)	0.2394	3.00	10.0	ug/L	U	SW6010C
	Selenium (dissolved)	0.7482	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	0.007700	1.00	10.0	ug/L	U	SW6010C
	Thallium (dissolved)	0.4613	3.00	8.00	ug/L	U	SW6010C
	Tin (dissolved)	0.1718	10.0	30.0	ug/L	U	SW6010C
	Vanadium (dissolved)	-0.02181	5.00	12.5	ug/L	U	SW6010C
	Zinc (dissolved)	0.09411	5.00	20.0	ug/L	U	SW6010C
4E14903-CCB1	Aluminum (dissolved)	-5.85	50.0	200	ug/L	U	SW6010C
	Arsenic (dissolved)	-0.735	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	0.0980	5.00	40.0	ug/L	U	SW6010C
	Beryllium (dissolved)	-0.0219	1.00	5.00	ug/L	U	SW6010C
	Boron (dissolved)	0.635	10.0	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	0.0601	1.00	5.00	ug/L	U	SW6010C
	Chromium (dissolved)	0.187	2.00	10.0	ug/L	U	SW6010C
	Cobalt (dissolved)	0.175	5.00	12.5	ug/L	U	SW6010C
	Copper (dissolved)	1.66	4.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	3.15	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	0.142	1.50	5.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.114	3.00	15.0	ug/L	U	SW6010C
	Molybdenum (dissolved)	0.551	5.00	20.0	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E14903
Calibration: 4149001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E14903-CCB1	Nickel (dissolved)	0.462	3.00	10.0	ug/L	U	SW6010C
	Selenium (dissolved)	0.281	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	0.233	1.00	10.0	ug/L	U	SW6010C
	Thallium (dissolved)	0.493	3.00	8.00	ug/L	U	SW6010C
	Tin (dissolved)	0.161	10.0	30.0	ug/L	U	SW6010C
	Vanadium (dissolved)	-0.0135	5.00	12.5	ug/L	U	SW6010C
	Zinc (dissolved)	0.138	5.00	20.0	ug/L	U	SW6010C
4D29021-BLK2	Aluminum (dissolved)	6.64	12.5	50.0	ug/L	U	SW6010C
	Arsenic (dissolved)	-0.177	0.750	2.50	ug/L	U	SW6010C
	Barium (dissolved)	0.0206	1.25	10.0	ug/L	U	SW6010C
	Beryllium (dissolved)	-0.0105	0.250	1.25	ug/L	U	SW6010C
	Boron (dissolved)	0.228	2.50	10.0	ug/L	U	SW6010C
	Cadmium (dissolved)	-0.00734	0.250	1.25	ug/L	U	SW6010C
	Chromium (dissolved)	0.0182	0.500	2.50	ug/L	U	SW6010C
	Cobalt (dissolved)	-0.00355	1.25	3.12	ug/L	U	SW6010C
	Copper (dissolved)	0.560	1.00	2.50	ug/L	U	SW6010C
	Iron (dissolved)	0.736	7.50	25.0	ug/L	U	SW6010C
	Lead (dissolved)	-0.0347	0.375	1.25	ug/L	U	SW6010C
	Manganese (dissolved)	0.0485	0.750	3.75	ug/L	U	SW6010C
	Molybdenum (dissolved)	0.0765	1.25	5.00	ug/L	U	SW6010C
	Nickel (dissolved)	0.0950	0.750	2.50	ug/L	U	SW6010C
	Selenium (dissolved)	0.0146	0.750	2.50	ug/L	U	SW6010C
	Silver (dissolved)	0.0369	0.250	2.50	ug/L	U	SW6010C
	Thallium (dissolved)	0.115	0.750	2.00	ug/L	U	SW6010C
	Tin (dissolved)	0.0451	2.50	7.50	ug/L	U	SW6010C
	Vanadium (dissolved)	-0.0440	1.25	3.12	ug/L	U	SW6010C
	Zinc (dissolved)	0.108	1.25	5.00	ug/L	U	SW6010C
4E14903-CCB2	Aluminum (dissolved)	-0.0661	50.0	200	ug/L	U	SW6010C
	Arsenic (dissolved)	0.0864	3.00	10.0	ug/L	U	SW6010C
	Barium (dissolved)	-0.0216	5.00	40.0	ug/L	U	SW6010C
	Beryllium (dissolved)	-0.0438	1.00	5.00	ug/L	U	SW6010C
	Boron (dissolved)	5.31	10.0	40.0	ug/L	U	SW6010C
	Cadmium (dissolved)	0.0229	1.00	5.00	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E14903
Calibration: 4149001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E14903-CCB2	Chromium (dissolved)	0.191	2.00	10.0	ug/L	U	SW6010C
	Cobalt (dissolved)	0.114	5.00	12.5	ug/L	U	SW6010C
	Copper (dissolved)	1.88	4.00	10.0	ug/L	U	SW6010C
	Iron (dissolved)	0.0833	30.0	100	ug/L	U	SW6010C
	Lead (dissolved)	-0.0615	1.50	5.00	ug/L	U	SW6010C
	Manganese (dissolved)	0.0547	3.00	15.0	ug/L	U	SW6010C
	Molybdenum (dissolved)	0.687	5.00	20.0	ug/L	U	SW6010C
	Nickel (dissolved)	0.205	3.00	10.0	ug/L	U	SW6010C
	Selenium (dissolved)	0.355	3.00	10.0	ug/L	U	SW6010C
	Silver (dissolved)	0.247	1.00	10.0	ug/L	U	SW6010C
	Thallium (dissolved)	0.00626	3.00	8.00	ug/L	U	SW6010C
	Tin (dissolved)	0.160	10.0	30.0	ug/L	U	SW6010C
	Vanadium (dissolved)	-0.128	5.00	12.5	ug/L	U	SW6010C
	Zinc (dissolved)	0.0976	5.00	20.0	ug/L	U	SW6010C

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4125002
Sequence: 4E12503

Lab Sample ID	Analyte	True	Found	%R	Units
4E12503-IFA1	Aluminum	500000	499,160.00	99.8	ug/L
	Arsenic		-2.65		ug/L
	Barium		0.97		ug/L
	Beryllium		0.07		ug/L
	Boron		31.29		ug/L
	Cadmium		-0.73		ug/L
	Chromium		-0.77		ug/L
	Cobalt		-1.17		ug/L
	Copper		-3.69		ug/L
	Iron	200000	191,080.00	95.5	ug/L
	Lead		-2.11		ug/L
	Manganese		-1.82		ug/L
	Molybdenum		1.35		ug/L
	Nickel		-2.75		ug/L
	Selenium		-0.50		ug/L
	Silver		-0.74		ug/L
	Thallium		0.35		ug/L
	Tin		-6.21		ug/L
	Vanadium		1.28		ug/L
	Zinc		-7.18		ug/L
4E12503-IFB1	Aluminum	500000	494,960.00	99.0	ug/L
	Arsenic	100.0	112.67	113	ug/L
	Barium	500.0	539.56	108	ug/L
	Beryllium	500.0	509.69	102	ug/L
	Boron		26.53		ug/L
	Cadmium	1000	1,082.10	108	ug/L
	Chromium	500.0	479.29	95.9	ug/L
	Cobalt	500.0	503.35	101	ug/L
	Copper	500.0	475.68	95.1	ug/L

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4125002
Sequence: 4E12503

Lab Sample ID	Analyte	True	Found	%R	Units
4E12503-IFB1	Iron	200000	191,770.00	95.9	ug/L
	Lead	50.00	48.53	97.1	ug/L
	Manganese	500.0	462.71	92.5	ug/L
	Molybdenum		1.19		ug/L
	Nickel	1000	1,032.00	103	ug/L
	Selenium	50.00	51.86	104	ug/L
	Silver	200.0	197.67	98.8	ug/L
	Thallium	100.0	96.28	96.3	ug/L
	Tin		-6.21		ug/L
	Vanadium	500.0	497.21	99.4	ug/L
	Zinc	1000	1,088.70	109	ug/L

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4126004
Sequence: 4E12611

Lab Sample ID	Analyte	True	Found	%R	Units
4E12611-IFA1	Aluminum (dissolved)	500000	522,090.00	104	ug/L
	Zinc (dissolved)		-7.36		ug/L
4E12611-IFB1	Aluminum (dissolved)	500000	520,370.00	104	ug/L
	Zinc (dissolved)	1000	1,087.30	109	ug/L

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units
4E12803-IFA1	Aluminum	500000	517,430.00	103	ug/L
	Arsenic		-3.43		ug/L
	Barium		0.64		ug/L
	Beryllium		-0.03		ug/L
	Boron		2.87		ug/L
	Cadmium		-1.45		ug/L
	Chromium		-0.90		ug/L
	Cobalt		-1.04		ug/L
	Copper		-3.85		ug/L
	Iron	200000	197,040.00	98.5	ug/L
	Lead		1.86		ug/L
	Manganese		-0.96		ug/L
	Molybdenum		0.41		ug/L
	Nickel		-3.85		ug/L
	Selenium		1.18		ug/L
	Silver		-0.82		ug/L
	Thallium		-0.32		ug/L
	Tin		-2.99		ug/L
	Vanadium		1.06		ug/L
	Zinc		-7.10		ug/L
4E12803-IFB1	Aluminum	500000	511,040.00	102	ug/L
	Arsenic	100.0	106.16	106	ug/L
	Barium	500.0	535.70	107	ug/L
	Beryllium	500.0	507.72	102	ug/L
	Boron		57.94		ug/L
	Cadmium	1000	1,021.10	102	ug/L
	Chromium	500.0	478.05	95.6	ug/L
	Cobalt	500.0	494.72	98.9	ug/L
	Copper	500.0	490.37	98.1	ug/L

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units
4E12803-IFB1	Iron	200000	198,380.00	99.2	ug/L
	Lead	50.00	46.65	93.3	ug/L
	Manganese	500.0	509.30	102	ug/L
	Molybdenum		0.46		ug/L
	Nickel	1000	975.95	97.6	ug/L
	Selenium	50.00	54.28	109	ug/L
	Silver	200.0	198.62	99.3	ug/L
	Thallium	100.0	91.96	92.0	ug/L
	Tin		-3.28		ug/L
	Vanadium	500.0	491.60	98.3	ug/L
	Zinc	1000	1,025.60	103	ug/L

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4149001
Sequence: 4E14903

Lab Sample ID	Analyte	True	Found	%R	Units
4E14903-IFA1	Aluminum (dissolved)	500000	517,540.00	104	ug/L
	Arsenic (dissolved)		-2.13		ug/L
	Barium (dissolved)		1.06		ug/L
	Beryllium (dissolved)		-0.03		ug/L
	Boron (dissolved)		38.19		ug/L
	Cadmium (dissolved)		0.73		ug/L
	Chromium (dissolved)		-0.93		ug/L
	Cobalt (dissolved)		-1.51		ug/L
	Copper (dissolved)		-2.78		ug/L
	Iron (dissolved)	200000	200,160.00	100	ug/L
	Lead (dissolved)		-2.40		ug/L
	Manganese (dissolved)		-1.08		ug/L
	Molybdenum (dissolved)		1.50		ug/L
	Nickel (dissolved)		-2.62		ug/L
	Selenium (dissolved)		-0.67		ug/L
	Silver (dissolved)		-0.45		ug/L
	Thallium (dissolved)		0.24		ug/L
	Tin (dissolved)		-2.93		ug/L
	Vanadium (dissolved)		1.09		ug/L
	Zinc (dissolved)		-6.70		ug/L
4E14903-IFB1	Aluminum (dissolved)	500000	519,740.00	104	ug/L
	Arsenic (dissolved)	100.0	104.70	105	ug/L
	Barium (dissolved)	500.0	532.68	107	ug/L
	Beryllium (dissolved)	500.0	508.83	102	ug/L
	Boron (dissolved)		49.54		ug/L
	Cadmium (dissolved)	1000	993.99	99.4	ug/L
	Chromium (dissolved)	500.0	481.04	96.2	ug/L
	Cobalt (dissolved)	500.0	474.92	95.0	ug/L
	Copper (dissolved)	500.0	478.37	95.7	ug/L

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4149001
Sequence: 4E14903

Lab Sample ID	Analyte	True	Found	%R	Units
4E14903-IFB1	Iron (dissolved)	200000	201,150.00	101	ug/L
	Lead (dissolved)	50.00	44.42	88.8	ug/L
	Manganese (dissolved)	500.0	534.46	107	ug/L
	Molybdenum (dissolved)		1.50		ug/L
	Nickel (dissolved)	1000	912.66	91.3	ug/L
	Selenium (dissolved)	50.00	52.57	105	ug/L
	Silver (dissolved)	200.0	195.98	98.0	ug/L
	Thallium (dissolved)	100.0	87.66	87.7	ug/L
	Tin (dissolved)		-2.77		ug/L
	Vanadium (dissolved)	500.0	512.60	103	ug/L
	Zinc (dissolved)	1000	1,020.30	102	ug/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW7470A

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4D29007

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC.	Q	QC LIMITS REC.
Mercury	2.000	ND	2.075	104		80 - 120

ANALYTE	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Mercury	2.000	2.146	107	3.37		20	80 - 120

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW7470A

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4D29007

% Solids:

Source Sample Name: **1404168-02**

ANALYTE	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC.	Q	QC LIMITS REC.
Mercury (dissolved)	2.000	ND	2.145	107		80 - 120

ANALYTE	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Mercury (dissolved)	2.000	1.974	98.7	8.33		20	80 - 120

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW6010C

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4D29021

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC.	Q	QC LIMITS REC.
Aluminum	500.0	24.59	488.0	92.7		80 - 120
Arsenic	125.0	ND	145.4	116		80 - 120
Barium	500.0	66.71	555.7	97.8		80 - 120
Beryllium	12.50	ND	12.25	98.0		80 - 120
Cadmium	62.50	ND	65.92	105		80 - 120
Chromium	50.00	217.5	365.1	295	4x	80 - 120
Cobalt	125.0	3.165	125.0	97.5		80 - 120
Copper	62.50	16.60	76.90	96.5		80 - 120
Iron	250.0	896.6	1526	252	N	80 - 120
Lead	125.0	0.6628	126.8	101		80 - 120
Manganese	125.0	19.18	143.4	99.4		80 - 120
Nickel	125.0	5.326	129.2	99.1		80 - 120
Selenium	125.0	8.226	144.8	109		80 - 120
Silver	62.50	ND	58.25	93.2		80 - 120
Thallium	125.0	ND	121.0	96.8		80 - 120
Vanadium	125.0	7.326	130.1	98.2		80 - 120
Zinc	125.0	17.04	147.6	104		80 - 120

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW6010C

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4D29021

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Aluminum	500.0	484.6	92.0	0.694		20	80 - 120
Arsenic	125.0	145.6	116	0.125		20	80 - 120
Barium	500.0	558.7	98.4	0.538		20	80 - 120
Beryllium	12.50	12.27	98.2	0.171		20	80 - 120
Cadmium	62.50	66.22	106	0.446		20	80 - 120
Chromium	50.00	116.6	-202	103	4x *	20	80 - 120
Cobalt	125.0	120.8	94.1	3.44		20	80 - 120
Copper	62.50	70.30	85.9	8.98		20	80 - 120
Iron	250.0	536.2	-144	96.0	N *	20	80 - 120
Lead	125.0	127.6	102	0.696		20	80 - 120
Manganese	125.0	113.5	75.4	23.3	N *	20	80 - 120
Nickel	125.0	124.7	95.5	3.55		20	80 - 120
Selenium	125.0	145.0	109	0.160		20	80 - 120
Silver	62.50	57.75	92.4	0.862		20	80 - 120
Thallium	125.0	122.1	97.7	0.880		20	80 - 120
Vanadium	125.0	127.8	96.4	1.75		20	80 - 120
Zinc	125.0	149.9	106	1.56		20	80 - 120

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW6010C

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4D29021

% Solids:

Source Sample Name: **1404168-02**

ANALYTE	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC.	Q	QC LIMITS REC.
Aluminum (dissolved)	500.0	25.04	496.9	94.4		80 - 120
Arsenic (dissolved)	125.0	ND	128.7	103		80 - 120
Barium (dissolved)	500.0	64.98	530.9	93.2		80 - 120
Beryllium (dissolved)	12.50	ND	12.06	96.5		80 - 120
Boron (dissolved)	250.0	24.41	278.7	102		80 - 120
Cadmium (dissolved)	62.50	ND	58.06	92.9		80 - 120
Chromium (dissolved)	50.00	1.014	46.73	91.4		80 - 120
Cobalt (dissolved)	125.0	ND	109.1	87.3		80 - 120
Copper (dissolved)	62.50	10.49	65.97	88.8		80 - 120
Iron (dissolved)	250.0	ND	247.7	99.1		80 - 120
Lead (dissolved)	125.0	0.7672	116.6	92.7		80 - 120
Manganese (dissolved)	125.0	1.758	129.0	102		80 - 120
Molybdenum (dissolved)	250.0	1.564	237.5	94.4		80 - 120
Nickel (dissolved)	125.0	0.7994	104.7	83.1		80 - 120
Selenium (dissolved)	125.0	8.366	139.6	105		80 - 120
Silver (dissolved)	62.50	ND	56.47	90.4		80 - 120
Thallium (dissolved)	125.0	ND	108.1	86.5		80 - 120
Tin (dissolved)	250.0	ND	246.9	98.7		80 - 120
Vanadium (dissolved)	125.0	4.558	125.6	96.9		80 - 120
Zinc (dissolved)	125.0	17.03	130.3	90.6		80 - 120

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW6010C

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4D29021

% Solids:

Source Sample Name: **1404168-02**

ANALYTE	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Aluminum (dissolved)	500.0	518.2	98.6	4.21		20	80 - 120
Arsenic (dissolved)	125.0	132.7	106	3.08		20	80 - 120
Barium (dissolved)	500.0	551.2	97.2	3.75		20	80 - 120
Beryllium (dissolved)	12.50	12.55	100	4.01		20	80 - 120
Boron (dissolved)	250.0	290.9	107	4.29		20	80 - 120
Cadmium (dissolved)	62.50	60.20	96.3	3.60		20	80 - 120
Chromium (dissolved)	50.00	49.10	96.2	4.96		20	80 - 120
Cobalt (dissolved)	125.0	113.9	91.1	4.27		20	80 - 120
Copper (dissolved)	62.50	69.76	94.8	5.58		20	80 - 120
Iron (dissolved)	250.0	256.1	102	3.31		20	80 - 120
Lead (dissolved)	125.0	120.0	95.4	2.85		20	80 - 120
Manganese (dissolved)	125.0	136.1	107	5.34		20	80 - 120
Molybdenum (dissolved)	250.0	247.4	98.3	4.08		20	80 - 120
Nickel (dissolved)	125.0	109.5	87.0	4.47		20	80 - 120
Selenium (dissolved)	125.0	143.2	108	2.56		20	80 - 120
Silver (dissolved)	62.50	59.86	95.8	5.83		20	80 - 120
Thallium (dissolved)	125.0	112.2	89.8	3.75		20	80 - 120
Tin (dissolved)	250.0	253.8	102	2.80		20	80 - 120
Vanadium (dissolved)	125.0	132.5	102	5.31		20	80 - 120
Zinc (dissolved)	125.0	136.1	95.3	4.40		20	80 - 120

POST DIGEST SPIKE SAMPLE RECOVERY

SW6010C

LF008-30002

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4D29021-PS1
Batch: 4D29021
Lab Source ID: 1404168-01
Preparation: MET_3005A_LOW
Initial/Final: 100 mL / 25 mL

Analyte	Spike Sample Result (SSR) (ug/L)	Sample Result (SR) (ug/L)	Spike Added (SA) (ug/L)	%R	Control Limit %R
Aluminum	2082	98.37	2000	99.2	80 - 120
Arsenic	**305.8**	**ND**	**250.0**	**122**	**80 - 120**
Barium	2413	266.8	2000	107	80 - 120
Beryllium	51.87	ND	50.00	104	80 - 120
Boron	1196	96.52	1000	110	80 - 120
Cadmium	136.4	ND	125.0	110	80 - 120
Chromium	1085	870.1	200.0	107	80 - 120
Cobalt	530.7	12.66	500.0	104	80 - 120
Copper	316.6	66.42	250.0	100	80 - 120
Iron	4503	3586	1000	91.7	80 - 120
Lead	250.0	2.651	250.0	98.9	80 - 120
Manganese	558.6	76.72	500.0	96.4	80 - 120
Molybdenum	1134	11.48	1000	112	80 - 120
Nickel	552.0	21.30	500.0	106	80 - 120
Selenium	318.1	32.90	250.0	114	80 - 120
Silver	252.6	ND	250.0	101	80 - 120
Thallium	239.2	ND	250.0	95.7	80 - 120
Tin	1102	22.23	1000	108	80 - 120
Vanadium	570.4	29.30	500.0	108	80 - 120
Zinc	625.0	68.16	500.0	111	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D29005	Laboratory ID:	4D29005-BS1
Preparation:	pMercury-W SW 7470A	Initial/Final:	30 mL / 30 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Mercury (dissolved)	2.000	2.098	105	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D29006	Laboratory ID:	4D29006-BS1
Preparation:	pMercury-W SW 7470A	Initial/Final:	30 mL / 30 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Mercury	2.000	2.046	102	80 - 120
Mercury (dissolved)	2.000	2.046	102	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D29007	Laboratory ID:	4D29007-BS1
Preparation:	pMercury-W SW 7470A	Initial/Final:	30 mL / 30 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Mercury	2.000	2.193	110	80 - 120
Mercury (dissolved)	2.000	2.193	110	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D29007	Laboratory ID:	4D29007-BS2
Preparation:	pMercury-W SW 7470A	Initial/Final:	30 mL / 30 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Mercury (dissolved)	2.000	2.028	101	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D29021	Laboratory ID:	4D29021-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Aluminum	40.00	40.30	101	80 - 120
Aluminum (dissolved)	40.00	40.30	101	80 - 120
Arsenic	5.000	4.390	87.8	80 - 120
Arsenic (dissolved)	5.000	4.390	87.8	80 - 120
Barium	40.00	34.96	87.4	80 - 120
Barium (dissolved)	40.00	34.96	87.4	80 - 120
Beryllium	1.000	0.9114	91.1	80 - 120
Beryllium (dissolved)	1.000	0.9114	91.1	80 - 120
Boron	20.00	18.00	90.0	80 - 120
Boron (dissolved)	20.00	18.00	90.0	80 - 120
Cadmium	2.500	2.318	92.7	80 - 120
Cadmium (dissolved)	2.500	2.318	92.7	80 - 120
Chromium	4.000	3.624	90.6	80 - 120
Chromium (dissolved)	4.000	3.624	90.6	80 - 120
Cobalt	10.00	8.840	88.4	80 - 120
Cobalt (dissolved)	10.00	8.840	88.4	80 - 120
Copper	5.000	4.934	98.7	80 - 120
Copper (dissolved)	5.000	4.934	98.7	80 - 120
Iron	20.00	19.48	97.4	80 - 120
Iron (dissolved)	20.00	19.48	97.4	80 - 120
Lead	5.000	4.763	95.3	80 - 120
Lead (dissolved)	5.000	4.763	95.3	80 - 120
Manganese	10.00	8.280	82.8	80 - 120
Manganese (dissolved)	10.00	8.280	82.8	80 - 120
Molybdenum	20.00	17.12	85.6	80 - 120
Molybdenum (dissolved)	20.00	17.12	85.6	80 - 120
Nickel	10.00	9.129	91.3	80 - 120
Nickel (dissolved)	10.00	9.129	91.3	80 - 120
Selenium	5.000	4.786	95.7	80 - 120
Selenium (dissolved)	5.000	4.786	95.7	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D29021	Laboratory ID:	4D29021-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Silver	5.000	4.652	93.0	80 - 120
Silver (dissolved)	5.000	4.652	93.0	80 - 120
Thallium	5.000	4.752	95.0	80 - 120
Thallium (dissolved)	5.000	4.752	95.0	80 - 120
Tin	20.00	16.87	84.4	80 - 120
Tin (dissolved)	20.00	16.87	84.4	80 - 120
Vanadium	10.00	8.961	89.6	80 - 120
Vanadium (dissolved)	10.00	8.961	89.6	80 - 120
Zinc	10.00	9.132	91.3	80 - 120
Zinc (dissolved)	10.00	9.132	91.3	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D29021	Laboratory ID:	4D29021-BS2
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Aluminum (dissolved)	40.00	45.58	114	80 - 120
Arsenic (dissolved)	5.000	4.267	85.3	80 - 120
Barium (dissolved)	40.00	36.50	91.2	80 - 120
Beryllium (dissolved)	1.000	0.9997	100	80 - 120
Boron (dissolved)	20.00	20.76	104	80 - 120
Cadmium (dissolved)	2.500	2.149	86.0	80 - 120
Chromium (dissolved)	4.000	4.014	100	80 - 120
Cobalt (dissolved)	10.00	8.864	88.6	80 - 120
Copper (dissolved)	5.000	5.753	115	80 - 120
Iron (dissolved)	20.00	22.04	110	80 - 120
Lead (dissolved)	5.000	4.568	91.4	80 - 120
Manganese (dissolved)	10.00	11.13	111	80 - 120
Molybdenum (dissolved)	20.00	16.95	84.7	80 - 120
Nickel (dissolved)	10.00	8.449	84.5	80 - 120
Selenium (dissolved)	5.000	4.680	93.6	80 - 120
Silver (dissolved)	5.000	5.114	102	80 - 120
Thallium (dissolved)	5.000	4.679	93.6	80 - 120
Tin (dissolved)	20.00	18.59	92.9	80 - 120
Vanadium (dissolved)	10.00	10.10	101	80 - 120
Zinc (dissolved)	10.00	8.822	88.2	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E06002	Laboratory ID:	4E06002-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Aluminum	40.00	36.89	92.2	80 - 120
Aluminum (dissolved)	40.00	36.89	92.2	80 - 120
Arsenic	5.000	4.380	87.6	80 - 120
Arsenic (dissolved)	5.000	4.380	87.6	80 - 120
Barium	40.00	34.62	86.5	80 - 120
Barium (dissolved)	40.00	34.62	86.5	80 - 120
Beryllium	1.000	0.8969	89.7	80 - 120
Beryllium (dissolved)	1.000	0.8969	89.7	80 - 120
Boron	20.00	18.08	90.4	80 - 120
Boron (dissolved)	20.00	18.08	90.4	80 - 120
Cadmium	2.500	2.119	84.8	80 - 120
Cadmium (dissolved)	2.500	2.119	84.8	80 - 120
Chromium	4.000	3.715	92.9	80 - 120
Chromium (dissolved)	4.000	3.715	92.9	80 - 120
Cobalt	10.00	8.880	88.8	80 - 120
Cobalt (dissolved)	10.00	8.880	88.8	80 - 120
Copper	5.000	5.203	104	80 - 120
Copper (dissolved)	5.000	5.203	104	80 - 120
Iron	20.00	19.53	97.6	80 - 120
Iron (dissolved)	20.00	19.53	97.6	80 - 120
Lead	5.000	4.453	89.1	80 - 120
Lead (dissolved)	5.000	4.453	89.1	80 - 120
Manganese	10.00	10.17	102	80 - 120
Manganese (dissolved)	10.00	10.17	102	80 - 120
Molybdenum	20.00	17.18	85.9	80 - 120
Molybdenum (dissolved)	20.00	17.18	85.9	80 - 120
Nickel	10.00	8.617	86.2	80 - 120
Nickel (dissolved)	10.00	8.617	86.2	80 - 120
Selenium	5.000	4.658	93.2	80 - 120
Selenium (dissolved)	5.000	4.658	93.2	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E06002	Laboratory ID:	4E06002-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Silver	5.000	4.644	92.9	80 - 120
Silver (dissolved)	5.000	4.644	92.9	80 - 120
Thallium	5.000	4.342	86.8	80 - 120
Thallium (dissolved)	5.000	4.342	86.8	80 - 120
Tin	20.00	17.25	86.2	80 - 120
Tin (dissolved)	20.00	17.25	86.2	80 - 120
Vanadium	10.00	9.096	91.0	80 - 120
Vanadium (dissolved)	10.00	9.096	91.0	80 - 120
Zinc	10.00	8.400	84.0	80 - 120
Zinc (dissolved)	10.00	8.400	84.0	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E07020	Laboratory ID:	4E07020-BS1
Preparation:	pMercury-W SW 7470A	Initial/Final:	30 mL / 30 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Mercury	2.000	2.106	105	80 - 120
Mercury (dissolved)	2.000	2.106	105	80 - 120

SERIAL DILUTION

SW6010C

LF008-30002

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sequence: 4E12503
Preparation: MET_3005A_LOW

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D29021-DUP1
Lab Source ID: 1404168-01
Initial/Final: 100 / 25

Analyte	Initial Sample Result (I) ug/L	Serial Dilution Result (S) ug/L	% Difference	Q	Method	QC Limits % Difference
Aluminum	98.366	340.12	246		SW6010C	10.00
Arsenic	ND	ND			SW6010C	10.00
Barium	266.84	257.6	-3.46		SW6010C	10.00
Beryllium	ND	ND			SW6010C	10.00
Boron	96.525	97.885	1.41		SW6010C	10.00
Cadmium	ND	ND			SW6010C	10.00
Chromium	870.07	874.95	0.561		SW6010C	10.00
Cobalt	12.66	ND			SW6010C	10.00
Copper	66.418	70.035	5.45		SW6010C	10.00
Iron	3586.2	3618.2	0.892		SW6010C	10.00
Lead	2.6514	ND			SW6010C	10.00
Manganese	76.716	77.12	0.527		SW6010C	10.00
Molybdenum	11.481	ND			SW6010C	10.00
Nickel	21.304	22.483	5.53		SW6010C	10.00
Selenium	32.902	35.321	7.35		SW6010C	10.00
Silver	ND	ND			SW6010C	10.00
Thallium	ND	ND			SW6010C	10.00
Tin	22.233	ND			SW6010C	10.00
Vanadium	29.303	29.036	-0.911		SW6010C	10.00
Zinc	68.161	65.99	-3.19		SW6010C	10.00

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Al	Ca	Fe	Mg	Ag
Aluminum	396.152	0.000000	0.560011	0.000043	0.000000	0.000000
Aluminum	396.152	0.000000	0.560011	0.000043	0.000000	0.000000
Aluminum	396.152	0.000000	0.560011	0.000043	0.000000	0.000000
Arsenic	189.042	-0.000011	0.000000	-0.00004	0.000000	0.000000
Arsenic	189.042	-0.000011	0.000000	-0.00004	0.000000	0.000000
Arsenic	189.042	-0.000011	0.000000	-0.00004	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000005	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000005	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000005	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Boron	249.678	0.000000	0.000000	-0.00054	0.000000	0.000000
Boron	249.678	0.000000	0.000000	-0.00054	0.000000	0.000000
Boron	249.678	0.000000	0.000000	-0.00054	0.000000	0.000000
Cadmium	214.438	0.000008	0.003803	0.000029	0.000000	0.000000
Cadmium	214.438	0.000008	0.003803	0.000029	0.000000	0.000000
Cadmium	214.438	0.000008	0.003803	0.000029	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000003	0.005608	0.000000
Chromium	267.716	0.000000	0.000000	0.000003	0.005608	0.000000
Chromium	267.716	0.000000	0.000000	0.000003	0.005608	0.000000
Cobalt	228.616	0.000000	0.000000	0.000042	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.000042	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.000042	0.000000	0.000000
Copper	324.754	0.000001	0.000000	-0.000028	0.001001	0.000000
Copper	324.754	0.000001	0.000000	-0.000028	0.001001	0.000000
Copper	324.754	0.000001	0.000000	-0.000028	0.001001	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	-0.000132	0.000000	0.000026	0.000000	0.000000
Lead	220.3	-0.000132	0.000000	0.000026	0.000000	0.000000
Lead	220.3	-0.000132	0.000000	0.000026	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000025	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000025	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000025	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	-0.000011	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	-0.000011	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	-0.000011	0.000000	0.000000
Nickel	231.604	0.000001	0.000009	0.000029	0.002042	0.000000
Nickel	231.604	0.000001	0.000009	0.000029	0.002042	0.000000
Nickel	231.604	0.000001	0.000009	0.000029	0.002042	0.000000
Selenium	196.09	0.000015	-0.007295	0.000025	0.000000	0.000000

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Al	Ca	Fe	Mg	Ag
Selenium	196.09	0.000015	-0.007295	0.000025	0.000000	0.000000
Selenium	196.09	0.000015	-0.007295	0.000025	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000004	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000004	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000004	0.000000	0.000000
Thallium	190.8	0.000004	0.000000	0.000008	0.000000	0.000000
Thallium	190.8	0.000004	0.000000	0.000008	0.000000	0.000000
Thallium	190.8	0.000004	0.000000	0.000008	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	0.000000	0.000000	-0.000008	0.000000	0.000000
Vanadium	292.4	0.000000	0.000000	-0.000008	0.000000	0.000000
Vanadium	292.4	0.000000	0.000000	-0.000008	0.000000	0.000000
Zinc	206.2	0.000014	0.000827	-0.000001	0.000000	0.000000
Zinc	206.2	0.000014	0.000827	-0.000001	0.000000	0.000000
Zinc	206.2	0.000014	0.000827	-0.000001	0.000000	0.000000

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: As	B	Ba	Be	Cd
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Boron	249.678	0.000000	0.000000	0.000000	0.000000	0.000467
Boron	249.678	0.000000	0.000000	0.000000	0.000000	0.000467
Boron	249.678	0.000000	0.000000	0.000000	0.000000	0.000467
Cadmium	214.438	-0.000313	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000313	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000313	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000043
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000043
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000043
Cobalt	228.616	0.000000	0.000000	0.000000	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.000000	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.000000	0.000000	0.000000
Copper	324.754	0.000000	0.000000	0.000000	0.000000	0.000000
Copper	324.754	0.000000	0.000000	0.000000	0.000000	0.000000
Copper	324.754	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	-0.000039	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	-0.000039	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	-0.000039	0.000000
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.000000

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: As	B	Ba	Be	Cd
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.000000
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.000000
Thallium	190.8	0.000000	0.000000	0.000000	0.000000	0.000000
Thallium	190.8	0.000000	0.000000	0.000000	0.000000	0.000000
Thallium	190.8	0.000000	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	0.000000	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	0.000000	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	0.000000	0.000000	0.000000	0.000000	0.000000
Zinc	206.2	0.000000	0.000000	0.000000	0.001494	0.000425
Zinc	206.2	0.000000	0.000000	0.000000	0.001494	0.000425
Zinc	206.2	0.000000	0.000000	0.000000	0.001494	0.000425

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Co	Cr	Cu	K	Mn
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000195	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000195	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000195	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	0.000000	0.000000	0.000000	0.000000	0.000000
Boron	249.678	0.002404	0.001624	0.000000	0.000000	0.000000
Boron	249.678	0.002404	0.001624	0.000000	0.000000	0.000000
Boron	249.678	0.002404	0.001624	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	-0.000301	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	-0.000301	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	-0.000301	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000088
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000088
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000088
Cobalt	228.616	0.000000	-0.000032	0.000000	0.000000	0.000000
Cobalt	228.616	0.000000	-0.000032	0.000000	0.000000	0.000000
Cobalt	228.616	0.000000	-0.000032	0.000000	0.000000	0.000000
Copper	324.754	0.000000	0.000000	0.000000	0.000000	0.000002
Copper	324.754	0.000000	0.000000	0.000000	0.000000	0.000002
Copper	324.754	0.000000	0.000000	0.000000	0.000000	0.000002
Iron	261.187	0.000000	-0.000701	0.000000	0.000000	-0.000794
Iron	261.187	0.000000	-0.000701	0.000000	0.000000	-0.000794
Iron	261.187	0.000000	-0.000701	0.000000	0.000000	-0.000794
Lead	220.3	-0.000003	0.000000	0.001073	0.000000	0.000116
Lead	220.3	-0.000003	0.000000	0.001073	0.000000	0.000116
Lead	220.3	-0.000003	0.000000	0.001073	0.000000	0.000116
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	-0.000048	-0.000079	0.000000	0.000000	0.000000
Nickel	231.604	-0.000048	-0.000079	0.000000	0.000000	0.000000
Nickel	231.604	-0.000048	-0.000079	0.000000	0.000000	0.000000
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.00061

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Co	Cr	Cu	K	Mn
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.00061
Selenium	196.09	0.000000	0.000000	0.000000	0.000000	0.00061
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.00014
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.00014
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.00014
Thallium	190.8	0.001892	0.000203	0.000000	0.000000	0.001269
Thallium	190.8	0.001892	0.000203	0.000000	0.000000	0.001269
Thallium	190.8	0.001892	0.000203	0.000000	0.000000	0.001269
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	0.000000	-0.009179	0.000000	0.000000	-0.00088
Vanadium	292.4	0.000000	-0.009179	0.000000	0.000000	-0.00088
Vanadium	292.4	0.000000	-0.009179	0.000000	0.000000	-0.00088
Zinc	206.2	0.000000	0.000078	0.000001	0.000000	0.000673
Zinc	206.2	0.000000	0.000078	0.000001	0.000000	0.000673
Zinc	206.2	0.000000	0.000078	0.000001	0.000000	0.000673

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Mo	Na	Ni	Pb	Sb
Aluminum	396.152	0.042196	0.000000	0.000000	0.000000	0.000000
Aluminum	396.152	0.042196	0.000000	0.000000	0.000000	0.000000
Aluminum	396.152	0.042196	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000577	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000577	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000577	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Barium	233.527	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	-0.000025	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	-0.000025	0.000000	0.000000	0.000000	0.000000
Beryllium	313.042	-0.000025	0.000000	0.000000	0.000000	0.000000
Boron	249.678	-0.001476	0.000000	0.000000	0.000000	0.000000
Boron	249.678	-0.001476	0.000000	0.000000	0.000000	0.000000
Boron	249.678	-0.001476	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000105	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000105	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	-0.000105	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000000
Cobalt	228.616	-0.000748	0.000000	0.000049	0.000000	0.000000
Cobalt	228.616	-0.000748	0.000000	0.000049	0.000000	0.000000
Cobalt	228.616	-0.000748	0.000000	0.000049	0.000000	0.000000
Copper	324.754	0.0012	0.000000	0.000000	0.000000	0.000000
Copper	324.754	0.0012	0.000000	0.000000	0.000000	0.000000
Copper	324.754	0.0012	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	-0.000317	0.000000	0.000224	0.000000	0.000000
Lead	220.3	-0.000317	0.000000	0.000224	0.000000	0.000000
Lead	220.3	-0.000317	0.000000	0.000224	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	-0.000223	0.000000	0.000000	0.000017	-0.00003
Nickel	231.604	-0.000223	0.000000	0.000000	0.000017	-0.00003
Nickel	231.604	-0.000223	0.000000	0.000000	0.000017	-0.00003
Selenium	196.09	0.000166	0.000000	0.000039	0.000000	0.000000

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Mo	Na	Ni	Pb	Sb
Selenium	196.09	0.000166	0.000000	0.000039	0.000000	0.000000
Selenium	196.09	0.000166	0.000000	0.000039	0.000000	0.000000
Silver	328.068	-0.000046	0.000000	0.000000	0.000000	0.000000
Silver	328.068	-0.000046	0.000000	0.000000	0.000000	0.000000
Silver	328.068	-0.000046	0.000000	0.000000	0.000000	0.000000
Thallium	190.8	0.000023	0.000000	0.000000	0.000000	0.000000
Thallium	190.8	0.000023	0.000000	0.000000	0.000000	0.000000
Thallium	190.8	0.000023	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	-0.000106	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	-0.000106	0.000000	0.000000	0.000000	0.000000
Vanadium	292.4	-0.000106	0.000000	0.000000	0.000000	0.000000
Zinc	206.2	0.000173	0.000000	0.000200	0.000000	0.000004
Zinc	206.2	0.000173	0.000000	0.000200	0.000000	0.000004
Zinc	206.2	0.000173	0.000000	0.000200	0.000000	0.000004

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Se	Sn	Ti	Tl	V
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	0.000075	0.000000	0.000084
Arsenic	189.042	0.000000	0.000000	0.000075	0.000000	0.000084
Arsenic	189.042	0.000000	0.000000	0.000075	0.000000	0.000084
Barium	233.527	0.000000	0.000000	0.000000	0.000000	-0.002594
Barium	233.527	0.000000	0.000000	0.000000	0.000000	-0.002594
Barium	233.527	0.000000	0.000000	0.000000	0.000000	-0.002594
Beryllium	313.042	0.000000	0.000000	-0.000485	0.000000	0.000417
Beryllium	313.042	0.000000	0.000000	-0.000485	0.000000	0.000417
Beryllium	313.042	0.000000	0.000000	-0.000485	0.000000	0.000417
Boron	249.678	0.000000	0.000000	0.000000	0.000000	-0.00024
Boron	249.678	0.000000	0.000000	0.000000	0.000000	-0.00024
Boron	249.678	0.000000	0.000000	0.000000	0.000000	-0.00024
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000	0.00003
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000	0.00003
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000	0.00003
Chromium	267.716	0.000000	0.000000	0.000123	0.000000	-0.000018
Chromium	267.716	0.000000	0.000000	0.000123	0.000000	-0.000018
Chromium	267.716	0.000000	0.000000	0.000123	0.000000	-0.000018
Cobalt	228.616	0.000000	0.000000	0.002252	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.002252	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.002252	0.000000	0.000000
Copper	324.754	0.000000	0.000000	-0.000409	0.000000	-0.000006
Copper	324.754	0.000000	0.000000	-0.000409	0.000000	-0.000006
Copper	324.754	0.000000	0.000000	-0.000409	0.000000	-0.000006
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.3	0.000000	0.000000	-0.000006	0.000000	-0.00007
Lead	220.3	0.000000	0.000000	-0.000006	0.000000	-0.00007
Lead	220.3	0.000000	0.000000	-0.000006	0.000000	-0.00007
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	-0.000155
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	-0.000155
Molybdenum	202.03	0.000000	0.000000	0.000000	0.000000	-0.000155
Nickel	231.604	0.000000	0.000000	0.000001	0.000281	0.000002
Nickel	231.604	0.000000	0.000000	0.000001	0.000281	0.000002
Nickel	231.604	0.000000	0.000000	0.000001	0.000281	0.000002
Selenium	196.09	0.000000	0.000000	0.000022	0.000000	0.000180

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Se	Sn	Ti	Tl	V
Selenium	196.09	0.000000	0.000000	0.000022	0.000000	0.000180
Selenium	196.09	0.000000	0.000000	0.000022	0.000000	0.000180
Silver	328.068	0.000000	0.000000	0.000000	0.000000	-0.002831
Silver	328.068	0.000000	0.000000	0.000000	0.000000	-0.002831
Silver	328.068	0.000000	0.000000	0.000000	0.000000	-0.002831
Thallium	190.8	0.000000	0.000000	-0.001194	0.000000	-0.008687
Thallium	190.8	0.000000	0.000000	-0.001194	0.000000	-0.008687
Thallium	190.8	0.000000	0.000000	-0.001194	0.000000	-0.008687
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000251
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000251
Tin	189.989	0.000000	0.000000	0.000000	0.000000	0.000251
Vanadium	292.4	0.000000	0.000000	-0.000197	0.000000	0.000000
Vanadium	292.4	0.000000	0.000000	-0.000197	0.000000	0.000000
Vanadium	292.4	0.000000	0.000000	-0.000197	0.000000	0.000000
Zinc	206.2	-0.000008	0.000000	0.000000	0.000000	0.000226
Zinc	206.2	-0.000008	0.000000	0.000000	0.000000	0.000226
Zinc	206.2	-0.000008	0.000000	0.000000	0.000000	0.000226

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: Zn				
Aluminum	396.152	0.000000				
Aluminum	396.152	0.000000				
Aluminum	396.152	0.000000				
Arsenic	189.042	-0.000011				
Arsenic	189.042	-0.000011				
Arsenic	189.042	-0.000011				
Barium	233.527	0.000000				
Barium	233.527	0.000000				
Barium	233.527	0.000000				
Beryllium	313.042	0.000000				
Beryllium	313.042	0.000000				
Beryllium	313.042	0.000000				
Boron	249.678	0.000000				
Boron	249.678	0.000000				
Boron	249.678	0.000000				
Cadmium	214.438	0.000000				
Cadmium	214.438	0.000000				
Cadmium	214.438	0.000000				
Chromium	267.716	0.000000				
Chromium	267.716	0.000000				
Chromium	267.716	0.000000				
Cobalt	228.616	0.000000				
Cobalt	228.616	0.000000				
Cobalt	228.616	0.000000				
Copper	324.754	0.000000				
Copper	324.754	0.000000				
Copper	324.754	0.000000				
Iron	261.187	0.000000				
Iron	261.187	0.000000				
Iron	261.187	0.000000				
Lead	220.3	0.000000				
Lead	220.3	0.000000				
Lead	220.3	0.000000				
Manganese	257.61	0.000000				
Manganese	257.61	0.000000				
Manganese	257.61	0.000000				
Molybdenum	202.03	-0.000269				
Molybdenum	202.03	-0.000269				
Molybdenum	202.03	-0.000269				
Nickel	231.604	-0.000003				
Nickel	231.604	-0.000003				
Nickel	231.604	-0.000003				
Selenium	196.09	0.000000				

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_013

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: Zn				
Selenium	196.09	0.000000				
Selenium	196.09	0.000000				
Silver	328.068	0.000000				
Silver	328.068	0.000000				
Silver	328.068	0.000000				
Thallium	190.8	0.000000				
Thallium	190.8	0.000000				
Thallium	190.8	0.000000				
Tin	189.989	0.000000				
Tin	189.989	0.000000				
Tin	189.989	0.000000				
Vanadium	292.4	0.000000				
Vanadium	292.4	0.000000				
Vanadium	292.4	0.000000				
Zinc	206.2	0.000000				
Zinc	206.2	0.000000				
Zinc	206.2	0.000000				

Comments:

FORM XA-IN

ICP-AES AND ICP-MS LINEAR RANGES

Lab Name: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc. SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

ICP Instrument ID: ME-ICP Date: 12/27/2013

Analyte	Integ. Time (Sec.)	Concentration ug/L	M
Aluminum	15	500000	P
Aluminum	15	500000	P
Aluminum	15	500000	P
Arsenic	15	10000	P
Arsenic	15	10000	P
Arsenic	15	10000	P
Barium	15	5000	P
Barium	15	5000	P
Barium	15	5000	P
Beryllium	15	10000	P
Beryllium	15	10000	P
Beryllium	15	10000	P
Boron	15	50000	P
Boron	15	50000	P
Boron	15	50000	P
Cadmium	15	10000	P
Cadmium	15	10000	P
Cadmium	15	10000	P
Chromium	15	10000	P
Chromium	15	10000	P
Chromium	15	10000	P
Cobalt	15	10000	P
Cobalt	15	10000	P
Cobalt	15	10000	P
Copper	15	25000	P
Copper	15	25000	P
Copper	15	25000	P
Iron	15	500000	P
Iron	15	500000	P
Iron	15	500000	P
Lead	15	25000	P
Lead	15	25000	P
Lead	15	25000	P
Manganese	15	15000	P
Manganese	15	15000	P
Manganese	15	15000	P
Molybdenum	15	10000	P
Molybdenum	15	10000	P
Molybdenum	15	10000	P
Nickel	15	50000	P
Nickel	15	50000	P
Nickel	15	50000	P
Selenium	15	10000	P
Selenium	15	10000	P
Selenium	15	10000	P
Silver	15	2000	P

ICP-AES AND ICP-MS LINEAR RANGES

Lab Name: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc. SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

ICP Instrument ID: ME-ICP Date: 12/27/2013

Analyte	Integ. Time (Sec.)	Concentration ug/L	M
Silver	15	2000	P
Silver	15	2000	P
Thallium	15	10000	P
Thallium	15	10000	P
Thallium	15	10000	P
Tin	15	25000	P
Tin	15	25000	P
Tin	15	25000	P
Vanadium	15	30000	P
Vanadium	15	30000	P
Vanadium	15	30000	P
Zinc	15	20000	P
Zinc	15	20000	P
Zinc	15	20000	P

PREPARATION BATCH SUMMARY

SW7470A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D29005 Batch Matrix: Water Preparation: pMercury-W SW 7470A

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30007	1404149-06	04/29/14 07:55	30.00	30.00
Blank	4D29005-BLK1	04/29/14 07:55	30.00	30.00
LCS	4D29005-BS1	04/29/14 07:55	30.00	30.00

PREPARATION BATCH SUMMARY

SW7470A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D29006 Batch Matrix: Water Preparation: pMercury-W SW 7470A

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30005	1404149-01	04/29/14 07:56	30.00	30.00
LF008-30005	1404149-02	04/29/14 07:56	30.00	30.00
LF008-30006	1404149-03	04/29/14 07:56	30.00	30.00
LF008-30006	1404149-04	04/29/14 07:56	30.00	30.00
LF008-30007	1404149-05	04/29/14 07:56	30.00	30.00
Blank	4D29006-BLK1	04/29/14 07:56	30.00	30.00
Blank	4D29006-BLK1	04/29/14 07:56	30.00	30.00
LCS	4D29006-BS1	04/29/14 07:56	30.00	30.00
LCS	4D29006-BS1	04/29/14 07:56	30.00	30.00

PREPARATION BATCH SUMMARY

SW7470A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D29007 Batch Matrix: Water Preparation: pMercury-W SW 7470A

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30002	1404168-01	04/29/14 07:58	30.00	30.00
LF008-30002	1404168-02	04/29/14 07:58	30.00	30.00
LF008-30004	1404168-03	04/29/14 07:58	30.00	30.00
LF008-30004	1404168-04	04/29/14 07:58	30.00	30.00
Blank	4D29007-BLK1	04/29/14 07:58	30.00	30.00
Blank	4D29007-BLK1	04/29/14 07:58	30.00	30.00
Blank	4D29007-BLK2	05/27/14 00:00	30.00	30.00
LCS	4D29007-BS1	04/29/14 07:58	30.00	30.00
LCS	4D29007-BS1	04/29/14 07:58	30.00	30.00
LCS	4D29007-BS2	05/27/14 00:00	30.00	30.00
LF008-30002	4D29007-MS1	04/29/14 07:58	30.00	30.00
LF008-30002	4D29007-MS2	05/27/14 00:00	30.00	30.00
LF008-30002	4D29007-MSD1	04/29/14 07:58	30.00	30.00
LF008-30002	4D29007-MSD2	05/27/14 00:00	30.00	30.00

PREPARATION BATCH SUMMARY

SW6010C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D29021 Batch Matrix: Water Preparation: MET_3005A_LOW

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30005	1404149-01	04/29/14 16:34	100.00	25.00
LF008-30005	1404149-02	04/29/14 16:34	100.00	25.00
LF008-30006	1404149-04	04/29/14 16:34	100.00	25.00
LF008-30007	1404149-06	04/29/14 16:34	100.00	25.00
LF008-30007	1404149-06RE1	04/29/14 16:34	100.00	25.00
LF008-30002	1404168-01	04/29/14 16:34	100.00	25.00
LF008-30002	1404168-02	04/29/14 16:34	100.00	25.00
LF008-30004	1404168-03	04/29/14 16:34	100.00	25.00
LF008-30004	1404168-04	04/29/14 16:34	100.00	25.00
Blank	4D29021-BLK1	04/29/14 16:34	100.00	25.00
Blank	4D29021-BLK2	05/22/14 00:00	100.00	25.00
LCS	4D29021-BS1	04/29/14 16:34	100.00	25.00
LCS	4D29021-BS2	05/22/14 00:00	100.00	25.00
LF008-30002	4D29021-DUP1	04/29/14 16:34	100.00	25.00
LF008-30002	4D29021-MS1	04/29/14 16:34	100.00	25.00
LF008-30002	4D29021-MS2	05/22/14 00:00	100.00	25.00
LF008-30002	4D29021-MSD1	04/29/14 16:34	100.00	25.00
LF008-30002	4D29021-MSD2	05/22/14 00:00	100.00	25.00
LF008-30002	4D29021-PS1	04/29/14 16:34	100.00	25.00

PREPARATION BATCH SUMMARY

SW6010C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E06002 Batch Matrix: Water Preparation: MET_3005A_LOW

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30006	1404149-03	05/06/14 08:06	100.00	25.00
LF008-30007	1404149-05	05/06/14 08:06	100.00	25.00
LF008-30008	1404203-01	05/06/14 08:06	100.00	25.00
LF008-30008	1404203-02	05/06/14 08:06	100.00	25.00
Blank	4E06002-BLK1	05/06/14 08:06	100.00	25.00
LCS	4E06002-BS1	05/06/14 08:06	100.00	25.00

PREPARATION BATCH SUMMARY

SW7470A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E07020 Batch Matrix: Water Preparation: pMercury-W SW 7470A

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30008	1404203-01	05/07/14 00:00	30.00	30.00
LF008-30008	1404203-02	05/07/14 00:00	30.00	30.00
Blank	4E07020-BLK1	05/07/14 00:00	30.00	30.00
Blank	4E07020-BLK1	05/07/14 00:00	30.00	30.00
LCS	4E07020-BS1	05/07/14 00:00	30.00	30.00
LCS	4E07020-BS1	05/07/14 00:00	30.00	30.00

ANALYSIS SEQUENCE SUMMARY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D12014	Instrument:	ME-FIMS
Calibration:	4120004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4D12014-CAL1	043014W-001	04/29/14 10:52
Cal Standard	4D12014-CAL2	043014W-002	04/29/14 10:53
Cal Standard	4D12014-CAL3	043014W-003	04/29/14 10:54
Cal Standard	4D12014-CAL4	043014W-004	04/29/14 10:55
Cal Standard	4D12014-CAL5	043014W-005	04/29/14 10:56
Cal Standard	4D12014-CAL6	043014W-006	04/29/14 10:57
Cal Standard	4D12014-CAL7	043014W-007	04/29/14 10:59
Cal Standard	4D12014-CAL8	043014W-008	04/29/14 11:00
Initial Cal Check	4D12014-ICV1	043014W-009	04/29/14 11:02
Initial Cal Blank	4D12014-ICB1	043014W-010	04/29/14 11:03
Blank	4D29005-BLK1	043014W-011	04/29/14 11:06
LCS	4D29005-BS1	043014W-012	04/29/14 11:07
Calibration Check	4D12014-CCV1	043014W-025	04/29/14 11:23
Calibration Blank	4D12014-CCB1	043014W-026	04/29/14 11:24
LF008-30007	1404149-06	043014W-027	04/29/14 11:26
Calibration Check	4D12014-CCV2	043014W-037	04/29/14 11:38
Calibration Blank	4D12014-CCB2	043014W-038	04/29/14 11:39
Blank	4D29006-BLK1	043014W-039	04/29/14 11:40
Blank	4D29006-BLK1	043014W-039	04/29/14 11:40
LCS	4D29006-BS1	043014W-040	04/29/14 11:41
LCS	4D29006-BS1	043014W-040	04/29/14 11:41
LF008-30005	1404149-01	043014W-041	04/29/14 11:43
LF008-30005	1404149-02	043014W-042	04/29/14 11:44
LF008-30006	1404149-03	043014W-043	04/29/14 11:45
LF008-30006	1404149-04	043014W-044	04/29/14 11:46
LF008-30007	1404149-05	043014W-045	04/29/14 11:48
Calibration Check	4D12014-CCV3	043014W-053	04/29/14 11:57
Calibration Blank	4D12014-CCB3	043014W-054	04/29/14 11:58
Calibration Check	4D12014-CCV4	043014W-065	04/29/14 12:12
Calibration Blank	4D12014-CCB4	043014W-066	04/29/14 12:13
Blank	4D29007-BLK1	043014W-067	04/29/14 12:14
Blank	4D29007-BLK1	043014W-067	04/29/14 12:14

ANALYSIS SEQUENCE SUMMARY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D12014	Instrument:	ME-FIMS
Calibration:	4120004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
LCS	4D29007-BS1	043014W-068	04/29/14 12:15
LCS	4D29007-BS1	043014W-068	04/29/14 12:15
Calibration Check	4D12014-CCV5	043014W-079	04/29/14 12:29
Calibration Blank	4D12014-CCB5	043014W-080	04/29/14 12:30
LF008-30002	1404168-01	043014W-084	04/29/14 12:34
LF008-30002	4D29007-MS1	043014W-085	04/29/14 12:36
LF008-30002	4D29007-MSD1	043014W-086	04/29/14 12:37
LF008-30002	1404168-02	043014W-087	04/29/14 12:38
LF008-30004	1404168-03	043014W-088	04/29/14 12:39
LF008-30004	1404168-04	043014W-089	04/29/14 12:40
Calibration Check	4D12014-CCV6	043014W-090	04/29/14 12:42
Calibration Blank	4D12014-CCB6	043014W-091	04/29/14 12:43

ANALYSIS SEQUENCE SUMMARY
SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12503	Instrument:	ME-ICP
Calibration:	4125002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E12503-CAL1	5-02-14A-001	05/02/14 09:53
Cal Standard	4E12503-CAL2	5-02-14A-002	05/02/14 09:57
Cal Standard	4E12503-CAL3	5-02-14A-003	05/02/14 10:02
Cal Standard	4E12503-CAL4	5-02-14A-004	05/02/14 10:06
Cal Standard	4E12503-CAL5	5-02-14A-005	05/02/14 10:10
Cal Standard	4E12503-CAL6	5-02-14A-006	05/02/14 10:14
Initial Cal Check	4E12503-ICV1	5-02-14B-001	05/02/14 10:53
Initial Cal Blank	4E12503-ICB1	5-02-14B-002	05/02/14 11:00
Instrument RL Check	4E12503-CRL1	5-02-14B-003	05/02/14 11:05
Instrument RL Check	4E12503-CRL2	5-02-14B-004	05/02/14 11:10
Instrument RL Check	4E12503-CRL3	5-02-14B-005	05/02/14 11:14
Interference Check A	4E12503-IFA1	5-02-14B-006	05/02/14 11:19
Interference Check B	4E12503-IFB1	5-02-14B-007	05/02/14 11:25
Calibration Check	4E12503-CCV1	5-02-14B-009	05/02/14 11:34
Calibration Blank	4E12503-CCB1	5-02-14B-010	05/02/14 11:41
Blank	4D29021-BLK1	5-02-14C-001	05/02/14 11:48
LCS	4D29021-BS1	5-02-14C-002	05/02/14 11:52
LF008-30005	1404149-01	5-02-14C-006	05/02/14 12:11
LF008-30005	1404149-02	5-02-14C-007	05/02/14 12:15
LF008-30006	1404149-04	5-02-14C-008	05/02/14 12:20
LF008-30007	1404149-06	5-02-14C-009	05/02/14 12:24
Calibration Check	4E12503-CCV2	5-02-14C-013	05/02/14 12:43
Calibration Blank	4E12503-CCB2	5-02-14C-014	05/02/14 12:50
LF008-30002	1404168-01	5-02-14C-017	05/02/14 13:04
LF008-30002	4D29021-MS1	5-02-14C-018	05/02/14 13:08
LF008-30002	4D29021-MSD1	5-02-14C-019	05/02/14 13:13
LF008-30002	4D29021-PS1	5-02-14C-020	05/02/14 13:17
LF008-30002	4D29021-DUP1	5-02-14C-021	05/02/14 13:22
LF008-30002	1404168-02	5-02-14C-022	05/02/14 13:26
LF008-30004	1404168-03	5-02-14C-023	05/02/14 13:31
LF008-30004	1404168-04	5-02-14C-024	05/02/14 13:35
Calibration Check	4E12503-CCV3	5-02-14C-025	05/02/14 13:41

ANALYSIS SEQUENCE SUMMARY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12503	Instrument:	ME-ICP
Calibration:	4125002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Blank	4E12503-CCB3	5-02-14C-026	05/02/14 13:48

ANALYSIS SEQUENCE SUMMARY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12611	Instrument:	ME-ICP
Calibration:	4126004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E12611-CAL1	5-05-14A-001	05/05/14 09:55
Cal Standard	4E12611-CAL2	5-05-14A-002	05/05/14 09:58
Cal Standard	4E12611-CAL3	5-05-14A-003	05/05/14 10:02
Cal Standard	4E12611-CAL5	5-05-14A-005	05/05/14 10:11
Cal Standard	4E12611-CAL6	5-05-14A-006	05/05/14 10:16
Cal Standard	4E12611-CAL4	5-05-14A-009	05/05/14 10:33
Initial Cal Check	4E12611-ICV1	5-05-14B-001	05/05/14 11:03
Initial Cal Blank	4E12611-ICB1	5-05-14B-002	05/05/14 11:11
Instrument RL Check	4E12611-CRL1	5-05-14B-003	05/05/14 11:16
Interference Check A	4E12611-IFA1	5-05-14B-006	05/05/14 11:30
Interference Check B	4E12611-IFB1	5-05-14B-007	05/05/14 11:35
Calibration Check	4E12611-CCV1	5-05-14B-009	05/05/14 11:44
Calibration Blank	4E12611-CCB1	5-05-14B-010	05/05/14 11:51
Calibration Check	4E12611-CCV5	5-05-14C-016	05/05/14 16:25
Calibration Blank	4E12611-CCB5	5-05-14C-017	05/05/14 16:33
LF008-30007	1404149-06RE1	5-05-14C-018	05/05/14 16:37
Calibration Check	4E12611-CCV6	5-05-14C-024	05/05/14 17:05
Calibration Blank	4E12611-CCB6	5-05-14C-025	05/05/14 17:13

ANALYSIS SEQUENCE SUMMARY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12803	Instrument:	ME-ICP
Calibration:	4128001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E12803-CAL1	5-07-14A-001	05/07/14 09:23
Cal Standard	4E12803-CAL2	5-07-14A-002	05/07/14 09:27
Cal Standard	4E12803-CAL3	5-07-14A-003	05/07/14 09:30
Cal Standard	4E12803-CAL4	5-07-14A-004	05/07/14 09:35
Cal Standard	4E12803-CAL5	5-07-14A-005	05/07/14 09:39
Cal Standard	4E12803-CAL6	5-07-14A-006	05/07/14 09:44
Initial Cal Check	4E12803-ICV1	5-07-14B-001	05/07/14 10:22
Initial Cal Blank	4E12803-ICB1	5-07-14B-002	05/07/14 10:30
Instrument RL Check	4E12803-CRL1	5-07-14B-004	05/07/14 10:41
Instrument RL Check	4E12803-CRL2	5-07-14B-005	05/07/14 10:45
Interference Check A	4E12803-IFA1	5-07-14B-006	05/07/14 10:50
Interference Check B	4E12803-IFB1	5-07-14B-007	05/07/14 10:55
Calibration Check	4E12803-CCV1	5-07-14B-009	05/07/14 11:04
Calibration Blank	4E12803-CCB1	5-07-14B-010	05/07/14 11:11
Calibration Check	4E12803-CCV3	5-07-14B-043	05/07/14 13:39
Calibration Blank	4E12803-CCB3	5-07-14B-044	05/07/14 13:46
Blank	4E06002-BLK1	5-07-14B-045	05/07/14 13:51
LCS	4E06002-BS1	5-07-14B-046	05/07/14 13:55
LF008-30006	1404149-03	5-07-14B-049	05/07/14 14:09
LF008-30007	1404149-05	5-07-14B-050	05/07/14 14:14
Calibration Check	4E12803-CCV4	5-07-14B-061	05/07/14 15:02
Calibration Blank	4E12803-CCB4	5-07-14B-062	05/07/14 15:09
LF008-30008	1404203-01	5-07-14C-007	05/07/14 15:42
LF008-30008	1404203-02	5-07-14C-008	05/07/14 15:46
Calibration Check	4E12803-CCV5	5-07-14C-010	05/07/14 15:56
Calibration Blank	4E12803-CCB5	5-07-14C-011	05/07/14 16:04

ANALYSIS SEQUENCE SUMMARY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12810	Instrument:	ME-FIMS
Calibration:	4128003		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E12810-CAL1	050814W-001	05/07/14 10:50
Cal Standard	4E12810-CAL2	050814W-002	05/07/14 10:51
Cal Standard	4E12810-CAL3	050814W-003	05/07/14 10:52
Cal Standard	4E12810-CAL4	050814W-004	05/07/14 10:53
Cal Standard	4E12810-CAL5	050814W-005	05/07/14 10:54
Cal Standard	4E12810-CAL6	050814W-006	05/07/14 10:56
Cal Standard	4E12810-CAL7	050814W-007	05/07/14 10:57
Cal Standard	4E12810-CAL8	050814W-008	05/07/14 10:58
Initial Cal Check	4E12810-ICV1	050814W-009	05/07/14 11:08
Initial Cal Blank	4E12810-ICB1	050814W-010	05/07/14 11:09
Calibration Check	4E12810-CCV2	050814W-037	05/07/14 11:41
Calibration Blank	4E12810-CCB2	050814W-038	05/07/14 11:42
Blank	4E07020-BLK1	050814W-039	05/07/14 11:43
Blank	4E07020-BLK1	050814W-039	05/07/14 11:43
LCS	4E07020-BS1	050814W-040	05/07/14 11:44
LCS	4E07020-BS1	050814W-040	05/07/14 11:44
LF008-30008	1404203-01	050814W-046	05/07/14 11:52
LF008-30008	1404203-02	050814W-047	05/07/14 11:53
Calibration Check	4E12810-CCV3	050814W-053	05/07/14 11:59
Calibration Blank	4E12810-CCB3	050814W-054	05/07/14 12:00

ANALYSIS SEQUENCE SUMMARY

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E14713	Instrument:	ME-FIMS
Calibration:	4147004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E14713-CAL1	052714W-001	05/27/14 14:20
Cal Standard	4E14713-CAL2	052714W-002	05/27/14 14:21
Cal Standard	4E14713-CAL3	052714W-003	05/27/14 14:22
Cal Standard	4E14713-CAL4	052714W-004	05/27/14 14:23
Cal Standard	4E14713-CAL5	052714W-005	05/27/14 14:24
Cal Standard	4E14713-CAL6	052714W-006	05/27/14 14:26
Cal Standard	4E14713-CAL7	052714W-007	05/27/14 14:27
Cal Standard	4E14713-CAL8	052714W-008	05/27/14 14:28
Initial Cal Check	4E14713-ICV1	052714W-009	05/27/14 14:30
Initial Cal Blank	4E14713-ICB1	052714W-010	05/27/14 14:35
Blank	4D29007-BLK2	052714W-011	05/27/14 14:36
LCS	4D29007-BS2	052714W-012	05/27/14 14:37
LF008-30002	4D29007-MS2	052714W-013	05/27/14 14:38
LF008-30002	4D29007-MSD2	052714W-014	05/27/14 14:39
Calibration Check	4E14713-CCV1	052714W-015	05/27/14 14:41
Calibration Blank	4E14713-CCB1	052714W-016	05/27/14 14:42

ANALYSIS SEQUENCE SUMMARY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E14903	Instrument:	ME-ICP
Calibration:	4149001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E14903-CAL1	5-28-14A-001	05/28/14 09:38
Cal Standard	4E14903-CAL2	5-28-14A-002	05/28/14 09:42
Cal Standard	4E14903-CAL3	5-28-14A-003	05/28/14 09:46
Cal Standard	4E14903-CAL4	5-28-14A-004	05/28/14 09:50
Cal Standard	4E14903-CAL5	5-28-14A-005	05/28/14 09:55
Cal Standard	4E14903-CAL6	5-28-14A-006	05/28/14 10:00
Initial Cal Check	4E14903-ICV1	5-28-14B-001	05/28/14 10:48
Initial Cal Blank	4E14903-ICB1	5-28-14B-002	05/28/14 10:55
Instrument RL Check	4E14903-CRL1	5-28-14B-005	05/28/14 11:11
Instrument RL Check	4E14903-CRL2	5-28-14B-007	05/28/14 11:23
Interference Check A	4E14903-IFA1	5-28-14B-008	05/28/14 11:27
Interference Check B	4E14903-IFB1	5-28-14B-009	05/28/14 11:32
Calibration Check	4E14903-CCV1	5-28-14C-001	05/28/14 11:50
Calibration Blank	4E14903-CCB1	5-28-14C-002	05/28/14 11:57
Blank	4D29021-BLK2	5-28-14C-003	05/28/14 12:01
LCS	4D29021-BS2	5-28-14C-004	05/28/14 12:06
LF008-30002	4D29021-MS2	5-28-14C-005	05/28/14 12:11
LF008-30002	4D29021-MSD2	5-28-14C-006	05/28/14 12:16
Calibration Check	4E14903-CCV2	5-28-14C-019	05/28/14 13:16
Calibration Blank	4E14903-CCB2	5-28-14C-020	05/28/14 13:23

INITIAL CALIBRATION DATA

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4120004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/29/14 10:52	4/29/14 11:00

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	0	0	0.2	0.004165	0.5	0.004232	1	0.004268	2	0.004099	4	0.0040675
Mercury	0	0	0.2	0.004165	0.5	0.004232	1	0.004268	2	0.004099	4	0.0040675

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4120004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/29/14 10:52	4/29/14 11:00

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	6	0.0039545	10	0.0041279								
Mercury	6	0.0039545	10	0.0041279								

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4120004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	4/29/14 10:52	4/29/14 11:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Mercury	3.614237E-03	40.49579	0	0	0.9994128		0.995	
Mercury	3.614237E-03	40.49579	0	0	0.9994128		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4125002	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/2/14 9:53 5/2/14 10:24

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum	0	0	5000	1.5532E-05	10000	1.5926E-05			500000	1.5554E-05		
Antimony	0	0	100	0.0006676	1000	7.404501E-04					10000	7.3726E-04
Arsenic	0	0	100	0.0003621	1000	4.1845E-04					10000	4.0594E-04
Barium	0	0	50	0.0118232	1000	0.011464	5000	0.0123258				
Beryllium	0	0	100	0.002344	1000	0.0024082					10000	0.00236
Boron	0	0	50	0.0000144	1000	1.393E-05					5000	1.4258E-05
Cadmium	0	0	100	0.020763	1000	0.020422					10000	0.020223
Calcium	0	0	1100	6.667273E-05	50000	5.902E-05					10000	
Chromium	0	0	100	0.0000508	1000	5.055E-05					10000	0.0000502
Cobalt	0	0	100	0.0046574	1000	0.0046568					10000	0.0047874
Copper	0	0	100	0.0000623	1000	5.613E-05					10000	5.6342E-05
Iron	0	0	5100	1.371373E-05	10000	1.3428E-05			500000	1.30442E-05	10000	
Lead	0	0	100	0.0013115	1000	0.0013379					10000	0.0014084
Magnesium	0	0	5100		50000	2.2802E-06			500000	2.2568E-06	10000	
Manganese	0	0	100	0.0001746	1000	1.6977E-04	10000	1.6515E-04			10000	
Molybdenum	0	0	100	0.0033553	1000	0.0035906					10000	0.0035183
Nickel	0	0	100	0.0036593	1000	0.0037173					10000	0.0038273
Potassium	0	0	1000	1.095E-05	10000	1.3962E-05						
Selenium	0	0	100	0.0003684	1000	3.5026E-04					10000	3.3112E-04
Silver	0	0	20	0.000061	500	5.408E-05	2000	5.6215E-05				
Sodium	0	0	1000		50000	4.9806E-05						
Thallium	0	0	100	0.0007759	1000	7.7553E-04					10000	8.0347E-04
Tin	0	0	50	0.0012396	1000	0.001297					5000	1.31956E-03
Titanium	0	0	100	0.0001479	1000	1.4491E-04					10000	1.4329E-04
Vanadium	0	0	100	0.0000484	1000	4.911E-05					10000	4.9863E-05
Zinc	0	0	100	0.007933	1000	0.0083195					10000	0.0080923
Strontium	0	0	100	0.00089	1000	0.0009096					10000	0.0009016
Lithium (outside certification)	0	0	100	0.0000111	1000	0.0000115					10000	1.0702E-05
Aluminum	0	0	5000	1.5532E-05	10000	1.5926E-05			500000	1.5554E-05		
Antimony	0	0	100	0.0006676	1000	7.404501E-04					10000	7.3726E-04
Arsenic	0	0	100	0.0003621	1000	4.1845E-04					10000	4.0594E-04

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4125002	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/2/14 9:53 5/2/14 10:24

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Barium	0	0	50	0.0118232	1000	0.011464	5000	0.0123258				
Beryllium	0	0	100	0.002344	1000	0.0024082					10000	0.00236
Boron	0	0	50	0.0000144	1000	1.393E-05					5000	1.4258E-05
Cadmium	0	0	100	0.020763	1000	0.020422					10000	0.020223
Calcium	0	0	1100	6.667273E-05	50000	5.902E-05					10000	
Chromium	0	0	100	0.0000508	1000	5.055E-05					10000	0.0000502
Cobalt	0	0	100	0.0046574	1000	0.0046568					10000	0.0047874
Copper	0	0	100	0.0000623	1000	5.613E-05					10000	5.6342E-05
Iron	0	0	5100	1.371373E-05	10000	1.3428E-05			500000	1.30442E-05	10000	
Lead	0	0	100	0.0013115	1000	0.0013379					10000	0.0014084
Magnesium	0	0	5100		50000	2.2802E-06			500000	2.2568E-06	10000	
Manganese	0	0	100	0.0001746	1000	1.6977E-04	10000	1.6515E-04			10000	
Molybdenum	0	0	100	0.0033553	1000	0.0035906					10000	0.0035183
Nickel	0	0	100	0.0036593	1000	0.0037173					10000	0.0038273
Potassium	0	0	1000	1.095E-05	10000	1.3962E-05						
Selenium	0	0	100	0.0003684	1000	3.5026E-04					10000	3.3112E-04
Silver	0	0	20	0.000061	500	5.408E-05	2000	5.6215E-05				
Sodium	0	0	1000		50000	4.9806E-05						
Thallium	0	0	100	0.0007759	1000	7.7553E-04					10000	8.0347E-04
Tin	0	0	50	0.0012396	1000	0.001297					5000	1.31956E-03
Titanium	0	0	100	0.0001479	1000	1.4491E-04					10000	1.4329E-04
Vanadium	0	0	100	0.0000484	1000	4.911E-05					10000	4.9863E-05
Zinc	0	0	100	0.007933	1000	0.0083195					10000	0.0080923
Strontium	0	0	100	0.00089	1000	0.0009096					10000	0.0009016
Lithium (outside certification)	0	0	100	0.0000111	1000	0.0000115					10000	1.0702E-05

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4125002	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/2/14 9:53 5/2/14 10:24

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum												
Antimony												
Arsenic												
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	5.7652E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.208E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4184E-05										
Selenium												
Silver												
Sodium	100000	4.9537E-05	500000	4.8128E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												
Aluminum												
Antimony												
Arsenic												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4125002	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/2/14 9:53 5/2/14 10:24

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	5.7652E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.208E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4184E-05										
Selenium												
Silver												
Sodium	100000	4.9537E-05	500000	4.8128E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4125002	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/2/14 9:53 5/2/14 10:24

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Aluminum	1.1753E-05	66.68441	4.453125	181.2344	0.9999997		0.998	
Antimony	5.363275E-04	66.96065	1.885485	91.47448	0.9999984		0.998	
Arsenic	2.966225E-04	67.16243	3.874625	149.7802	0.9999849		0.998	
Barium	8.90325E-03	66.78476	1.344348	114.111	0.999791		0.998	
Beryllium	1.77805E-03	66.68433	8.93909	191.617	0.9999957		0.998	
Boron	1.0647E-05	66.69229	3.12034	135.8106	0.9999741		0.998	
Cadmium	0.015352	66.68249	2.22751	144.0493	0.9999992		0.998	
Calcium	4.583618E-05	67.2268	2.436328	169.14	0.9999951		0.998	
Chromium	3.78875E-05	66.66983	10.12687	184.1501	0.9999996		0.998	
Cobalt	0.0035254	66.68943	5.012183	168.3491	0.9999929		0.998	
Copper	4.3693E-05	66.98722	1.000443	58.76233	0.9999983		0.998	
Iron	1.004648E-05	66.72256	49.03922	198.2781	0.9999997		0.998	
Lead	1.01445E-03	66.78848	5.226315	159.8307	0.999978		0.998	
Magnesium	1.68625E-06	66.69052	6.76749	190.1046	0.999973		0.998	
Manganese	1.2738E-04	66.73544	2.544195	127.6022	0.9999933		0.998	
Molybdenum	2.61605E-03	66.77272	8.705185	180.3231	0.9999947		0.998	
Nickel	2.800975E-03	66.71305	25.58264	193.2519	0.9999927		0.998	
Potassium	9.774E-06	68.35334	2.389	128.2748	0.9999998		0.998	
Selenium	2.62445E-04	66.91847	2.94553	134.5351	0.9999761		0.998	
Silver	4.282375E-05	67.00815	3.1479	130.0155	0.9998849		0.998	
Sodium	3.686775E-05	66.69654	0.9286425	140.191	0.9999652		0.998	
Thallium	5.88725E-04	66.70371	1.91366	123.3887	0.9999896		0.998	
Tin	9.6404E-04	66.75804	2.944588	137.7886	0.9999897		0.998	
Titanium	1.09025E-04	66.68967	6.041747	186.8867	0.9999993		0.998	
Vanadium	3.684325E-05	66.68638	2.870325	123.4781	0.9999977		0.998	
Zinc	0.0060862	66.71757	13.8521	187.1627	0.9999916		0.998	
Strontium	0.0006753	66.67731	1.624675	137.9431	0.9999988		0.998	
Lithium (outside certification)	8.3255E-06	66.78141	18.74964	185.5537	0.9999483		0.998	
Aluminum	1.1753E-05	66.68441	4.453125	181.2344	0.9999997		0.998	
Antimony	5.363275E-04	66.96065	1.885485	91.47448	0.9999984		0.998	
Arsenic	2.966225E-04	67.16243	3.874625	149.7802	0.9999849		0.998	
Barium	8.90325E-03	66.78476	1.344348	114.111	0.999791		0.998	

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4125002	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/2/14 9:53 5/2/14 10:24

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Beryllium	1.77805E-03	66.68433	8.93909	191.617	0.9999957		0.998	
Boron	1.0647E-05	66.69229	3.12034	135.8106	0.9999741		0.998	
Cadmium	0.015352	66.68249	2.22751	144.0493	0.9999992		0.998	
Calcium	4.583618E-05	67.2268	2.436328	169.14	0.9999951		0.998	
Chromium	3.78875E-05	66.66983	10.12687	184.1501	0.9999996		0.998	
Cobalt	0.0035254	66.68943	5.012183	168.3491	0.9999929		0.998	
Copper	4.3693E-05	66.98722	1.000443	58.76233	0.9999983		0.998	
Iron	1.004648E-05	66.72256	49.03922	198.2781	0.9999997		0.998	
Lead	1.01445E-03	66.78848	5.226315	159.8307	0.999978		0.998	
Magnesium	1.68625E-06	66.69052	6.76749	190.1046	0.999973		0.998	
Manganese	1.2738E-04	66.73544	2.544195	127.6022	0.9999933		0.998	
Molybdenum	2.61605E-03	66.77272	8.705185	180.3231	0.9999947		0.998	
Nickel	2.800975E-03	66.71305	25.58264	193.2519	0.9999927		0.998	
Potassium	9.774E-06	68.35334	2.389	128.2748	0.9999998		0.998	
Selenium	2.62445E-04	66.91847	2.94553	134.5351	0.9999761		0.998	
Silver	4.282375E-05	67.00815	3.1479	130.0155	0.9998849		0.998	
Sodium	3.686775E-05	66.69654	0.9286425	140.191	0.9999652		0.998	
Thallium	5.88725E-04	66.70371	1.91366	123.3887	0.9999896		0.998	
Tin	9.6404E-04	66.75804	2.944588	137.7886	0.9999897		0.998	
Titanium	1.09025E-04	66.68967	6.041747	186.8867	0.9999993		0.998	
Vanadium	3.684325E-05	66.68638	2.870325	123.4781	0.9999977		0.998	
Zinc	0.0060862	66.71757	13.8521	187.1627	0.9999916		0.998	
Strontium	0.0006753	66.67731	1.624675	137.9431	0.9999988		0.998	
Lithium (outside certification)	8.3255E-06	66.78141	18.74964	185.5537	0.9999483		0.998	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4126004	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/5/14 9:55 5/5/14 10:33

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum	0	0	5000	2.2146E-05	10000	2.2487E-05			500000	2.2096E-05		
Antimony	0	0	100	0.0003998	1000	5.6882E-04					10000	5.7251E-04
Arsenic	0	0	100	0.000278	1000	3.2063E-04					10000	3.0732E-04
Barium	0	0	50	0.0092222	1000	0.0089593	5000	0.0089568				
Beryllium	0	0	100	0.0025472	1000	0.0025698					10000	0.0024871
Boron	0	0	50	0.0000158	1000	1.523E-05					5000	1.5224E-05
Cadmium	0	0	100	0.017832	1000	0.017616					10000	0.017327
Calcium	0	0	1100	7.417273E-05	50000	6.3282E-05					10000	
Chromium	0	0	100	0.000053	1000	0.0000528					10000	5.2551E-05
Cobalt	0	0	100	0.0044438	1000	0.0044546					10000	0.0045732
Copper	0	0	100	0.0000807	1000	7.723999E-05					10000	7.7129E-05
Iron	0	0	5100	1.76902E-05	10000	1.7266E-05			500000	1.68386E-05	10000	
Lead	0	0	100	0.0010468	1000	0.0010664					10000	0.0011056
Magnesium	0	0	5100		50000	2.7634E-06			500000	2.751E-06	10000	
Manganese	0	0	100	0.0003121	1000	3.0416E-04	10000	2.9649E-04			10000	
Molybdenum	0	0	100	0.003197	1000	0.0034178					10000	0.0033532
Nickel	0	0	100	0.0029145	1000	0.00297					10000	0.003009
Potassium	0	0	1000	1.034E-05	10000	1.4249E-05						
Selenium	0	0	100	0.0004327	1000	4.2974E-04					10000	0.0004063
Silver	0	0	20	0.000063	500	5.548E-05	2000	5.5815E-05				
Sodium	0	0	1000		50000	5.2252E-05						
Thallium	0	0	100	6.804999E-04	1000	6.7925E-04					10000	7.0161E-04
Tin	0	0	50	0.0013432	1000	0.0013965					5000	1.42202E-03
Titanium	0	0	100	0.0002007	1000	1.9386E-04					10000	1.9595E-04
Vanadium	0	0	100	0.0000536	1000	5.354E-05					10000	5.2659E-05
Zinc	0	0	100	0.0067201	1000	0.0070585					10000	0.006876
Strontium	0	0	100	0.001483	1000	0.001483					10000	0.001485
Lithium (outside certification)	0	0	100	0.0000122	1000	1.286E-05					10000	1.2189E-05

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4126004	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/5/14 9:55 5/5/14 10:33

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum												
Antimony												
Arsenic												
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	6.2704E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.7899E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4684E-05										
Selenium												
Silver												
Sodium	100000	5.1848E-05	500000	5.0808E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4126004	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/5/14 9:55 5/5/14 10:33

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Aluminum	1.668225E-05	66.6748	3.38835	155.1109	0.9999998		0.998	
Antimony	3.852825E-04	69.86882	0.2818425	33.25195	0.9999958		0.998	
Arsenic	2.264875E-04	67.12873	2.095287	167.3521	0.9999736		0.998	
Barium	6.784575E-03	66.69193	2.114932	176.8771	1		0.998	
Beryllium	1.901025E-03	66.69194	31.13889	195.5026	0.9999896		0.998	
Boron	1.15635E-05	66.70758	4.620878	171.7534	0.9999999		0.998	
Cadmium	1.319375E-02	66.68511	1.97636	157.0955	0.9999976		0.998	
Calcium	5.003968E-05	67.49511	1.42437	156.8942	0.9999994		0.998	
Chromium	3.958775E-05	66.66828	14.90187	188.7419	0.9999998		0.998	
Cobalt	0.0033679	66.68938	1.283185	159.9082	0.9999936		0.998	
Copper	5.876725E-05	66.72633	1.317705	77.88373	0.9999999		0.998	
Iron	1.29487E-05	66.72071	16.87772	194.4908	0.9999998		0.998	
Lead	0.0008047	66.73584	10.35699	195.5164	0.999989		0.998	
Magnesium	2.076075E-06	66.67125	1316.953	199.9589	0.9999917		0.998	
Manganese	2.281875E-04	66.72514	8.916988	177.4156	0.9999942		0.998	
Molybdenum	0.002492	66.77035	1.36858	157.6649	0.9999953		0.998	
Nickel	2.223375E-03	66.68947	13.33616	196.3136	0.9999986		0.998	
Potassium	9.81825E-06	69.57194	2.596598	173.8827	0.9999999		0.998	
Selenium	3.17185E-04	66.77055	0.9247625	133.0636	0.9999728		0.998	
Silver	4.357375E-05	67.14026	1.50632	100.7636	0.9999936		0.998	
Sodium	3.8727E-05	66.68517	3.369625	152.4447	0.9999821		0.998	
Thallium	5.1534E-04	66.69638	8.169727	190.1412	0.9999913		0.998	
Tin	1.04043E-03	66.74133	3.36788	183.0947	0.9999884		0.998	
Titanium	1.476275E-04	66.69484	2.956128	182.7676	0.9999982		0.998	
Vanadium	3.994975E-05	66.67536	3.533843	157.466	0.9999977		0.998	
Zinc	5.16365E-03	66.72044	4.700145	188.355	0.9999923		0.998	
Strontium	1.11275E-03	66.66672	24.89717	192.59	1		0.998	
Lithium (outside certification)	9.31225E-06	66.75175	6.048965	168.6247	0.9999711		0.998	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum	0	0	5000	2.1074E-05	10000	2.1332E-05			500000	2.1096E-05		
Antimony	0	0	100	0.0003776	1000	5.5108E-04					10000	5.6365E-04
Arsenic	0	0	100	0.0002756	1000	3.1564E-04					10000	3.0724E-04
Barium	0	0	50	0.0090234	1000	0.0087075	5000	8.780001E-03				
Beryllium	0	0	100	0.0024482	1000	0.0024698					10000	0.0024048
Boron	0	0	50	0.0000154	1000	1.437E-05					5000	1.4884E-05
Cadmium	0	0	100	0.015803	1000	0.015448					10000	0.015329
Calcium	0	0	1100	7.271818E-05	50000	6.2052E-05					10000	
Chromium	0	0	100	0.0000518	1000	5.031E-05					10000	5.1006E-05
Cobalt	0	0	100	0.0042696	1000	0.0042343					10000	0.0043962
Copper	0	0	100	0.0000771	1000	7.199E-05					10000	7.433999E-05
Iron	0	0	5100	1.667843E-05	10000	1.629E-05			500000	1.61694E-05	10000	
Lead	0	0	100	0.0010095	1000	0.0010308					10000	0.0010825
Magnesium	0	0	5100		50000	2.6516E-06			500000	2.6454E-06	10000	
Manganese	0	0	100	0.0003009	1000	2.8321E-04	10000	2.8201E-04			10000	
Molybdenum	0	0	100	0.0030431	1000	0.003248					10000	0.0032082
Nickel	0	0	100	0.0028371	1000	0.0028679					10000	0.0029433
Potassium	0	0	1000	1.014E-05	10000	1.3936E-05						
Selenium	0	0	100	0.0004169	1000	4.0877E-04					10000	3.9325E-04
Silver	0	0	20	0.000062	500	5.354E-05	2000	5.5595E-05				
Sodium	0	0	1000		50000	5.058E-05						
Thallium	0	0	100	0.0005846	1000	5.8617E-04					10000	6.0885E-04
Tin	0	0	50	0.0012888	1000	0.0013353					5000	1.37078E-03
Titanium	0	0	100	0.0001882	1000	1.8362E-04					10000	1.8579E-04
Vanadium	0	0	100	0.0000526	1000	0.0000511					10000	5.2254E-05
Zinc	0	0	100	0.0060674	1000	0.0063326					10000	0.0061699
Strontium	0	0	100	0.001249	1000	0.001284					10000	0.001292
Lithium (outside certification)	0	0	100	0.0000109	1000	1.103E-05					10000	1.0527E-05
Aluminum	0	0	5000	2.1074E-05	10000	2.1332E-05			500000	2.1096E-05		
Antimony	0	0	100	0.0003776	1000	5.5108E-04					10000	5.6365E-04
Arsenic	0	0	100	0.0002756	1000	3.1564E-04					10000	3.0724E-04

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Barium	0	0	50	0.0090234	1000	0.0087075	5000	8.780001E-03				
Beryllium	0	0	100	0.0024482	1000	0.0024698					10000	0.0024048
Boron	0	0	50	0.0000154	1000	1.437E-05					5000	1.4884E-05
Cadmium	0	0	100	0.015803	1000	0.015448					10000	0.015329
Calcium	0	0	1100	7.271818E-05	50000	6.2052E-05					10000	
Chromium	0	0	100	0.0000518	1000	5.031E-05					10000	5.1006E-05
Cobalt	0	0	100	0.0042696	1000	0.0042343					10000	0.0043962
Copper	0	0	100	0.0000771	1000	7.199E-05					10000	7.433999E-05
Iron	0	0	5100	1.667843E-05	10000	1.629E-05			500000	1.61694E-05	10000	
Lead	0	0	100	0.0010095	1000	0.0010308					10000	0.0010825
Magnesium	0	0	5100		50000	2.6516E-06			500000	2.6454E-06	10000	
Manganese	0	0	100	0.0003009	1000	2.8321E-04	10000	2.8201E-04			10000	
Molybdenum	0	0	100	0.0030431	1000	0.003248					10000	0.0032082
Nickel	0	0	100	0.0028371	1000	0.0028679					10000	0.0029433
Potassium	0	0	1000	1.014E-05	10000	1.3936E-05						
Selenium	0	0	100	0.0004169	1000	4.0877E-04					10000	3.9325E-04
Silver	0	0	20	0.000062	500	5.354E-05	2000	5.5595E-05				
Sodium	0	0	1000		50000	5.058E-05						
Thallium	0	0	100	0.0005846	1000	5.8617E-04					10000	6.0885E-04
Tin	0	0	50	0.0012888	1000	0.0013353					5000	1.37078E-03
Titanium	0	0	100	0.0001882	1000	1.8362E-04					10000	1.8579E-04
Vanadium	0	0	100	0.0000526	1000	0.0000511					10000	5.2254E-05
Zinc	0	0	100	0.0060674	1000	0.0063326					10000	0.0061699
Strontium	0	0	100	0.001249	1000	0.001284					10000	0.001292
Lithium (outside certification)	0	0	100	0.0000109	1000	1.103E-05					10000	1.0527E-05

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum												
Antimony												
Arsenic												
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	6.1126E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.6119E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4337E-05										
Selenium												
Silver												
Sodium	100000	5.0209E-05	500000	4.9758E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												
Aluminum												
Antimony												
Arsenic												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	6.1126E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.6119E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4337E-05										
Selenium												
Silver												
Sodium	100000	5.0209E-05	500000	4.9758E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Aluminum	1.58755E-05	66.67073	5.341285	171.1342	0.9999999		0.998	
Antimony	3.730825E-04	70.44333	1.049328	84.74972	0.9999995		0.998	
Arsenic	2.2462E-04	67.10701	2.510175	147.4915	0.9999874		0.998	
Barium	6.627725E-03	66.69783	1.751388	160.0947	0.9999964		0.998	
Beryllium	0.0018307	66.68301	3.045325	151.0269	0.9999931		0.998	
Boron	1.11635E-05	66.77299	2.528898	154.3611	0.9999435		0.998	
Cadmium	0.011645	66.68908	1.751595	156.8435	0.9999996		0.998	
Calcium	4.897405E-05	67.52627	4.154097	162.7174	0.9999981		0.998	
Chromium	3.8279E-05	66.68563	25.97471	196.6664	0.9999979		0.998	
Cobalt	3.225025E-03	66.7015	2.919932	174.8662	0.9999869		0.998	
Copper	5.58575E-05	66.77142	1.786297	146.846	0.9999884		0.998	
Iron	1.228446E-05	66.69009	1.65327	152.726	0.9999999		0.998	
Lead	0.0007807	66.78218	38.16132	197.4058	0.9999799		0.998	
Magnesium	1.977225E-06	66.6725	58.33184	198.9059	0.999992		0.998	
Manganese	2.1653E-04	66.78586	32.40826	194.6078	0.9999997		0.998	
Molybdenum	2.374825E-03	66.77123	22.90258	196.2993	0.9999976		0.998	
Nickel	2.162075E-03	66.69859	37.18229	198.049	0.9999942		0.998	
Potassium	9.60325E-06	69.51415	1.508205	133.2365	1		0.998	
Selenium	3.0473E-04	66.74436	2.057898	158.6735	0.9999882		0.998	
Silver	4.278375E-05	67.19639	3.19233	163.1227	0.9998872		0.998	
Sodium	3.763675E-05	66.67265	1.563753	133.564	0.9999956		0.998	
Thallium	4.44905E-04	66.71317	4.100762	168.192	0.9999881		0.998	
Tin	9.987199E-04	66.75135	1.392455	132.4883	0.9999745		0.998	
Titanium	1.394025E-04	66.68017	5.638302	188.4323	0.999998		0.998	
Vanadium	3.89885E-05	66.68696	1.113378	77.08849	0.9999946		0.998	
Zinc	4.642475E-03	66.70815	303.8636	199.6371	0.9999926		0.998	
Strontium	9.5625E-04	66.69526	1.01255	148.1771	0.9999998		0.998	
Lithium (outside certification)	8.11425E-06	66.71842	11.61073	184.3816	0.9999801		0.998	
Aluminum	1.58755E-05	66.67073	5.341285	171.1342	0.9999999		0.998	
Antimony	3.730825E-04	70.44333	1.049328	84.74972	0.9999995		0.998	
Arsenic	2.2462E-04	67.10701	2.510175	147.4915	0.9999874		0.998	
Barium	6.627725E-03	66.69783	1.751388	160.0947	0.9999964		0.998	

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Beryllium	0.0018307	66.68301	3.045325	151.0269	0.9999931		0.998	
Boron	1.11635E-05	66.77299	2.528898	154.3611	0.9999435		0.998	
Cadmium	0.011645	66.68908	1.751595	156.8435	0.9999996		0.998	
Calcium	4.897405E-05	67.52627	4.154097	162.7174	0.9999981		0.998	
Chromium	3.8279E-05	66.68563	25.97471	196.6664	0.9999979		0.998	
Cobalt	3.225025E-03	66.7015	2.919932	174.8662	0.9999869		0.998	
Copper	5.58575E-05	66.77142	1.786297	146.846	0.9999884		0.998	
Iron	1.228446E-05	66.69009	1.65327	152.726	0.9999999		0.998	
Lead	0.0007807	66.78218	38.16132	197.4058	0.9999799		0.998	
Magnesium	1.977225E-06	66.6725	58.33184	198.9059	0.999992		0.998	
Manganese	2.1653E-04	66.78586	32.40826	194.6078	0.9999997		0.998	
Molybdenum	2.374825E-03	66.77123	22.90258	196.2993	0.9999976		0.998	
Nickel	2.162075E-03	66.69859	37.18229	198.049	0.9999942		0.998	
Potassium	9.60325E-06	69.51415	1.508205	133.2365	1		0.998	
Selenium	3.0473E-04	66.74436	2.057898	158.6735	0.9999882		0.998	
Silver	4.278375E-05	67.19639	3.19233	163.1227	0.9998872		0.998	
Sodium	3.763675E-05	66.67265	1.563753	133.564	0.9999956		0.998	
Thallium	4.44905E-04	66.71317	4.100762	168.192	0.9999881		0.998	
Tin	9.987199E-04	66.75135	1.392455	132.4883	0.9999745		0.998	
Titanium	1.394025E-04	66.68017	5.638302	188.4323	0.999998		0.998	
Vanadium	3.89885E-05	66.68696	1.113378	77.08849	0.9999946		0.998	
Zinc	4.642475E-03	66.70815	303.8636	199.6371	0.9999926		0.998	
Strontium	9.5625E-04	66.69526	1.01255	148.1771	0.9999998		0.998	
Lithium (outside certification)	8.11425E-06	66.71842	11.61073	184.3816	0.9999801		0.998	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4128003	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	5/7/14 10:50	5/7/14 10:58

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	0	0	0.2	0.003865	0.5	0.003848	1	0.003734	2	0.0037635	4	3.97225E-03
Mercury	0	0	0.2	0.003865	0.5	0.003848	1	0.003734	2	0.0037635	4	3.97225E-03

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4128003	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	5/7/14 10:50	5/7/14 10:58

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	6	3.956333E-03	10	0.0038072								
Mercury	6	3.956333E-03	10	0.0038072								

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4128003	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	5/7/14 10:50	5/7/14 10:58

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Mercury	3.368285E-03	40.48277	0	0	0.9993413		0.995	
Mercury	3.368285E-03	40.48277	0	0	0.9993413		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4147004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	5/27/14 14:20	5/27/14 14:28

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	0	0	0.2	0.004205	0.5	0.004328	1	0.00449	2	0.004438	4	4.61625E-03
Mercury	0	0	0.2	0.004205	0.5	0.004328	1	0.00449	2	0.004438	4	4.61625E-03

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4147004	Instrument:	ME-FIMS
Matrix:	Water	Calibration Dates:	5/27/14 14:20 5/27/14 14:28

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Mercury	6	4.678667E-03	10	0.0046707								
Mercury	6	4.678667E-03	10	0.0046707								

INITIAL CALIBRATION DATA (Continued)

SW7470A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4147004	Instrument:	ME-FIMS	
Matrix:	Water	Calibration Dates:	5/27/14 14:20	5/27/14 14:28

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Mercury	3.928327E-03	40.62814	0	0	0.9999103		0.995	
Mercury	3.928327E-03	40.62814	0	0	0.9999103		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4149001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/28/14 9:38 5/28/14 10:11

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum	0	0	5000	2.1724E-05	10000	2.1978E-05			500000	2.136E-05		
Antimony	0	0	100	0.0005639	1000	6.0441E-04					10000	5.9166E-04
Arsenic	0	0	100	0.000292	1000	0.0003193					10000	3.1379E-04
Barium	0	0	50	0.0096278	1000	0.0092231	5000	0.00913				
Beryllium	0	0	100	0.0025111	1000	0.0024858					10000	0.0024304
Boron	0	0	50	0.0000156	1000	1.475E-05					5000	1.4594E-05
Cadmium	0	0	100	0.016229	1000	0.01506					10000	0.015073
Calcium	0	0	1100	7.042727E-05	50000	6.0906E-05					10000	
Chromium	0	0	100	0.0000526	1000	0.0000511					10000	5.0015E-05
Cobalt	0	0	100	0.0034943	1000	0.0034265					10000	0.0034698
Copper	0	0	100	0.0000676	1000	5.799E-05					10000	5.6621E-05
Iron	0	0	5100	1.826274E-05	10000	1.7203E-05			500000	1.67154E-05	10000	
Lead	0	0	100	0.001059	1000	0.0010545					10000	0.0010926
Magnesium	0	0	5100		50000	2.6398E-06			500000	2.6336E-06	10000	
Manganese	0	0	100	0.0002993	1000	2.7958E-04	10000	2.7165E-04			10000	
Molybdenum	0	0	100	0.00258	1000	0.0027182					10000	0.0026086
Nickel	0	0	100	0.0015659	1000	0.0015433					10000	0.0015394
Potassium	0	0	1000	1.004E-05	10000	1.3753E-05						
Selenium	0	0	100	0.0004405	1000	4.2115E-04					10000	4.0799E-04
Silver	0	0	20	0.000065	500	5.656E-05	2000	5.761E-05				
Sodium	0	0	1000		50000	5.0396E-05						
Thallium	0	0	100	0.0006311	1000	6.0995E-04					10000	6.2477E-04
Tin	0	0	50	0.001352	1000	0.0013831					5000	0.0013942
Titanium	0	0	100	0.0001474	1000	1.4098E-04					10000	1.3943E-04
Vanadium	0	0	100	0.0000523	1000	5.072E-05					10000	5.0302E-05
Zinc	0	0	100	0.0059867	1000	0.0060594					10000	0.0058385
Strontium	0	0	100	0.001348	1000	0.001364					10000	0.001368
Lithium (outside certification)	0	0	100	0.0000114	1000	1.174E-05					10000	1.0957E-05
Aluminum	0	0	5000	2.1724E-05	10000	2.1978E-05			500000	2.136E-05		
Antimony	0	0	100	0.0005639	1000	6.0441E-04					10000	5.9166E-04
Arsenic	0	0	100	0.000292	1000	0.0003193					10000	3.1379E-04

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4149001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/28/14 9:38 5/28/14 10:11

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Barium	0	0	50	0.0096278	1000	0.0092231	5000	0.00913				
Beryllium	0	0	100	0.0025111	1000	0.0024858					10000	0.0024304
Boron	0	0	50	0.0000156	1000	1.475E-05					5000	1.4594E-05
Cadmium	0	0	100	0.016229	1000	0.01506					10000	0.015073
Calcium	0	0	1100	7.042727E-05	50000	6.0906E-05					10000	
Chromium	0	0	100	0.0000526	1000	0.0000511					10000	5.0015E-05
Cobalt	0	0	100	0.0034943	1000	0.0034265					10000	0.0034698
Copper	0	0	100	0.0000676	1000	5.799E-05					10000	5.6621E-05
Iron	0	0	5100	1.826274E-05	10000	1.7203E-05			500000	1.67154E-05	10000	
Lead	0	0	100	0.001059	1000	0.0010545					10000	0.0010926
Magnesium	0	0	5100		50000	2.6398E-06			500000	2.6336E-06	10000	
Manganese	0	0	100	0.0002993	1000	2.7958E-04	10000	2.7165E-04			10000	
Molybdenum	0	0	100	0.00258	1000	0.0027182					10000	0.0026086
Nickel	0	0	100	0.0015659	1000	0.0015433					10000	0.0015394
Potassium	0	0	1000	1.004E-05	10000	1.3753E-05						
Selenium	0	0	100	0.0004405	1000	4.2115E-04					10000	4.0799E-04
Silver	0	0	20	0.000065	500	5.656E-05	2000	5.761E-05				
Sodium	0	0	1000		50000	5.0396E-05						
Thallium	0	0	100	0.0006311	1000	6.0995E-04					10000	6.2477E-04
Tin	0	0	50	0.001352	1000	0.0013831					5000	0.0013942
Titanium	0	0	100	0.0001474	1000	1.4098E-04					10000	1.3943E-04
Vanadium	0	0	100	0.0000523	1000	5.072E-05					10000	5.0302E-05
Zinc	0	0	100	0.0059867	1000	0.0060594					10000	0.0058385
Strontium	0	0	100	0.001348	1000	0.001364					10000	0.001368
Lithium (outside certification)	0	0	100	0.0000114	1000	1.174E-05					10000	1.0957E-05

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4149001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/28/14 9:38 5/28/14 10:11

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum												
Antimony												
Arsenic												
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	6.1896E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.6811E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4109E-05										
Selenium												
Silver												
Sodium	100000	5.0317E-05	500000	4.959E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												
Aluminum												
Antimony												
Arsenic												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4149001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/28/14 9:38 5/28/14 10:11

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	6.1896E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.6811E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4109E-05										
Selenium												
Silver												
Sodium	100000	5.0317E-05	500000	4.959E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4149001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/28/14 9:38 5/28/14 10:11

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Aluminum	1.62655E-05	66.6849	5.113825	190.6543	0.9999997		0.998	
Antimony	4.399925E-04	66.77739	1.708067	145.6528	0.9999928		0.998	
Arsenic	2.312725E-04	66.86121	0.543355	108.1907	0.9999944		0.998	
Barium	6.995225E-03	66.7382	0.8392325	152.7195	0.9999965		0.998	
Beryllium	1.856825E-03	66.69137	3.827688	182.2683	0.9999954		0.998	
Boron	1.1236E-05	66.78266	2.705273	132.288	0.9999968		0.998	
Cadmium	0.0115905	66.83413	1.112437	153.0621	0.9999994		0.998	
Calcium	4.830732E-05	67.25124	3.473955	168.2328	0.9999969		0.998	
Chromium	3.842875E-05	66.72369	15.85174	188.9612	0.9999961		0.998	
Cobalt	2.59765E-03	66.6754	3.401433	181.4959	0.9999982		0.998	
Copper	4.555275E-05	67.52364	1.342322	36.08181	0.9999984		0.998	
Iron	1.304529E-05	66.85027	10.71462	195.5578	0.9999994		0.998	
Lead	8.01525E-04	66.70039	17.71122	195.9624	0.9999889		0.998	
Magnesium	1.988625E-06	66.6751	186.6897	199.7897	0.9999857		0.998	
Manganese	2.126325E-04	66.89047	64.68278	196.8039	0.9999932		0.998	
Molybdenum	0.0019767	66.73473	9.585745	193.4628	0.9999819		0.998	
Nickel	1.16215E-03	66.67425	16.8422	196.1632	1		0.998	
Potassium	9.4755E-06	69.43714	0.813995	126.2576	1		0.998	
Selenium	3.1741E-04	66.79925	0.9487375	126.9997	0.999993		0.998	
Silver	4.47925E-05	67.19187	4.647813	160.7658	0.9999683		0.998	
Sodium	3.757575E-05	66.67365	2.503783	170.9534	0.9999912		0.998	
Thallium	4.66455E-04	66.69374	6.51416	184.6986	0.9999946		0.998	
Tin	1.032325E-03	66.68912	0.83922	124.3276	0.9999979		0.998	
Titanium	1.069525E-04	66.74467	4.62776	189.3284	0.9999995		0.998	
Vanadium	3.83305E-05	66.70444	4.21447	159.8953	0.9999996		0.998	
Zinc	4.47115E-03	66.69836	14.22584	196.7287	0.9999864		0.998	
Strontium	0.00102	66.67205	1.3547	159.4229	1		0.998	
Lithium (outside certification)	8.52425E-06	66.77266	4.22344	122.6538	0.999954		0.998	
Aluminum	1.62655E-05	66.6849	5.113825	190.6543	0.9999997		0.998	
Antimony	4.399925E-04	66.77739	1.708067	145.6528	0.9999928		0.998	
Arsenic	2.312725E-04	66.86121	0.543355	108.1907	0.9999944		0.998	
Barium	6.995225E-03	66.7382	0.8392325	152.7195	0.9999965		0.998	

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013		
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)		
Calibration:	4149001	Instrument:	ME-ICP		
Matrix:	Water	Calibration Dates:	5/28/14 9:38	5/28/14 10:11	

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Beryllium	1.856825E-03	66.69137	3.827688	182.2683	0.9999954		0.998	
Boron	1.1236E-05	66.78266	2.705273	132.288	0.9999968		0.998	
Cadmium	0.0115905	66.83413	1.112437	153.0621	0.9999994		0.998	
Calcium	4.830732E-05	67.25124	3.473955	168.2328	0.9999969		0.998	
Chromium	3.842875E-05	66.72369	15.85174	188.9612	0.9999961		0.998	
Cobalt	2.59765E-03	66.6754	3.401433	181.4959	0.9999982		0.998	
Copper	4.555275E-05	67.52364	1.342322	36.08181	0.9999984		0.998	
Iron	1.304529E-05	66.85027	10.71462	195.5578	0.9999994		0.998	
Lead	8.01525E-04	66.70039	17.71122	195.9624	0.9999889		0.998	
Magnesium	1.988625E-06	66.6751	186.6897	199.7897	0.9999857		0.998	
Manganese	2.126325E-04	66.89047	64.68278	196.8039	0.9999932		0.998	
Molybdenum	0.0019767	66.73473	9.585745	193.4628	0.9999819		0.998	
Nickel	1.16215E-03	66.67425	16.8422	196.1632	1		0.998	
Potassium	9.4755E-06	69.43714	0.813995	126.2576	1		0.998	
Selenium	3.1741E-04	66.79925	0.9487375	126.9997	0.999993		0.998	
Silver	4.47925E-05	67.19187	4.647813	160.7658	0.9999683		0.998	
Sodium	3.757575E-05	66.67365	2.503783	170.9534	0.9999912		0.998	
Thallium	4.66455E-04	66.69374	6.51416	184.6986	0.9999946		0.998	
Tin	1.032325E-03	66.68912	0.83922	124.3276	0.9999979		0.998	
Titanium	1.069525E-04	66.74467	4.62776	189.3284	0.9999995		0.998	
Vanadium	3.83305E-05	66.70444	4.21447	159.8953	0.9999996		0.998	
Zinc	4.47115E-03	66.69836	14.22584	196.7287	0.9999864		0.998	
Strontium	0.00102	66.67205	1.3547	159.4229	1		0.998	
Lithium (outside certification)	8.52425E-06	66.77266	4.22344	122.6538	0.999954		0.998	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

PREPARATION BENCH SHEET

4D29005

Empirical Laboratories, LLC

Printed: 5/9/2014 12:24:45PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404127-01	F	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404127-02	A	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	
1404127-03	F	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404127-04	A	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	
1404127-05	D	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404133-02	M	MET_7470A_MERCURY	04/29/2014	30	30					NA	MS/MSD
1404133-02	M	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	Added for BatchQC in: 4D29005
1404133-03	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404133-04	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404133-05	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404133-06	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404149-06	A	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	
1404151-02	F	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-02	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-03	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-04	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-05	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-06	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-07	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-08	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404153-09	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
4D29005-BLK1		QC	04/29/2014	30	30					NA	

PREPARATION BENCH SHEET

4D29005

Empirical Laboratories, LLC

Printed: 5/9/2014 12:24:45PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D29005-BS1		QC	04/29/2014	30	30	14D0359		300		NA	
4D29005-MS1		QC	04/29/2014	30	30	14D0359	1404133-02	300		NA	
4D29005-MSD1		QC	04/29/2014	30	30	14D0359	1404133-02	300		NA	

Reagents Used:

Standard	Description
13D0424	Sulfuric Acid
14A0613	Nitric acid
14D0101	Mercury Digestion Flip-Top Tubes
14D0372	NAC L-Hydroxylamine Hydrochloride (HG Reagent)
14D0461	KMNO4 Reagent
14D0462	Potassuim Persulfate (K2S2O8)
14D0941	Stannous Chloride Mercury Reagent
14D0942	3% HCL Mercury Carrier

PREPARATION BENCH SHEET

4D29006

Empirical Laboratories, LLC

Printed: 5/16/2014 8:39:26AM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404149-01	F	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404149-02	A	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	
1404149-03	F	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404149-04	A	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	
1404149-05	F	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404173-01	I	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404173-02	I	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404173-03	J	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404173-04	AA	MET_7470A_MERCURY	04/29/2014	30	30					NA	MS/MSD
1404173-04	AA	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	Added for BatchQC in: 4D29006
1404173-05	J	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404178-01	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404179-02	D	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404179-03	D	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404179-04	D	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404179-05	D	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404179-06	J	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	Added for BatchQC in: 4D29006
1404179-06	J	MET_7470A_MERCURY	04/29/2014	30	30					NA	MS/MSD
1404179-07	D	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404179-08	D	MET_7470A_MERCURY	04/29/2014	30	30					NA	
4D29006-BLK1		QC	04/29/2014	30	30					NA	
4D29006-BS1		QC	04/29/2014	30	30	14D0359		300		NA	

PREPARATION BENCH SHEET

4D29006

Empirical Laboratories, LLC

Printed: 5/16/2014 8:39:26AM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D29006-MS1		QC	04/29/2014	30	30	14D0359	1404173-04	300		NA	
4D29006-MS2		QC	04/29/2014	30	30	14D0359	1404179-06	300		NA	
4D29006-MSD1		QC	04/29/2014	30	30	14D0359	1404173-04	300		NA	
4D29006-MSD2		QC	04/29/2014	30	30	14D0359	1404179-06	300		NA	

Reagents Used:

Standard	Description
13D0424	Sulfuric Acid
14A0613	Nitric acid
14D0101	Mercury Digestion Flip-Top Tubes
14D0372	NAC L-Hydroxylamine Hydrochloride (HG Reagent)
14D0461	KMNO4 Reagent
14D0462	Potassuim Persulfate (K2S2O8)
14D0941	Stannous Chloride Mercury Reagent
14D0942	3% HCL Mercury Carrier

PREPARATION BENCH SHEET

4D29007

Empirical Laboratories, LLC

Printed: 5/16/2014 2:10:46PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404155-01	A	MET_7470A_MERCURY	04/29/2014	3	30					NA	
1404155-02	A	MET_7470A_MERCURY	04/29/2014	3	30					NA	
1404165-01	I	MET_7470A_MERCURY	04/29/2014	30	30					NA	Good CCVs!
1404165-04	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	Good CCVs!
1404165-05	D	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	
1404165-06	D	MET_7470A_MERCURY	04/29/2014	30	30					NA	Good CCVs!
1404165-07	D	MET_7470A_MERCURY	04/29/2014	30	30					NA	Good CCVs!
1404165-08	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	Good CCVs!
1404165-09	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	Good CCVs!
1404165-11	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	Good CCVs!
1404165-12	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	Good CCVs!
1404165-13	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	Good CCVs!
1404165-15	E	MET_7470A_MERCURY	04/29/2014	30	30					NA	Good CCVs!
1404165-16	A	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	
1404165-17	A	MET_7470A_MERCURY	04/29/2014	30	30					NA	Good CCVs!
1404168-01	M	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	Added for BatchQC in: 4D29007
1404168-01	M	MET_7470A_MERCURY	04/29/2014	30	30					NA	MS/MSD
1404168-02	A	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	MS/MSD
1404168-03	F	MET_7470A_MERCURY	04/29/2014	30	30					NA	
1404168-04	A	MET_7470A_DIS_MERCURY	04/29/2014	30	30					NA	
4D29007-BLK1		QC	04/29/2014	30	30					NA	
4D29007-BS1		QC	04/29/2014	30	30	14D0359		300		NA	

PREPARATION BENCH SHEET

4D29007

Empirical Laboratories, LLC

Printed: 5/16/2014 2:10:46PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D29007-MS1		QC	04/29/2014	30	30	14D0359	1404168-01	300		NA	
4D29007-MSD1		QC	04/29/2014	30	30	14D0359	1404168-01	300		NA	

Reagents Used:

Standard	Description
13D0424	Sulfuric Acid
14A0613	Nitric acid
14D0101	Mercury Digestion Flip-Top Tubes
14D0372	NAC L-Hydroxylamine Hydrochloride (HG Reagent)
14D0461	KMNO4 Reagent
14D0462	Potassuim Persulfate (K2S2O8)
14D0941	Stannous Chloride Mercury Reagent
14D0942	3% HCL Mercury Carrier

PREPARATION BENCH SHEET

4D29021

Empirical Laboratories, LLC

Printed: 5/9/2014 12:25:15PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404127-01	F	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404127-02	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404127-03	F	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404149-01	F	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	see versions
1404149-02	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	see versions
1404149-04	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	see versions
1404149-06	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	see versions
1404149-06RE1	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	Ca OLR IEC impacts Al, Zn
1404165-12	E	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	Good CCVs!
1404165-13	E	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	Good CCVs!
1404165-15	E	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	Good CCVs!
1404165-16	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	
1404165-17	A	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	Good CCVs!
1404168-01	M	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	MS/MSD
1404168-01	M	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	Added for BatchQC in: 4D29021
1404168-02	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	MS/MSD
1404168-03	F	MET_ICP_LOW6010C_FULL	04/29/2014	100	25					NA	see versions
1404168-04	A	MET_ICP_LOW6010C_FULL_I	04/29/2014	100	25					NA	see versions
4D29021-BLK1		QC	04/29/2014	100	25					NA	
4D29021-BS1		QC	04/29/2014	100	25	14D0673		2000		NA	
4D29021-DUP1		QC	04/29/2014	100	25		1404168-01			NA	
4D29021-MS1		QC	04/29/2014	100	25	14D0674	1404168-01	25		NA	

PREPARATION BENCH SHEET

4D29021

Empirical Laboratories, LLC

Printed: 5/9/2014 12:25:15PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4D29021-MSD1		QC	04/29/2014	100	25	14D0674	1404168-01	25		NA	
4D29021-PS1		QC	04/29/2014	100	25	14D0674	1404168-01	25		NA	

Reagents Used:

Standard	Description
14A0613	Nitric acid
14A0614	Hydrochloric Acid
14B0029	Metals 50mL Digestion Vessel- DigiTUBE

PREPARATION BENCH SHEET

4E06002

Empirical Laboratories, LLC

Printed: 5/9/2014 12:25:41PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404127-04	A	MET_ICP_LOW6010C_FULL_I	05/06/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404127-05	D	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404149-03	F	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
1404149-05	F	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
1404182-01	A	MET_ICP_LOW6010C_FULL_I	05/06/2014	100	25					NA	Added for BatchQC in: 4E06002
1404182-01	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	MS/MSD
1404182-03	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-05	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-07	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-09	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-11	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-12	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-15	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-17	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-19	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-21	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-23	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404203-01	G	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
1404203-02	A	MET_ICP_LOW6010C_FULL_I	05/06/2014	100	25					NA	see versions
1404205-01	D	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
4E06002-BLK1		QC	05/06/2014	100	25					NA	
4E06002-BS1		QC	05/06/2014	100	25	14D0673		2000		NA	

PREPARATION BENCH SHEET

4E06002

Empirical Laboratories, LLC

Printed: 5/9/2014 12:25:41PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E06002-DUP1		QC	05/06/2014	100	25		1404182-01			NA	
4E06002-MS1		QC	05/06/2014	100	25	14D0674	1404182-01	25		NA	
4E06002-MSD1		QC	05/06/2014	100	25	14D0674	1404182-01	25		NA	
4E06002-PS1		QC	05/06/2014	100	25	14D0674	1404182-01	25		NA	

Reagents Used:

Standard	Description
14A0613	Nitric acid
14A0614	Hydrochloric Acid
14E0086	Metals 50mL Digestion Vessel- DigiTUBE

PREPARATION BENCH SHEET

4E07020

Empirical Laboratories, LLC

Printed: 5/15/2014 2:59:12PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404164-01	E	MET_7470A_MERCURY	05/07/2014	30	30					NA	Good CCVs!
1404164-02	E	MET_7470A_MERCURY	05/07/2014	30	30					NA	Good CCVs!
1404164-05	A	MET_7470A_MERCURY	05/07/2014	30	30					NA	MS/MSD; Good CCVs!
1404164-05	A	MET_7470A_DIS_MERCURY	05/07/2014	30	30					NA	Added for BatchQC in: 4E07020
1404203-01	G	MET_7470A_MERCURY	05/07/2014	30	30					NA	
1404203-02	A	MET_7470A_DIS_MERCURY	05/07/2014	30	30					NA	
1405014-02	I	MET_7470A_MERCURY	05/07/2014	30	30					NA	
1405014-03	I	MET_7470A_MERCURY	05/07/2014	30	30					NA	
1405014-04	I	MET_7470A_MERCURY	05/07/2014	30	30					NA	
1405014-05	J	MET_7470A_MERCURY	05/07/2014	30	30					NA	
1405014-06	G	MET_7470A_MERCURY	05/07/2014	30	30					NA	
1405020-01	E	MET_7470A_MERCURY	05/07/2014	30	30					NA	
1405022-28	A	MET_7470A_DIS_MERCURY	05/07/2014	30	30					NA	
1405022-29	E	MET_7470A_MERCURY	05/07/2014	30	30					NA	
1405022-30	A	MET_7470A_DIS_MERCURY	05/07/2014	30	30					NA	
1405022-32	E	MET_7470A_MERCURY	05/07/2014	30	30					NA	
1405022-33	A	MET_7470A_DIS_MERCURY	05/07/2014	30	30					NA	
1405025-01	D	MET_7470A_DIS_MERCURY	05/07/2014	30	30					NA	
1405027-01	D	MET_7470A_MERCURY	05/07/2014	30	30					NA	
1405027-02	D	MET_7470A_MERCURY	05/07/2014	30	30					NA	
1405027-03	D	MET_7470A_MERCURY	05/07/2014	30	30					NA	
4E07020-BLK1		QC	05/07/2014	30	30					NA	

PREPARATION BENCH SHEET

4E07020

Empirical Laboratories, LLC

Printed: 5/15/2014 2:59:12PM

Instrument:

Matrix: Water **Prepared using: METALS - pMercury-W SW 7470A** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E07020-BS1		QC	05/07/2014	30	30	14D0359		300		NA	
4E07020-MS1		QC	05/07/2014	30	30	14D0359	1404164-05	300		NA	
4E07020-MSD1		QC	05/07/2014	30	30	14D0359	1404164-05	300		NA	

Reagents Used:

Standard	Description
13D0424	Sulfuric Acid
14A0613	Nitric acid
14D0101	Mercury Digestion Flip-Top Tubes
14D0372	NAC L-Hydroxylamine Hydrochloride (HG Reagent)
14D0461	KMNO4 Reagent
14D0462	Potassuim Persulfate (K2S2O8)
14E0212	3% HCL Mercury Carrier
14E0213	Stannous Chloride Mercury Reagent

Data for Wet Chemistry Forms

Sample Extraction Data

Prep Method: pNone-SM2540C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404149-01 [LF008-30005]	4D23015	100.00/100.00	100	100	1.00			04/24/14
1404149-03 [LF008-30006]	4D23015	100.00/100.00	100	100	1.00			04/24/14
1404149-05 [LF008-30007]	4D23015	100.00/100.00	100	100	1.00			04/24/14

Sample Extraction Data

Prep Method: pNone-SM2540C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404168-01 [LF008-30002]	4D30008	100.00/100.00	100	100	1.00			04/30/14
1404168-03 [LF008-30004]	4D30008	100.00/100.00	100	100	1.00			04/30/14
1404203-01 [LF008-30008]	4D30008	100.00/100.00	100	100	1.00			04/30/14

Sample Extraction Data

Prep Method: pNone-SM2320B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404149-01 [LF008-30005]	4E01003	25.00/25.00	25.0	25.0	1.00			05/01/14
1404149-03 [LF008-30006]	4E01003	25.00/25.00	25.0	25.0	1.00			05/01/14
1404149-05 [LF008-30007]	4E01003	25.00/25.00	25.0	25.0	1.00			05/01/14

Sample Extraction Data

Prep Method: WC_PREP_ANIONS_W-SW9056A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404149-01 [LF008-30005]	4E05021	5.00/5.00	5.00	5.00	1.00			05/05/14
1404149-03 [LF008-30006]	4E05021	5.00/5.00	5.00	5.00	1.00			05/05/14
1404149-05 [LF008-30007]	4E05021	5.00/5.00	5.00	5.00	1.00			05/05/14

Sample Extraction Data

Prep Method: pNone-SM2320B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404168-03 [LF008-30004]	4E07005	25.00/25.00	25.0	25.0	1.00			05/07/14

Sample Extraction Data

Prep Method: pNone-SM2320B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404168-01 [LF008-30002]	4E08017	25.00/25.00	25.0	25.0	1.00			05/08/14
1404203-01 [LF008-30008]	4E08017	25.00/25.00	25.0	25.0	1.00			05/08/14

Sample Extraction Data

Prep Method: WC_PREP_ANIONS_W-SW9056A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404168-01 [LF008-30002]	4E13320	5.00/5.00	5.00	5.00	1.00			05/13/14
1404168-03 [LF008-30004]	4E13320	5.00/5.00	5.00	5.00	1.00			05/13/14
1404203-01 [LF008-30008]	4E13320	5.00/5.00	5.00	5.00	1.00			05/13/14

Sample Extraction Data

Prep Method: pNone-E353.2

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404149-01 [LF008-30005]	4E15013	20.00/20.00	4.00	20.0	1.00			05/15/14
1404149-03 [LF008-30006]	4E15013	20.00/20.00	4.00	20.0	1.00			05/15/14
1404149-05 [LF008-30007]	4E15013	20.00/20.00	4.00	20.0	1.00			05/15/14
1404168-01 [LF008-30002]	4E15013	20.00/20.00	4.00	20.0	1.00			05/15/14
1404168-03RE1 [LF008-30004]	4E15013	20.00/20.00	4.00	20.0	2.00			05/15/14
1404203-01 [LF008-30008]	4E15013	20.00/20.00	4.00	20.0	1.00			05/15/14

ANALYSIS DATA SHEET

LF008-30005

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-01
Sampled:	04/21/14 10:56	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**361**	**20.0**	20.0	20.0	1	BQ	SM2540C	4D23015	04/24/14 11:15
16887-00-6	Chloride	**30.9**	**0.170**	0.330	0.500	1		SW9056A	4E05021	05/05/14 19:36
NA	Nitrate/Nitrite as N	**9.46**	**0.250**	0.750	1.50	1	N	E353.2	4E15013	05/15/14 14:37
16984-48-8	Fluoride	**0.385**	**0.0330**	0.100	0.250	1		SW9056A	4E05021	05/05/14 19:36
471-34-1	Alkalinity, Total (as CACO3)	**119**	**1.00**	1.00	1.00	1		SM2320B	4E01003	05/01/14 11:50
14808-79-8	Sulfate as SO4	**95.2**	**0.330**	1.00	2.50	1		SW9056A	4E05021	05/05/14 19:36

ANALYSIS DATA SHEET

LF008-30006

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-03
Sampled:	04/21/14 10:56	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**367**	**20.0**	20.0	20.0	1	BQ	SM2540C	4D23015	04/24/14 11:15
16887-00-6	Chloride	**31.0**	**0.170**	0.330	0.500	1		SW9056A	4E05021	05/05/14 19:53
NA	Nitrate/Nitrite as N	**9.52**	**0.250**	0.750	1.50	1	N	E353.2	4E15013	05/15/14 14:38
16984-48-8	Fluoride	**0.382**	**0.0330**	0.100	0.250	1		SW9056A	4E05021	05/05/14 19:53
471-34-1	Alkalinity, Total (as CACO3)	**119**	**1.00**	1.00	1.00	1		SM2320B	4E01003	05/01/14 12:04
14808-79-8	Sulfate as SO4	**95.6**	**0.330**	1.00	2.50	1		SW9056A	4E05021	05/05/14 19:53

ANALYSIS DATA SHEET

LF008-30007

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-05
Sampled:	04/21/14 15:26	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**10600**	**20.0**	20.0	20.0	1	Q	SM2540C	4D23015	04/24/14 11:15
16887-00-6	Chloride	**124**	**0.170**	0.330	0.500	1		SW9056A	4E05021	05/05/14 20:10
NA	Nitrate/Nitrite as N	**5.38**	**0.250**	0.750	1.50	1	N	E353.2	4E15013	05/15/14 14:40
16984-48-8	Fluoride	**0.285**	**0.0330**	0.100	0.250	1		SW9056A	4E05021	05/05/14 20:10
471-34-1	Alkalinity, Total (as CACO3)	**97.5**	**1.00**	1.00	1.00	1		SM2320B	4E01003	05/01/14 12:12
14808-79-8	Sulfate as SO4	**183**	**0.330**	1.00	2.50	1		SW9056A	4E05021	05/05/14 20:10

ANALYSIS DATA SHEET

LF008-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-01
Sampled:	04/24/14 13:46	Received:	04/25/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**469**	**20.0**	20.0	20.0	1		SM2540C	4D30008	04/30/14 17:20
16887-00-6	Chloride	**92.3**	**0.170**	0.330	0.500	1		SW9056A	4E13320	05/13/14 20:53
NA	Nitrate/Nitrite as N	**6.96**	**0.250**	0.750	1.50	1	N	E353.2	4E15013	05/15/14 14:41
16984-48-8	Fluoride	**0.293**	**0.0330**	0.100	0.250	1		SW9056A	4E13320	05/13/14 20:53
471-34-1	Alkalinity, Total (as CACO3)	**114**	**1.00**	1.00	1.00	1		SM2320B	4E08017	05/08/14 14:53
14808-79-8	Sulfate as SO4	**95.8**	**0.330**	1.00	2.50	1		SW9056A	4E13320	05/13/14 20:53

ANALYSIS DATA SHEET

LF008-30004

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-03
Sampled:	04/23/14 15:51	Received:	04/25/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**339**	**20.0**	20.0	20.0	1		SM2540C	4D30008	04/30/14 17:20
16887-00-6	Chloride	**20.0**	**0.170**	0.330	0.500	1		SW9056A	4E13320	05/13/14 22:03
NA	Nitrate/Nitrite as N	**18.4**	**0.500**	1.50	3.00	2	D N	E353.2	4E15013	05/15/14 15:13
16984-48-8	Fluoride	**0.349**	**0.0330**	0.100	0.250	1		SW9056A	4E13320	05/13/14 22:03
471-34-1	Alkalinity, Total (as CACO3)	**131**	**1.00**	1.00	1.00	1		SM2320B	4E07005	05/07/14 12:02
14808-79-8	Sulfate as SO4	**41.0**	**0.330**	1.00	2.50	1		SW9056A	4E13320	05/13/14 22:03

ANALYSIS DATA SHEET

LF008-30008

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404203-01
Sampled:	04/28/14 12:17	Received:	04/30/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**396**	**20.0**	20.0	20.0	1		SM2540C	4D30008	04/30/14 17:20
16887-00-6	Chloride	**63.5**	**0.170**	0.330	0.500	1		SW9056A	4E13320	05/13/14 22:20
NA	Nitrate/Nitrite as N	**6.74**	**0.250**	0.750	1.50	1	N	E353.2	4E15013	05/15/14 14:47
16984-48-8	Fluoride	**0.320**	**0.0330**	0.100	0.250	1		SW9056A	4E13320	05/13/14 22:20
471-34-1	Alkalinity, Total (as CACO3)	**122**	**1.00**	1.00	1.00	1		SM2320B	4E08017	05/08/14 16:22
14808-79-8	Sulfate as SO4	**83.7**	**0.330**	1.00	2.50	1		SW9056A	4E13320	05/13/14 22:20

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D23015-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**42.0**	**20.0**	20.0	20.0	1	Q	SM2540C	4D23015	04/23/14 15:51

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D23015-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**1110**	**20.0**	20.0	20.0	1		SM2540C	4D23015	04/23/14 15:51

ANALYSIS DATA SHEET

LCS Dup

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D23015-BSD1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**1180**	**20.0**	20.0	20.0	1		SM2540C	4D23015	04/23/14 15:51

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D30008-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	ND	20.0	20.0	20.0	1	U	SM2540C	4D30008	04/30/14 17:20

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D30008-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**975.0**	**20.0**	20.0	20.0	1		SM2540C	4D30008	04/30/14 17:20

ANALYSIS DATA SHEET

Duplicate

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4D30008-DUP1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**481.0**	**20.0**	20.0	20.0	1		SM2540C	4D30008	04/30/14 17:20

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E01003-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	ND	1.00	1.00	1.00	1	U	SM2320B	4E01003	05/01/14 10:11

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E01003-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	**1010**	**5.00**	5.00	5.00	1		SM2320B	4E01003	05/01/14 10:14

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E05021-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	ND	0.170	0.330	0.500	1	U	SW9056A	4E05021	05/05/14 16:07
16984-48-8	Fluoride	ND	0.0330	0.100	0.250	1	U	SW9056A	4E05021	05/05/14 16:07
14808-79-8	Sulfate as SO4	ND	0.330	1.00	2.50	1	U	SW9056A	4E05021	05/05/14 16:07

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E05021-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**4.086**	**0.170**	0.330	0.500	1		SW9056A	4E05021	05/05/14 16:24
16984-48-8	Fluoride	**2.694**	**0.0330**	0.100	0.250	1		SW9056A	4E05021	05/05/14 16:24
14808-79-8	Sulfate as SO4	**20.79**	**0.330**	1.00	2.50	1		SW9056A	4E05021	05/05/14 16:24

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E07005-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	ND	1.00	1.00	1.00	1	U	SM2320B	4E07005	05/07/14 09:53

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E07005-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	**1051**	**5.00**	5.00	5.00	1		SM2320B	4E07005	05/07/14 09:45

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E08017-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	ND	1.00	1.00	1.00	1	U	SM2320B	4E08017	05/08/14 14:20

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E08017-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	**1047**	**5.00**	5.00	5.00	1		SM2320B	4E08017	05/08/14 14:22

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E08017-MS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	**231.2**	**1.11**	1.11	1.11	1		SM2320B	4E08017	05/08/14 14:35

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E08017-MSD1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	**231.2**	**1.11**	1.11	1.11	1		SM2320B	4E08017	05/08/14 14:45

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E13320-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	ND	0.170	0.330	0.500	1	U	SW9056A	4E13320	05/13/14 14:13
16984-48-8	Fluoride	ND	0.0330	0.100	0.250	1	U	SW9056A	4E13320	05/13/14 14:13
14808-79-8	Sulfate as SO4	ND	0.330	1.00	2.50	1	U	SW9056A	4E13320	05/13/14 14:13

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E13320-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**4.114**	**0.170**	0.330	0.500	1		SW9056A	4E13320	05/13/14 14:30
16984-48-8	Fluoride	**2.645**	**0.0330**	0.100	0.250	1		SW9056A	4E13320	05/13/14 14:30
14808-79-8	Sulfate as SO4	**20.69**	**0.330**	1.00	2.50	1		SW9056A	4E13320	05/13/14 14:30

ANALYSIS DATA SHEET

Duplicate

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E13320-DUP2

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**91.91**	**0.170**	0.330	0.500	1		SW9056A	4E13320	05/13/14 21:45
16984-48-8	Fluoride	**0.3030**	**0.0330**	0.100	0.250	1		SW9056A	4E13320	05/13/14 21:45
14808-79-8	Sulfate as SO4	**95.31**	**0.330**	1.00	2.50	1		SW9056A	4E13320	05/13/14 21:45

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E13320-MS2

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**121.0**	**0.189**	0.367	0.556	1		SW9056A	4E13320	05/13/14 21:10
16984-48-8	Fluoride	**2.923**	**0.0367**	0.111	0.278	1		SW9056A	4E13320	05/13/14 21:10
14808-79-8	Sulfate as SO4	**123.5**	**0.367**	1.11	2.78	1		SW9056A	4E13320	05/13/14 21:10

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E13320-MSD2

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
16887-00-6	Chloride	**119.6**	**0.189**	0.367	0.556	1		SW9056A	4E13320	05/13/14 21:28
16984-48-8	Fluoride	**2.924**	**0.0367**	0.111	0.278	1		SW9056A	4E13320	05/13/14 21:28
14808-79-8	Sulfate as SO4	**122.3**	**0.367**	1.11	2.78	1		SW9056A	4E13320	05/13/14 21:28

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E15013-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	ND	0.0500	0.150	0.300	1	U	E353.2	4E15013	05/15/14 14:34

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E15013-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	**15.41**	**0.500**	1.50	3.00	1		E353.2	4E15013	05/15/14 14:35

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_013

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E15013-MS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	**9.030**	**0.250**	0.750	1.50	1		E353.2	4E15013	05/15/14 14:42

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids: 0.00

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E15013-MSD1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	**9.070**	**0.250**	0.750	1.50	1		E353.2	4E15013	05/15/14 14:44

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4121001
Sequence: 4E12102

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12102-ICV1	Chloride	4.200	4.347	104	mg/L	+/- 10.00%
	Fluoride	2.800	2.686	95.9	mg/L	+/- 10.00%
	Sulfate as SO4	21.00	20.93	99.6	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4121001
Sequence: 4E13205

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E13205-CCV1	Chloride	25.00	25.25	101	mg/L	+/- 10.00%
	Fluoride	2.500	2.548	102	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.75	103	mg/L	+/- 10.00%
4E13205-CCV2	Chloride	25.00	25.04	100	mg/L	+/- 10.00%
	Fluoride	2.500	2.507	100	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.06	100	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

E353.2

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-Lachat

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4141001
Sequence: 4E13512

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E13512-ICV1	Nitrate/Nitrite as N	1.200	1.300	108	mg/L	+/- 10.00%
4E13512-CCV1	Nitrate/Nitrite as N	1.200	1.214	101	mg/L	+/- 10.00%
4E13512-CCV2	Nitrate/Nitrite as N	1.200	1.205	100	mg/L	+/- 10.00%
4E13512-CCV3	Nitrate/Nitrite as N	1.200	1.196	99.7	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Calibration: 4121001
Sequence: 4E14037

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E14037-CCV1	Chloride	25.00	25.09	100	mg/L	+/- 10.00%
	Fluoride	2.500	2.421	96.8	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.23	101	mg/L	+/- 10.00%
4E14037-CCV2	Chloride	25.00	24.92	99.7	mg/L	+/- 10.00%
	Fluoride	2.500	2.465	98.6	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.04	100	mg/L	+/- 10.00%
4E14037-CCV3	Chloride	25.00	25.06	100	mg/L	+/- 10.00%
	Fluoride	2.500	2.443	97.7	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	24.72	98.9	mg/L	+/- 10.00%

CRDL STANDARD

SW9056A

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: WC-IC

Calibration: 4121001

Sequence: 4E13205

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4E13205-CRL1	Chloride	0.5000	0.5400	108	mg/L	50 - 150
	Fluoride	0.05000	0.05700	114	mg/L	50 - 150
4E13205-CRL2	Sulfate as SO4	1.000	1.429	143	mg/L	50 - 150

CRDL STANDARD

SW9056A

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: WC-IC

Calibration: 4121001

Sequence: 4E14037

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4E14037-CRL1	Chloride	0.5000	0.5410	108	mg/L	50 - 150
	Fluoride	0.05000	0.04800	96.0	mg/L	50 - 150
	Sulfate as SO4	0.5000	0.6310	126	mg/L	50 - 150

METHOD BLANKS
SM2540C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D23015

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D23015-BLK1	Total Dissolved Solids	42.0	20.0	20.0	mg/L		SM2540C

METHOD BLANKS
SM2540C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D30008

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D30008-BLK1	Total Dissolved Solids	-5.00	20.0	20.0	mg/L	U	SM2540C

METHOD BLANKS
SM2320B

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E01003

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E01003-BLK1	Alkalinity, Total (as CACO3)	-0.408	1.00	1.00	mg/L	U	SM2320B

METHOD BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E05021

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E05021-BLK1	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A

METHOD BLANKS
SM2320B

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E07005

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E07005-BLK1	Alkalinity, Total (as CACO3)	-0.408	1.00	1.00	mg/L	U	SM2320B

METHOD BLANKS
SM2320B

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E08017

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E08017-BLK1	Alkalinity, Total (as CACO3)	-0.408	1.00	1.00	mg/L	U	SM2320B

METHOD BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E13320

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E13320-BLK1	Chloride	0.0100	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.0290	0.330	2.50	mg/L	U	SW9056A

METHOD BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E15013

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E15013-BLK1	Nitrate/Nitrite as N	-0.0191	0.0500	0.300	mg/L	U	E353.2

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E12102
Calibration: 4121001
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12102-ICB1	Chloride	0.03000	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.008000	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.02100	0.330	2.50	mg/L	U	SW9056A

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E13205
Calibration: 4121001
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E13205-CCB1	Chloride	0.0130	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00600	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.0390	0.330	2.50	mg/L	U	SW9056A
4E13205-CCB2	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A

BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E13512
Calibration: 4141001
Instrument ID: WC-Lachat

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E13512-ICB1	Nitrate/Nitrite as N	-0.03133	0.0500	0.300	mg/L	U	E353.2
4E13512-CCB1	Nitrate/Nitrite as N	-0.0176	0.0500	0.300	mg/L	U	E353.2
4E13512-CCB2	Nitrate/Nitrite as N	-0.0205	0.0500	0.300	mg/L	U	E353.2
4E13512-CCB3	Nitrate/Nitrite as N	-0.0242	0.0500	0.300	mg/L	U	E353.2

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_013
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E14037
Calibration: 4121001
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E14037-CCB1	Chloride	0.0140	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.0320	0.330	2.50	mg/L	U	SW9056A
4E14037-CCB2	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A
4E14037-CCB3	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SM2320B

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4E08017

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	Q	QC LIMITS REC.
Alkalinity, Total (as CACO3)	111.1	114.2	231.2	105		75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Alkalinity, Total (as CACO3)	111.1	231.2	105	0.00		20	75 - 125

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SW9056A

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4E13320

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	Q	QC LIMITS REC.
Chloride	27.78	92.31	121.0	103		80 - 120
Fluoride	2.778	0.2930	2.923	94.7		80 - 120
Sulfate as SO4	27.78	95.79	123.5	99.7		80 - 120

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Chloride	27.78	119.6	98.3	1.16		15	80 - 120
Fluoride	2.778	2.924	94.7	0.0380		15	80 - 120
Sulfate as SO4	27.78	122.3	95.4	0.972		15	80 - 120

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

E353.2

LF008-30002

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4E15013

% Solids:

Source Sample Name: **1404168-01**

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	Q	QC LIMITS REC.
Nitrate/Nitrite as N	2.500	6.965	9.030	82.6	N	90 - 110

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Nitrate/Nitrite as N	2.500	9.070	84.2	0.442	N	20	90 - 110

LF008-30002

DUPLICATES

SM2540C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Batch: 4D30008
Preparation: pNone
Source Sample Name: LF008-30002

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D30008-DUP1
Lab Source ID: 1404168-01
Initial/Final: 100 mL / 100 mL
% Solids:

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	METHOD
Total Dissolved Solids	5	469	481.0	2.53		SM2540C

LF008-30002

DUPLICATES

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Batch: 4E13320
Preparation: WC_PREP_ANIONS_W
Source Sample Name: LF008-30002

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E13320-DUP2
Lab Source ID: 1404168-01
Initial/Final: 5 mL / 5 mL
% Solids:

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	METHOD
Chloride	10	92.3	91.91	0.438		SW9056A
Fluoride	10	0.293	0.3030	3.36		SW9056A
Sulfate as SO4	10	95.8	95.31	0.506		SW9056A

LCS / LCS DUPLICATE RECOVERY

SM2540C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D23015	Laboratory ID:	4D23015-BS1
Preparation:	pNone	Initial/Final:	20 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Total Dissolved Solids	973.0	1110	114	80 - 120

ANALYTE	SPIKE ADDED (mg/L)	LCSD CONCENTRATION (mg/L)	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Total Dissolved Solids	**973.0**	**1180**	**121 ***	**6.11**	**20**	**80 - 120**

LCS / LCS DUPLICATE RECOVERY

SM2540C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D30008	Laboratory ID:	4D30008-BS1
Preparation:	pNone	Initial/Final:	20 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Total Dissolved Solids	973.0	975.0	100	80 - 120

LCS / LCS DUPLICATE RECOVERY

SM2320B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E01003	Laboratory ID:	4E01003-BS1
Preparation:	pNone	Initial/Final:	5 mL / 25 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Alkalinity, Total (as CACO3)	1000	1010	101	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E05021	Laboratory ID:	4E05021-BS1
Preparation:	WC_PREP_ANIONS_W	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Chloride	4.200	4.086	97.3	80 - 120
Fluoride	2.800	2.694	96.2	80 - 120
Sulfate as SO4	21.00	20.79	99.0	80 - 120

LCS / LCS DUPLICATE RECOVERY

SM2320B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E07005	Laboratory ID:	4E07005-BS1
Preparation:	pNone	Initial/Final:	5 mL / 25 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Alkalinity, Total (as CACO3)	1000	1051	105	80 - 120

LCS / LCS DUPLICATE RECOVERY

SM2320B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E08017	Laboratory ID:	4E08017-BS1
Preparation:	pNone	Initial/Final:	5 mL / 25 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Alkalinity, Total (as CACO3)	1000	1047	105	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E13320	Laboratory ID:	4E13320-BS1
Preparation:	WC_PREP_ANIONS_W	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Chloride	4.200	4.114	98.0	80 - 120
Fluoride	2.800	2.645	94.5	80 - 120
Sulfate as SO4	21.00	20.69	98.5	80 - 120

LCS / LCS DUPLICATE RECOVERY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E15013	Laboratory ID:	4E15013-BS1
Preparation:	pNone	Initial/Final:	2 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Nitrate/Nitrite as N	14.80	15.41	104	90 - 110

PREPARATION BATCH SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D23015 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30005	1404149-01	04/24/14 10:14	100.00	100.00
LF008-30006	1404149-03	04/24/14 10:14	100.00	100.00
LF008-30007	1404149-05	04/24/14 10:14	100.00	100.00
Blank	4D23015-BLK1	04/23/14 10:00	100.00	100.00
LCS	4D23015-BS1	04/23/14 10:00	20.00	20.00
LCS Dup	4D23015-BSD1	04/23/14 10:00	20.00	20.00

PREPARATION BATCH SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D30008 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30002	1404168-01	04/30/14 10:01	100.00	100.00
LF008-30004	1404168-03	04/30/14 10:01	100.00	100.00
LF008-30008	1404203-01	04/30/14 10:01	100.00	100.00
Blank	4D30008-BLK1	04/30/14 10:01	100.00	100.00
LCS	4D30008-BS1	04/30/14 10:01	20.00	20.00
LF008-30002	4D30008-DUP1	04/30/14 10:01	100.00	100.00

PREPARATION BATCH SUMMARY

SM2320B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E01003 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30005	1404149-01	05/01/14 07:58	25.00	25.00
LF008-30006	1404149-03	05/01/14 07:58	25.00	25.00
LF008-30007	1404149-05	05/01/14 07:58	25.00	25.00
Blank	4E01003-BLK1	05/01/14 07:58	25.00	25.00
LCS	4E01003-BS1	05/01/14 07:58	5.00	25.00

PREPARATION BATCH SUMMARY

SW9056A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E05021 Batch Matrix: Water Preparation: WC_PREP_ANIONS_W

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30005	1404149-01	05/05/14 12:51	5.00	5.00
LF008-30006	1404149-03	05/05/14 12:51	5.00	5.00
LF008-30007	1404149-05	05/05/14 12:51	5.00	5.00
Blank	4E05021-BLK1	05/05/14 12:51	5.00	5.00
LCS	4E05021-BS1	05/05/14 12:51	5.00	5.00

PREPARATION BATCH SUMMARY

SM2320B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E07005 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30004	1404168-03	05/07/14 08:03	25.00	25.00
Blank	4E07005-BLK1	05/07/14 08:03	25.00	25.00
LCS	4E07005-BS1	05/07/14 08:03	5.00	25.00

PREPARATION BATCH SUMMARY

SM2320B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E08017 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30002	1404168-01	05/08/14 12:12	25.00	25.00
LF008-30008	1404203-01	05/08/14 12:12	25.00	25.00
Blank	4E08017-BLK1	05/08/14 12:12	25.00	25.00
LCS	4E08017-BS1	05/08/14 12:12	5.00	25.00
LF008-30002	4E08017-MS1	05/08/14 12:12	22.50	25.00
LF008-30002	4E08017-MSD1	05/08/14 12:12	22.50	25.00

PREPARATION BATCH SUMMARY

SW9056A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E13320 Batch Matrix: Water Preparation: WC_PREP_ANIONS_W

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30002	1404168-01	05/13/14 11:33	5.00	5.00
LF008-30004	1404168-03	05/13/14 11:33	5.00	5.00
LF008-30008	1404203-01	05/13/14 11:33	5.00	5.00
Blank	4E13320-BLK1	05/13/14 11:33	5.00	5.00
LCS	4E13320-BS1	05/13/14 11:33	5.00	5.00
LF008-30002	4E13320-DUP2	05/13/14 11:33	5.00	5.00
LF008-30002	4E13320-MS2	05/13/14 11:33	22.50	25.00
LF008-30002	4E13320-MSD2	05/13/14 11:33	22.50	25.00

PREPARATION BATCH SUMMARY

E353.2

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E15013 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
LF008-30005	1404149-01	05/15/14 13:11	4.00	20.00
LF008-30006	1404149-03	05/15/14 13:11	4.00	20.00
LF008-30007	1404149-05	05/15/14 13:11	4.00	20.00
LF008-30002	1404168-01	05/15/14 13:11	4.00	20.00
LF008-30004	1404168-03RE1	05/15/14 13:11	4.00	20.00
LF008-30008	1404203-01	05/15/14 13:11	4.00	20.00
Blank	4E15013-BLK1	05/15/14 13:11	20.00	20.00
LCS	4E15013-BS1	05/15/14 13:11	2.00	20.00
LF008-30002	4E15013-MS1	05/15/14 13:11	4.00	20.00
LF008-30002	4E15013-MSD1	05/15/14 13:11	4.00	20.00

ANALYSIS SEQUENCE SUMMARY

SM2320B

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Sequence:

Instrument:

Calibration:

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Blank	4E01003-BLK1	050114-003	05/01/14 10:11
LCS	4E01003-BS1	050114-002	05/01/14 10:14
LCS	4E07005-BS1	050714-002	05/07/14 09:45
Blank	4E07005-BLK1	050714-003	05/07/14 09:53
Blank	4E08017-BLK1	050814-003	05/08/14 14:20
LCS	4E08017-BS1	050814-002	05/08/14 14:22
LF008-30002	4E08017-MS1	050814-004	05/08/14 14:35
LF008-30002	4E08017-MSD1	050814-005	05/08/14 14:45

ANALYSIS SEQUENCE SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Sequence:

Instrument:

Calibration:

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
LCS Dup	4D23015-BSD1	042314-003	04/23/14 15:51
LCS	4D23015-BS1	042314-002	04/23/14 15:51
Blank	4D23015-BLK1	042314-001	04/23/14 15:51
LCS	4D30008-BS1	043014-002	04/30/14 17:20
LF008-30002	4D30008-DUP1	043014-003	04/30/14 17:20
Blank	4D30008-BLK1	043014-001	04/30/14 17:20

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12102	Instrument:	WC-IC
Calibration:	4121001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E12102-CAL1	042914curve-003	04/29/14 14:13
Cal Standard	4E12102-CAL2	042914curve-004	04/29/14 14:31
Cal Standard	4E12102-CAL3	042914curve-005	04/29/14 14:48
Cal Standard	4E12102-CAL4	042914curve-006	04/29/14 15:06
Cal Standard	4E12102-CAL5	042914curve-007	04/29/14 15:23
Cal Standard	4E12102-CAL6	042914curve-008	04/29/14 15:40
Cal Standard	4E12102-CAL7	042914curve-009	04/29/14 15:58
Cal Standard	4E12102-CAL8	042914curve-010	04/29/14 16:15
Initial Cal Check	4E12102-ICV1	042914curve-011	04/29/14 16:33
Initial Cal Blank	4E12102-ICB1	042914curve-012	04/29/14 16:50

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E13205	Instrument:	WC-IC
Calibration:	4121001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4E13205-CCV1	050514-005	05/05/14 14:40
Calibration Blank	4E13205-CCB1	050514-006	05/05/14 14:57
Instrument RL Check	4E13205-CRL1	050514-007	05/05/14 15:15
Instrument RL Check	4E13205-CRL2	050514-008	05/05/14 15:32
Blank	4E05021-BLK1	050514-010	05/05/14 16:07
LCS	4E05021-BS1	050514-011	05/05/14 16:24
LF008-30005	1404149-01	050514-022	05/05/14 19:36
LF008-30006	1404149-03	050514-023	05/05/14 19:53
LF008-30007	1404149-05	050514-024	05/05/14 20:10
Calibration Check	4E13205-CCV2	050514-025	05/05/14 20:28
Calibration Blank	4E13205-CCB2	050514-026	05/05/14 20:45

ANALYSIS SEQUENCE SUMMARY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E13512	Instrument:	WC-Lachat
Calibration:	4141001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E13512-CAL1	M_5-15-2014_02-16-15PM-00	05/15/14 14:18
Cal Standard	4E13512-CAL2	M_5-15-2014_02-16-15PM-00	05/15/14 14:19
Cal Standard	4E13512-CAL3	M_5-15-2014_02-16-15PM-00	05/15/14 14:21
Cal Standard	4E13512-CAL4	M_5-15-2014_02-16-15PM-00	05/15/14 14:22
Cal Standard	4E13512-CAL5	M_5-15-2014_02-16-15PM-00	05/15/14 14:24
Cal Standard	4E13512-CAL6	M_5-15-2014_02-16-15PM-00	05/15/14 14:25
Cal Standard	4E13512-CAL7	M_5-15-2014_02-16-15PM-00	05/15/14 14:26
Cal Standard	4E13512-CAL8	M_5-15-2014_02-16-15PM-00	05/15/14 14:28
Initial Cal Check	4E13512-ICV1	M_5-15-2014_02-16-15PM-00	05/15/14 14:29
Initial Cal Blank	4E13512-ICB1	M_5-15-2014_02-16-15PM-01	05/15/14 14:31
Blank	4E15013-BLK1	M_5-15-2014_02-16-15PM-01	05/15/14 14:34
LCS	4E15013-BS1	M_5-15-2014_02-16-15PM-01	05/15/14 14:35
LF008-30005	1404149-01	M_5-15-2014_02-16-15PM-01	05/15/14 14:37
LF008-30006	1404149-03	M_5-15-2014_02-16-15PM-01	05/15/14 14:38
LF008-30007	1404149-05	M_5-15-2014_02-16-15PM-01	05/15/14 14:40
LF008-30002	1404168-01	M_5-15-2014_02-16-15PM-01	05/15/14 14:41
LF008-30002	4E15013-MS1	M_5-15-2014_02-16-15PM-01	05/15/14 14:42
LF008-30002	4E15013-MSD1	M_5-15-2014_02-16-15PM-01	05/15/14 14:44
LF008-30008	1404203-01	M_5-15-2014_02-16-15PM-02	05/15/14 14:47
Calibration Check	4E13512-CCV1	M_5-15-2014_02-16-15PM-02	05/15/14 14:54
Calibration Blank	4E13512-CCB1	M_5-15-2014_02-16-15PM-02	05/15/14 14:55
Calibration Check	4E13512-CCV2	M_5-15-2014_02-16-15PM-03	05/15/14 15:10
Calibration Blank	4E13512-CCB2	M_5-15-2014_02-16-15PM-03	05/15/14 15:11
LF008-30004	1404168-03RE1	M_5-15-2014_02-16-15PM-03	05/15/14 15:13
Calibration Check	4E13512-CCV3	M_5-15-2014_02-16-15PM-04	05/15/14 15:19
Calibration Blank	4E13512-CCB3	M_5-15-2014_02-16-15PM-04	05/15/14 15:20

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E14037	Instrument:	WC-IC
Calibration:	4121001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4E14037-CCV1	051314-003	05/13/14 12:46
Calibration Blank	4E14037-CCB1	051314-004	05/13/14 13:03
Instrument RL Check	4E14037-CRL1	051314-005	05/13/14 13:20
Blank	4E13320-BLK1	051314-008	05/13/14 14:13
LCS	4E13320-BS1	051314-009	05/13/14 14:30
Calibration Check	4E14037-CCV2	051314-023	05/13/14 18:34
Calibration Blank	4E14037-CCB2	051314-024	05/13/14 18:51
LF008-30002	1404168-01	051314-031	05/13/14 20:53
LF008-30002	4E13320-MS2	051314-032	05/13/14 21:10
LF008-30002	4E13320-MSD2	051314-033	05/13/14 21:28
LF008-30002	4E13320-DUP2	051314-034	05/13/14 21:45
LF008-30004	1404168-03	051314-035	05/13/14 22:03
LF008-30008	1404203-01	051314-036	05/13/14 22:20
Calibration Check	4E14037-CCV3	051314-038	05/13/14 22:55
Calibration Blank	4E14037-CCB3	051314-039	05/13/14 23:12

INITIAL CALIBRATION DATA

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4121001	Instrument:	WC-IC	
Matrix:	Water	Calibration Dates:	4/29/14 14:13	4/29/14 16:15

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Bromide	0.126	159881	0.126	316904.8	0.63	163830.2	1.26	176354	6.3	183568.1	12.6	179961
Chloride	0.5	421506	0.5	787168	2.5	394408.4	5	399378.4	25	411468.8	50	407750.2
Fluoride	0.05	~~775280~~	0.05	1364560	0.25	691468	0.5	685650	2.5	686538.4	5	640231.8
Sulfate as SO4	0.5	538696	0.5	900462	2.5	380967.6	5	338126.8	25	312521.2	50	303954.4

INITIAL CALIBRATION DATA (Continued)

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4121001	Instrument:	WC-IC	
Matrix:	Water	Calibration Dates:	4/29/14 14:13	4/29/14 16:15

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Bromide	31.5	177743.7	63	181116.7								
Chloride	125	406745	250	403355.2								
Fluoride	12.5	~~575363.2~~	25	~~515857.6~~								
Sulfate as SO4	125	298662.8	250	296911.2								

INITIAL CALIBRATION DATA (Continued)

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4121001	Instrument:	WC-IC
Matrix:	Water	Calibration Dates:	4/29/14 14:13 4/29/14 16:15

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Bromide	192419.9	26.50488	7.60125	1.262659	0.999913		0.995	
Chloride	453972.5	29.70977	4.45625	0.5989249	0.9999724		0.995	
Fluoride	813689.6	37.93147	3.106	1.058189	0.998347		0.995	
Sulfate as SO4	421287.7	49.79368	6.23375	4.232915	0.999902		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4141001	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/15/14 14:18	5/15/14 14:28

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	2	3.866	1.6	4.045	1.2	4.015	0.8	4.0625	0.4	4.2975	0.2	4.3195

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4141001	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/15/14 14:18	5/15/14 14:28

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	0.1	4.833	0	0								

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4141001	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/15/14 14:18	5/15/14 14:28

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Nitrate/Nitrite as N	3.679812	41.19857	33.45	1.672149	0.9990048		0.99	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

PREPARATION BENCH SHEET

4D23015

Empirical Laboratories, LLC

Printed: 5/9/2014 12:33:12PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404119-02	D	WC_TOTAL_DISS_SOLIDS_25	04/23/2014	100	100					NA	
1404119-05	D	WC_TOTAL_DISS_SOLIDS_25	04/23/2014	100	100					NA	
1404119-07	D	WC_TOTAL_DISS_SOLIDS_25	04/23/2014	100	100					NA	
1404127-01	D	WC_TOTAL_DISS_SOLIDS_25	04/23/2014	100	100					NA	
1404127-03	D	WC_TOTAL_DISS_SOLIDS_25	04/23/2014	100	100					NA	
1404149-01	D	WC_TOTAL_DISS_SOLIDS_25	04/24/2014	100	100					NA	
1404149-03	D	WC_TOTAL_DISS_SOLIDS_25	04/24/2014	100	100					NA	
1404149-05	D	WC_TOTAL_DISS_SOLIDS_25	04/24/2014	100	100					NA	
4D23015-BLK1		QC	04/23/2014	100	100					NA	
4D23015-BS1		QC	04/23/2014	20	20	14B0390		20000		NA	
4D23015-BSD1		QC	04/23/2014	20	20	14B0390		20000		NA	

Reagents Used:

Standard	Description
13L0250	Syringe Filters - Glass Fiber, 25mm, 1.5um, 200pk

PREPARATION BENCH SHEET

4D30008

Empirical Laboratories, LLC

Printed: 5/16/2014 12:59:20PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404165-01	H	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-02	V	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	MS/MSD;
1404165-04	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-08	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-09	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-10	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-11	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-12	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-13	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-15	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404168-01	G	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	MS/MSD
1404168-03	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404184-01	A	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404184-03	A	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404203-01	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404205-01	A	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
4D30008-BLK1		QC	04/30/2014	100	100					NA	
4D30008-BS1		QC	04/30/2014	20	20	14B0390		20000		NA	
4D30008-DUP1		QC	04/30/2014	100	100		1404168-01			NA	
4D30008-DUP2		QC	04/30/2014	100	100		1404165-02			NA	

PREPARATION BENCH SHEET

4D30008

Empirical Laboratories, LLC

Printed: 5/16/2014 12:59:20PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description
13L0250	Syringe Filters - Glass Fiber, 25mm, 1.5um, 200pk

PREPARATION BENCH SHEET

4E01003

Empirical Laboratories, LLC

Printed: 5/8/2014 2:27:49PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404128-03	I	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	carb/bicarb
1404128-05	I	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	carb/bicarb
1404147-01	I	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	carb/bicarb
1404147-03	I	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	carb/bicarb
1404147-05	I	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	carb/bicarb
1404147-07	I	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	carb/bicarb
1404147-09	I	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	carb/bicarb
1404147-11	I	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	carb/bicarb
1404147-13	I	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	carb/bicarb
1404149-01	D	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	
1404149-03	D	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	
1404149-05	D	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	
1404157-04	C	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	
1404157-06	C	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	
1404162-02	F	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	
1404162-05	F	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	
1404165-02	V	WC_ALKALINITY_2320B	05/01/2014	25	25					NA	MS/MSD; Carb & Bicarb
4E01003-BLK1		QC	05/01/2014	25	25					NA	
4E01003-BS1		QC	05/01/2014	5	25	13L0375		5000		NA	
4E01003-MS1		QC	05/01/2014	22.5	25	13L0375	1404165-02	2500		NA	
4E01003-MSD1		QC	05/01/2014	22.5	25	13L0375	1404165-02	2500		NA	

PREPARATION BENCH SHEET

4E01003

Empirical Laboratories, LLC

Printed: 5/8/2014 2:27:49PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4E05021

Empirical Laboratories, LLC

Printed: 5/15/2014 12:45:47PM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404147-01	I	WC_ANIONS_300.0 (Regular)	05/05/2014	5	5					NA	Br, Cl, SO4
1404147-03	I	WC_ANIONS_300.0 (Regular)	05/05/2014	5	5					NA	Br, Cl, SO4
1404147-05	I	WC_ANIONS_300.0 (Regular)	05/05/2014	5	5					NA	Br, Cl, SO4
1404147-07	I	WC_ANIONS_300.0 (Regular)	05/05/2014	5	5					NA	Br, Cl, SO4
1404147-09	I	WC_ANIONS_300.0 (Regular)	05/05/2014	5	5					NA	Br, Cl, SO4
1404147-09	I	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	Added for BatchQC in: 4E05021
1404147-11	I	WC_ANIONS_300.0 (Regular)	05/05/2014	5	5					NA	Br, Cl, SO4
1404147-13	I	WC_ANIONS_300.0 (Regular)	05/05/2014	5	5					NA	Br, Cl, SO4
1404149-01	D	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	see versions
1404149-03	D	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	see versions
1404149-05	D	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	see versions
1404165-01	H	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	Cl & SO4. Good CCVs!
1404165-02	V	WC_ANIONS_300.0 (Regular)	05/05/2014	5	5					NA	Added for BatchQC in: 4E05021
1404165-02	V	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	MS/MSD; Cl & SO4. Good CCVs!
1404165-04	D	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	Cl & SO4. Good CCVs!
1404165-08	D	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	Cl & SO4. Good CCVs!
1404165-09	D	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	Cl & SO4. Good CCVs!
1404165-10	D	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	Cl & SO4. Good CCVs!
1404165-11	D	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	Cl & SO4. Good CCVs!
1404165-12	D	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	Cl & SO4. Good CCVs!
1404165-13	D	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	Cl & SO4. Good CCVs!
1404165-15	D	WC_ANIONS_9056A (Regular)	05/05/2014	5	5					NA	Cl & SO4. Good CCVs!

PREPARATION BENCH SHEET

4E05021

Empirical Laboratories, LLC

Printed: 5/15/2014 12:45:47PM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E05021-BLK1		QC	05/05/2014	5	5					NA	
4E05021-BS1		QC	05/05/2014	5	5	14E0088		5000		NA	
4E05021-DUP1		QC	05/05/2014	5	5		1404147-09			NA	
4E05021-DUP2		QC	05/05/2014	5	5		1404165-02			NA	
4E05021-MS1		QC	05/05/2014	22.5	25	14D0880	1404147-09	2500		NA	
4E05021-MS2		QC	05/05/2014	22.5	25	14D0880	1404165-02	2500		NA	
4E05021-MSD1		QC	05/05/2014	22.5	25	14D0880	1404147-09	2500		NA	
4E05021-MSD2		QC	05/05/2014	22.5	25	14D0880	1404165-02	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4E07005

Empirical Laboratories, LLC

Printed: 5/15/2014 12:48:42PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404165-08	D	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	Carb & Bicarb
1404165-09	D	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	Carb & Bicarb
1404165-10	D	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	Carb & Bicarb
1404165-11	D	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	Carb & Bicarb
1404165-12	D	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	Carb & Bicarb
1404166-01	I	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	carb/bicarb
1404166-05	I	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	carb/bicarb
1404166-07	I	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	carb/bicarb
1404166-09	I	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	carb/bicarb
1404166-15	Z	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	MS/MSD; carb/bicarb
1404166-17	I	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	carb/bicarb
1404166-19	I	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	carb/bicarb
1404168-03	D	WC_ALKALINITY_2320B	05/07/2014	25	25					NA	
4E07005-BLK1		QC	05/07/2014	25	25					NA	
4E07005-BS1		QC	05/07/2014	5	25	13L0375		5000		NA	
4E07005-MS1		QC	05/07/2014	22.5	25	13L0375	1404166-15	2500		NA	
4E07005-MSD1		QC	05/07/2014	22.5	25	13L0375	1404166-15	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4E08017

Empirical Laboratories, LLC

Printed: 5/13/2014 2:25:14PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404165-01	H	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	Carb & Bicarb
1404165-04	D	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	Carb & Bicarb
1404165-13	D	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	Carb & Bicarb
1404165-15	D	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	Carb & Bicarb
1404166-03	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404166-11	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404166-13	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404168-01	G	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	MS/MSD
1404194-02	F	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404194-04	F	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404201-02	G	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404201-04	G	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404203-01	D	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404205-01	A	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404207-03	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404207-09	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404207-13	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404207-15	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404207-17	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
4E08017-BLK1		QC	05/08/2014	25	25					NA	
4E08017-BS1		QC	05/08/2014	5	25	13L0375		5000		NA	
4E08017-MS1		QC	05/08/2014	22.5	25	13L0375	1404168-01	2500		NA	

PREPARATION BENCH SHEET

4E08017

Empirical Laboratories, LLC

Printed: 5/13/2014 2:25:14PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E08017-MSD1		QC	05/08/2014	22.5	25	13L0375	1404168-01	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4E13320

Empirical Laboratories, LLC

Printed: 5/27/2014 3:49:45PM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404168-01	G	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	Added for BatchQC in: 4E13320
1404168-01	G	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	MS/MSD
1404168-01	G	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Added for BatchQC in: 4E13320
1404168-03	D	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	see versions
1404203-01	D	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	see versions
1404205-01	A	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	see versions
1405096-04	B	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	see versions
1405097-01	A	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Added for BatchQC in: 4E13320
1405097-01	A	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	see version
1405097-01	A	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	Added for BatchQC in: 4E13320
1405097-02	A	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	see version
1405098-02	F	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	SO4
1405098-02	F	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	
1405098-03	F	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	SO4
1405098-03	F	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	
1405098-04	F	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	
1405098-04	F	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	SO4
1405098-05	F	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	SO4
1405098-05	F	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	
1405098-06	F	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	SO4
1405098-06	F	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	
1405099-01	A	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	see version sulfate and Chloride

PREPARATION BENCH SHEET

4E13320

Empirical Laboratories, LLC

Printed: 5/27/2014 3:49:45PM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1405099-01	A	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	See version
1405099-02	A	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	see version sulfate and Chloride
1405099-02	A	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	See version
1405099-03	A	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	see version sulfate and Chloride
1405099-03	A	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	See version
4E13320-BLK1		QC	05/13/2014	5	5					NA	
4E13320-BS1		QC	05/13/2014	5	5	14E0088		5000		NA	
4E13320-DUP1		QC	05/13/2014	5	5		1405097-01			NA	
4E13320-DUP2		QC	05/13/2014	5	5		1404168-01			NA	
4E13320-MS1		QC	05/13/2014	22.5	25	14D0880	1405097-01	2500		NA	
4E13320-MS2		QC	05/13/2014	22.5	25	14D0880	1404168-01	2500		NA	
4E13320-MSD1		QC	05/13/2014	22.5	25	14D0880	1405097-01	2500		NA	
4E13320-MSD2		QC	05/13/2014	22.5	25	14D0880	1404168-01	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4E15013

Empirical Laboratories, LLC

Printed: 5/23/2014 3:49:59PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404149-01	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404149-03	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404149-05	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404168-01	L	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	MS/MSD
1404168-03	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404168-03RE1	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	Added 5/15/2014 by RGB
1404203-01	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404205-01	C	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404205-01RE1	C	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	Added 5/15/2014 by RGB
1404207-01	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-03	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-05	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-07	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-09	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-11	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-13	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-15	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-17	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1405054-01	A	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1405054-03	A	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1405054-03RE1	A	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	Added 5/15/2014 by RGB
1405057-01	A	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	

PREPARATION BENCH SHEET

4E15013

Empirical Laboratories, LLC

Printed: 5/23/2014 3:49:59PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E15013-BLK1		QC	05/15/2014	20	20					NA	
4E15013-BS1		QC	05/15/2014	2	20	14A0409		2000		NA	
4E15013-MS1		QC	05/15/2014	4	20	14B0358	1404168-01	500		NA	
4E15013-MSD1		QC	05/15/2014	4	20	14B0358	1404168-01	500		NA	

Reagents Used:

Standard	Description
14D0740	NO2/NO3 Sulfanilimide Color Reagent
14D0864	NO2/NO3 Buffer
14E0119	NO3/NO2 Carrier (Acid DI)

Subcontractor Data Package

May 13, 2014

Ms. Maryanne Walker
Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228

Re:	ALS Workorder:	14-04-392
	Project Name:	Kirtland AFB
	Project Number:	150577

Dear Ms. Walker:

Three water samples were received from Empirical Laboratories, LLC on April 23, 2014. The samples were scheduled for the following analyses:

Radium-226	pages 1-20
Radium-228	pages 1-18
Gross Alpha/Beta	pages 1-21

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Julie Ellingson
Project Manager

JME/mlc
Enclosure (s): CD

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404392
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30005	1404392-1		WATER	21-Apr-14	10:56
LF008-30006	1404392-2		WATER	21-Apr-14	10:56
LF008-30007	1404392-3		WATER	21-Apr-14	15:26

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-314

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 22 APR 2014
Lab Destination: ~~Empirical Laboratories, Inc.~~ TN ALSSL
Lab Contact: ~~Jennifer Chandler~~ TN Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371070

Bill To: 1404392

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) TN Vogel/Shaw — Date: 4/22/14 Time: 1600
2. Relinquished By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation) ALS — Date: 4/23/14 Time: 0945
2. Received By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF008-30005 (1)	KAFB0313-GW-LF008-30005-REG	21 APR 2014	10:56	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30006 (2)	KAFB0313-GW-LF008-30006-FD	21 APR 2014	10:56	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30007 (3)	KAFB0314-GW-LF008-30007-REG	21 APR 2014	15:26	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Shaw Workorder No: 1404392

Project Manager: JME Initials: JRR Date: 4/23/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		YES	(NO)
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	(RAD ONLY)	YES	(NO)

Cooler #:	1							
Temperature (°C):	AMB							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-23-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

1404392

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J121312100/0225

Ship Date: 22APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

10-2

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

WED - 23 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 1070

XH FTCA

80524
CO-US
DEN

512C1/C4FF/CF0D

RAD

Gross Alpha/Beta

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404392

1. This report consists of the analytical results for three water samples received by ALS on 04/23/14.

2. The samples were prepared according to the current revision of SOP 702. Standard Operating Procedure 702 is compliant with method SW846-9310.

3. The samples were analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. The analyses were completed on 04/26/14. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. Gross beta activity is reported in the method blank above the achieved minimum detectable concentration value, as indicated with a “B3” qualifier on the final reports. The measured blank activity is below the requested MDC of 4 pCi/L. Results are acceptable according to the current revision of SOP 715, and are submitted without further qualification.

6. No further anomalous situations were encountered during the preparation or analysis of these samples. All remaining quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Emily Knodel — 4/29/14
Emily Knodel — Date
Radiochemistry Primary Data Reviewer

Julie Ellis — 5/13/14
Radiochemistry Final Data Reviewer — Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404392
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30005	1404392-1		WATER	21-Apr-14	10:56
LF008-30006	1404392-2		WATER	21-Apr-14	10:56
LF008-30007	1404392-3		WATER	21-Apr-14	15:26

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-314

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 22 APR 2014
Lab Destination: ~~Empirical Laboratories, Inc.~~ TN ALSSL
Lab Contact: ~~Jennifer Chandler~~ TN Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371070

Bill To: 1404392

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) TN Vogel/Shaw — Date: 4/22/14 Time: 1600
2. Relinquished By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation) ALS — Date: 4/23/14 Time: 0945
2. Received By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF008-30005 (1)	KAFB0313-GW-LF008-30005-REG	21 APR 2014	10:56	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30006 (2)	KAFB0313-GW-LF008-30006-FD	21 APR 2014	10:56	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30007 (3)	KAFB0314-GW-LF008-30007-REG	21 APR 2014	15:26	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Shaw Workorder No: 1404392

Project Manager: JME Initials: JRR Date: 4/23/14

1.	Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2.	Are custody seals on shipping containers intact?	NONE	(YES)	NO
3.	Are Custody seals on sample containers intact?	(NONE)	YES	NO
4.	Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5.	Are the COC and bottle labels complete and legible?		(YES)	NO
6.	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7.	Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8.	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9.	Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10.	Is there sufficient sample for the requested analyses?		(YES)	NO
11.	Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12.	Are all samples within holding times for the requested analyses?		(YES)	NO
13.	Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15.	Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____heavy	N/A	YES	(NO)
16.	Were the samples shipped on ice?		YES	(NO)
17.	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	(RAD ONLY)	YES	(NO)

Cooler #:	1							
Temperature (°C):	AMB							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance information — External µR/hr reading:	10							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-23-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

1404392

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J121312100[illegible]225

Ship Date: 22APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

Ref #
Invoice #
PO #
Dept #

10
2

WED - 23 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 1070

XH FTCA

80524
CO-US
DEN

512C1/C4FF/CF80

RAD

Section 2

❷

SAMPLE RESULTS SUMMARY

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404392

Reported on: Tuesday, April 29, 2014
9:16:04 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404392-1	LF008-30005	Sample	GROSS ALPHA	3.6 +/- 1.4	1.9	pCi/l	WATER	AB140424-1	4/25/2014	
1404392-1	LF008-30005	Sample	GROSS BETA	2.7 +/- 1.4	2.6	pCi/l	WATER	AB140424-1	4/25/2014	LT
1404392-2	LF008-30006	Sample	GROSS ALPHA	4.2 +/- 1.9	2.8	pCi/l	WATER	AB140424-1	4/25/2014	
1404392-2	LF008-30006	Sample	GROSS BETA	3.2 +/- 1.3	2.4	pCi/l	WATER	AB140424-1	4/25/2014	LT
1404392-3	LF008-30007	Sample	GROSS ALPHA	3.0 +/- 1.1	1.5	pCi/l	WATER	AB140424-1	4/25/2014	LT
1404392-3	LF008-30007	Sample	GROSS BETA	3.4 +/- 1.3	1.8	pCi/l	WATER	AB140424-1	4/25/2014	LT

Comments:

Data Package ID: *AB1404392-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140424-1MB

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 24-Apr-14
Date Prepared: 24-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: AB140424-1
QCBatchID: AB140424-1-2
Run ID: AB140424-1A
Count Time: 1000 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABC0425

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.26 +/- 0.47	0.79	3	U
12587-47-2	GROSS BETA	1.26 +/- 0.68	1.05	4	B3

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404392-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140424-1LCS

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 24-Apr-14
Date Prepared: 24-Apr-14
Date Analyzed: 26-Apr-14

Prep Batch: AB140424-1
QCBatchID: AB140424-1-2
Run ID: AB140424-1A
Count Time: 120 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABC0426

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
12587-46-1	GROSS ALPHA	203 +/- 34	3	206.8	98.2	70 - 130	P,M3
12587-47-2	GROSS BETA	219 +/- 36	6	216.4	101	70 - 130	P,M3

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *AB1404392-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30005
Lab ID: 1404392-1DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 21-Apr-14
Date Prepared: 24-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: AB140424-1
QCBatchID: AB140424-1-2
Run ID: AB140424-1A
Count Time: 240 minutes
Report Basis: Unfiltered

Final Aliquot: 170 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0425A

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
12587-46-1	GROSS ALPHA	3.6 +/- 1.4	1.9		3.9 +/- 1.5	2.0		0.106	2.13
12587-47-2	GROSS BETA	2.7 +/- 1.4	2.6	LT	3.1 +/- 1.4	2.6	LT	0.205	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *AB1404392-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF008-30005
Lab ID:	1404392-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 21-Apr-14
Date Prepared: 24-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: AB140424-1
QCBatchID: AB140424-1-2
Run ID: AB140424-1A
Count Time: 240 minutes
Report Basis: Unfiltered

Final Aliquot: 170 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0425A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.6 +/- 1.4	1.9	3	
12587-47-2	GROSS BETA	2.7 +/- 1.4	2.6	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404392-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Duplicate Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF008-30005
Lab ID:	1404392-1DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 21-Apr-14
Date Prepared: 24-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: AB140424-1
QCBatchID: AB140424-1-2
Run ID: AB140424-1A
Count Time: 240 minutes
Report Basis: Unfiltered

Final Aliquot: 170 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0425A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.9 +/- 1.5	2.0	3	
12587-47-2	GROSS BETA	3.1 +/- 1.4	2.6	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404392-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF008-30006
Lab ID:	1404392-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 21-Apr-14
Date Prepared: 24-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: AB140424-1
QCBatchID: AB140424-1-2
Run ID: AB140424-1A
Count Time: 240 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0425A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	4.2 +/- 1.9	2.8	3	
12587-47-2	GROSS BETA	3.2 +/- 1.3	2.4	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404392-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF008-30007
Lab ID:	1404392-3

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 21-Apr-14
Date Prepared: 24-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: AB140424-1
QCBatchID: AB140424-1-2
Run ID: AB140424-1A
Count Time: 1000 minutes
Report Basis: Unfiltered

Final Aliquot: 110 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0425

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.0 +/- 1.1	1.5	3	LT
12587-47-2	GROSS BETA	3.4 +/- 1.3	1.8	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404392-1*

Section 5

RAW DATA

5

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404392

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Monday, April 28, 2014
12:28:30 PM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404392-1	GROSS ALPHA	4/21/2014	AB140424-1	NA	NA	WATER	170 ml	LB4100-C	AB140424-1A	4/25/2014	0.329	22.84%	240	3.6	1.9	pCi/l	NA	
SMP	Trg. Analyte	10:56:00 AM	AB140424-1-2	NA	NA	NA	170 ml	D2	ABC0425A	5:22 PM	0.111	NA	NA	1.4	NA	Unfiltered	NA	
1404392-1	GROSS BETA	4/21/2014	AB140424-1	NA	NA	WATER	170 ml	LB4100-C	AB140424-1A	4/25/2014	2.058	42.96%	240	2.7	2.6	pCi/l	NA	
SMP	Trg. Analyte	10:56:00 AM	AB140424-1-2	NA	NA	NA	170 ml	D2	ABC0425A	5:22 PM	1.591	NA	NA	1.4	NA	Unfiltered	NA	LT
1404392-1	GROSS ALPHA	4/21/2014	AB140424-1	NA	NA	WATER	170 ml	LB4100-C	AB140424-1A	4/25/2014	0.317	21.67%	240	3.9	2.0	pCi/l	0.11	
DUP	Trg. Analyte	10:56:00 AM	AB140424-1-2	NA	NA	NA	170 ml	D3	ABC0425A	5:22 PM	0.106	NA	NA	1.5	NA	Unfiltered	NA	
1404392-1	GROSS BETA	4/21/2014	AB140424-1	NA	NA	WATER	170 ml	LB4100-C	AB140424-1A	4/25/2014	2.113	43.43%	240	3.1	2.6	pCi/l	0.20	
DUP	Trg. Analyte	10:56:00 AM	AB140424-1-2	NA	NA	NA	170 ml	D3	ABC0425A	5:22 PM	1.581	NA	NA	1.4	NA	Unfiltered	NA	LT
1404392-2	GROSS ALPHA	4/21/2014	AB140424-1	NA	NA	WATER	200 ml	LB4100-C	AB140424-1A	4/25/2014	0.267	21.10%	240	4.2	2.8	pCi/l	NA	
SMP	Trg. Analyte	10:56:00 AM	AB140424-1-2	NA	NA	NA	200 ml	D4	ABC0425A	5:22 PM	0.103	NA	NA	1.9	NA	Unfiltered	NA	
1404392-2	GROSS BETA	4/21/2014	AB140424-1	NA	NA	WATER	200 ml	LB4100-C	AB140424-1A	4/25/2014	2.300	43.75%	240	3.2	2.4	pCi/l	NA	
SMP	Trg. Analyte	10:56:00 AM	AB140424-1-2	NA	NA	NA	200 ml	D4	ABC0425A	5:22 PM	1.702	NA	NA	1.3	NA	Unfiltered	NA	LT
1404392-3	GROSS ALPHA	4/21/2014	AB140424-1	NA	NA	WATER	110 ml	LB4100-C	AB140424-1A	4/25/2014	0.224	22.27%	1000	3.0	1.5	pCi/l	NA	
SMP	Trg. Analyte	3:26:00 PM	AB140424-1-2	NA	NA	NA	110 ml	A4	ABC0425	4:14 PM	0.118	NA	NA	1.1	NA	Unfiltered	NA	LT
1404392-3	GROSS BETA	4/21/2014	AB140424-1	NA	NA	WATER	110 ml	LB4100-C	AB140424-1A	4/25/2014	1.959	44.94%	1000	3.4	1.8	pCi/l	NA	
SMP	Trg. Analyte	3:26:00 PM	AB140424-1-2	NA	NA	NA	110 ml	A4	ABC0425	4:14 PM	1.579	NA	NA	1.3	NA	Unfiltered	NA	LT
AB140424-1	GROSS ALPHA	4/24/2014	AB140424-1	NA	NA	WATER	200 ml	LB4100-C	AB140424-1A	4/25/2014	0.163	22.37%	1000	0.26	0.79	pCi/l	NA	
MB	Trg. Analyte	1:58:26 PM	AB140424-1-2	NA	NA	NA	200 ml	B2	ABC0425	4:14 PM	0.143	NA	NA	0.47	NA	Unfiltered	NA	U
AB140424-1	GROSS BETA	4/24/2014	AB140424-1	NA	NA	WATER	200 ml	LB4100-C	AB140424-1A	4/25/2014	1.818	42.65%	1000	1.26	1.05	pCi/l	NA	
MB	Trg. Analyte	1:58:26 PM	AB140424-1-2	NA	NA	NA	200 ml	B2	ABC0425	4:14 PM	1.588	NA	NA	0.68	NA	Unfiltered	NA	B3
AB140424-1	GROSS ALPHA	4/24/2014	AB140424-1	NA	NA	WATER	200 ml	LB4100-C	AB140424-1A	4/26/2014	14.517	21.33%	120	203	3	pCi/l	NA	98.2
LCS	Trg. Analyte	1:58:26 PM	AB140424-1-2	NA	NA	NA	200 ml	C4	ABC0426	10:28 AM	0.150	NA	NA	34	NA	Unfiltered	NA	P,M3

Comments:

Data Package ID: *AB1404392-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

20 3 21

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404392

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Monday, April 28, 2014
12:28:30 PM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
AB140424-1	GROSS BETA	4/24/2014	AB140424-1	NA	NA	WATER	200 ml	LB4100-C	AB140424-1A	4/26/2014	46.833	43.70%	120	219	6	pCi/l	NA	101
LCS	Trg. Analyte	1:58:26 PM	AB140424-1-2	NA	NA	NA	200 ml	C4	ABC0426	10:28 AM	2.778	NA	NA	36	NA	Unfiltered	NA	P,M3

Comments:

Data Package ID: *AB1404392-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

21 of 21

Radium-226

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404392

1. This report consists of the analytical results for three water samples received by ALS on 04/23/2014.

2. These samples were prepared according to the current revision of SOP 712. This SOP is compliant with method SW846-9315.

3. These samples were analyzed for the presence of ^{226}Ra according to the current revision of SOP 724. This SOP is compliant with method SW846-9315. The analyses were completed on 04/25/2014.

4. This test is a screen for ^{226}Ra and could show high bias in sample results if other alpha emitting isotopes of radium are contained in the samples (esp.^{224}Ra and ^{223}Ra).

5. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

6. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.

7. ALS uses the following convention for reporting significant digits in the TPU and MDC results. The TPU value is rounded to two significant digits. The MDC value is rounded to the same decimal place as the TPU value. In practice, this could result in an MDC reported value of zero for samples with significant activity, including the batch laboratory control sample.

8. No anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Jean Anderson — 5/12/14

Jean Anderson
Radiochemistry Primary Data Reviewer

Date

Julie Ellis — 5/13/14

Radiochemistry Final Data Reviewer

Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404392
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30005	1404392-1		WATER	21-Apr-14	10:56
LF008-30006	1404392-2		WATER	21-Apr-14	10:56
LF008-30007	1404392-3		WATER	21-Apr-14	15:26

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-314

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 22 APR 2014
Lab Destination: ~~Empirical Laboratories, Inc.~~ TN ALSSL
Lab Contact: ~~Jennifer Chandler~~ TN Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371070

Bill To: 1404392

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) TN Vogel/Shaw — Date: 4/22/14 Time: 1600
2. Relinquished By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation) ALS — Date: 4/23/14 Time: 0945
2. Received By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF008-30005 (1)	KAFB0313-GW-LF008-30005-REG	21 APR 2014	10:56	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30006 (2)	KAFB0313-GW-LF008-30006-FD	21 APR 2014	10:56	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30007 (3)	KAFB0314-GW-LF008-30007-REG	21 APR 2014	15:26	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Shaw Workorder No: 1404392

Project Manager: JME Initials: JRR Date: 4/23/14

1.	Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2.	Are custody seals on shipping containers intact?	NONE	(YES)	NO
3.	Are Custody seals on sample containers intact?	(NONE)	YES	NO
4.	Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5.	Are the COC and bottle labels complete and legible?		(YES)	NO
6.	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7.	Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8.	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9.	Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10.	Is there sufficient sample for the requested analyses?		(YES)	NO
11.	Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12.	Are all samples within holding times for the requested analyses?		(YES)	NO
13.	Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15.	Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____heavy	N/A	YES	(NO)
16.	Were the samples shipped on ice?		YES	(NO)
17.	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	(RAD ONLY)	YES	(NO)

Cooler #:	1							
Temperature (°C):	AMB							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance information — External µR/hr reading:	10							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-23-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

1404392

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J121312100[illegible]225

Ship Date: 22APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

SHIP TO: (970) 490-1511

BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

Ref #
Invoice #
PO #
Dept #

10
2

WED - 23 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 1070

XH FTCA

80524
CO-US
DEN

512C1/C4FF/CF80

RAD

Section 2

SAMPLE RESULTS SUMMARY

Ra-226 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404392

Reported on: Monday, May 12, 2014
8:40:52 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404392-1	LF008-30005	Sample	Ra-226	0.57 +/- 0.32	0.39	pCi/l	WATER	TR140423-1	4/25/2014	LT
1404392-2	LF008-30006	Sample	Ra-226	0.68 +/- 0.34	0.37	pCi/l	WATER	TR140423-1	4/25/2014	LT
1404392-3	LF008-30007	Sample	Ra-226	0.71 +/- 0.35	0.36	pCi/l	WATER	TR140423-1	4/25/2014	LT

Comments:

Data Package ID: *TR1404392-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140423-1MB

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 23-Apr-14
Date Prepared: 23-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140423-1
QCBatchID: TR140423-1-1
Run ID: TR140423-1A
Count Time: 60 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0425D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.13 +/- 0.18	0.38	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15990	14660	ug	91.7	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *TR1404392-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140423-1LCS

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 23-Apr-14
Date Prepared: 23-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140423-1
QCBatchID: TR140423-1-1
Run ID: TR140423-1A
Count Time: 60 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0425D

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	42 +/- 11	0	45.30	93.4	75 - 125	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15990	15480	ug	96.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404392-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140423-1LCSD

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 23-Apr-14
Date Prepared: 23-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140423-1
QCBatchID: TR140423-1-1
Run ID: TR140423-1A
Count Time: 60 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0425D

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	41 +/- 10	0	45.30	90.2	75 - 125	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15990	15200	ug	95.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404392-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:
Lab ID: TR140423-1LCSD

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 23-Apr-14
Date Prepared: 23-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140423-1
QCBatchID: TR140423-1-1
Run ID: TR140423-1A
Count Time: 60 minutes

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425D

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	42 +/- 11	0	P	41 +/- 10	0	P	0.0959	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *TR1404392-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30005
Lab ID: 1404392-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 21-Apr-14
Date Prepared: 23-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140423-1
QCBatchID: TR140423-1-1
Run ID: TR140423-1A
Count Time: 60 minutes
Report Basis: Unfiltered

Final Aliquot: 975 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.57 +/- 0.32	0.39	1	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16050	15310	ug	95.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404392-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30006
Lab ID: 1404392-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 21-Apr-14
Date Prepared: 23-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140423-1
QCBatchID: TR140423-1-1
Run ID: TR140423-1A
Count Time: 60 minutes
Report Basis: Unfiltered

Final Aliquot: 985 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.68 +/- 0.34	0.37	1	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16040	15650	ug	97.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404392-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30007
Lab ID: 1404392-3

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 21-Apr-14
Date Prepared: 23-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140423-1
QCBatchID: TR140423-1-1
Run ID: TR140423-1A
Count Time: 60 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.71 +/- 0.35	0.36	1	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16030	15820	ug	98.7	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404392-1*

Section 5

RAW DATA

5

Ra-226 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404392

Prep SOP: PAI 712
Analytical SOP: PAI 724

Reported on: Wednesday, April 30, 2014
3:23:10 PM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404392-1	Ra-226	4/21/2014	TR140423-1	4/24/2014	NA	WATER	980 ml	LB4100-C	TR140423-1A	4/25/2014	0.467	20.43%	60	0.57	0.39	pCi/l	NA	
SMP	Trg. Analyte	10:56:00 AM	TR140423-1-1	4:30:00 PM	NA	NA	975 ml	D2	RDC0425	3:18 PM	0.111	21.37%	95.4%	0.32	NA	Unfiltered	NA	LT
1404392-2	Ra-226	4/21/2014	TR140423-1	4/24/2014	NA	WATER	990 ml	LB4100-C	TR140423-1A	4/25/2014	0.550	20.63%	60	0.68	0.37	pCi/l	NA	
SMP	Trg. Analyte	10:56:00 AM	TR140423-1-1	4:30:00 PM	NA	NA	985 ml	D3	RDC0425	3:18 PM	0.106	21.88%	97.6%	0.34	NA	Unfiltered	NA	LT
1404392-3	Ra-226	4/21/2014	TR140423-1	4/24/2014	NA	WATER	1000 ml	LB4100-C	TR140423-1A	4/25/2014	0.567	19.87%	60	0.71	0.36	pCi/l	NA	
SMP	Trg. Analyte	3:26:00 PM	TR140423-1-1	4:30:00 PM	NA	NA	995 ml	D4	RDC0425	3:18 PM	0.103	21.90%	98.7%	0.35	NA	Unfiltered	NA	LT
TR140423-1	Ra-226	4/23/2014	TR140423-1	4/24/2014	NA	WATER	1000 ml	LB4100-C	TR140423-1A	4/25/2014	0.183	20.20%	60	0.13	0.38	pCi/l	NA	
MB	Trg. Analyte	1:47:45 PM	TR140423-1-1	4:30:00 PM	NA	NA	995 ml	C1	RDC0425D	4:15 PM	0.103	22.08%	91.7%	0.18	NA	Unfiltered	NA	U
TR140423-1	Ra-226	4/23/2014	TR140423-1	4/24/2014	NA	WATER	1000 ml	LB4100-C	TR140423-1A	4/25/2014	28.683	20.53%	60	42	0	pCi/l	NA	93.4
LCS	Trg. Analyte	1:47:45 PM	TR140423-1-1	4:30:00 PM	NA	NA	995 ml	C2	RDC0425D	4:15 PM	0.128	22.34%	96.8%	11	NA	Unfiltered	NA	P
TR140423-1	Ra-226	4/23/2014	TR140423-1	4/24/2014	NA	WATER	1000 ml	LB4100-C	TR140423-1A	4/25/2014	26.900	20.54%	60	41	0	pCi/l	0.10	90.2
LCSD	Trg. Analyte	1:47:45 PM	TR140423-1-1	4:30:00 PM	NA	NA	995 ml	C3	RDC0425D	4:15 PM	0.106	21.86%	95.0%	10	NA	Unfiltered	NA	P

Comments:

Data Package ID: *TR1404392-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

Radium-228

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404392

1. This report consists of the analytical results for three water samples received by ALS on 04/23/2014.

2. These samples were prepared according to the current revision of SOP 749. Standard Operating Procedure 749 is compliant with method SW-846 9320.

3. The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724. This SOP is compliant with method SW-846 9320. The analyses were completed on 05/08/2014.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. ICP-AES measurement of barium concentrations prior to chemical separation for all associated QC samples showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

6. No further anomalous situations were noted during the preparation and analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Jean Anderson — 5/12/14

Jean Anderson
Radiochemistry Primary Data Reviewer

Date

Julie Ellzey — 5/13/14

Radiochemistry Final Data Reviewer

Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404392
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30005	1404392-1		WATER	21-Apr-14	10:56
LF008-30006	1404392-2		WATER	21-Apr-14	10:56
LF008-30007	1404392-3		WATER	21-Apr-14	15:26

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-314
Page 1 of 1

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 22 APR 2014
Lab Destination: ~~Empirical Laboratories, Inc.~~ TN ALSSL
Lab Contact: ~~Jennifer Chandler~~ TN Julie Ellingson
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371070

Bill To: 1404392

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) TN Vogel/Shaw Date: 4/22/14 Time: 1600
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) ALS Date: 4/23/14 Time: 0945
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF008-30005 (1)	KAFB0313-GW-LF008-30005-REG	21 APR 2014	10:56	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30006 (2)	KAFB0313-GW-LF008-30006-FD	21 APR 2014	10:56	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30007 (3)	KAFB0314-GW-LF008-30007-REG	21 APR 2014	15:26	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Shaw Workorder No: 1404392

Project Manager: JME Initials: JRR Date: 4/23/14

1. Does this project require any special handling in addition to standard ALS procedures?			YES	(NO)
2. Are custody seals on shipping containers intact?	NONE		(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)		YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?			(YES)	NO
5. Are the COC and bottle labels complete and legible?			(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)			(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF		(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A		(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)		YES	NO
10. Is there sufficient sample for the requested analyses?			(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?			(YES)	NO
12. Are all samples within holding times for the requested analyses?			(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)			(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)		YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____heavy	N/A		YES	(NO)
16. Were the samples shipped on ice?			YES	(NO)
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	(RAD ONLY)		YES	(NO)

Cooler #:	1							
Temperature (°C):	AMB							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance information — External µR/hr reading:	10							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4-23-14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

1404392

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J121312100[illegible]225

Ship Date: 22APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

Delivery Address Bar Code

SHIP TO: (970) 490-1511

BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

Ref #
Invoice #
PO #
Dept #

10
2

WED - 23 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 1070

XH FTCA

80524
CO-US
DEN

512C1/C4FF/CF80

RAD

Section 2

❷

SAMPLE RESULTS SUMMARY

Radium-228 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404392

Reported on: Monday, May 12, 2014
8:47:06 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404392-1	LF008-30005	Sample	Ra-228	0.31 +/- 0.24	0.49	pCi/l	WATER	RA140502-1	5/8/2014	U
1404392-2	LF008-30006	Sample	Ra-228	0.35 +/- 0.25	0.50	pCi/l	WATER	RA140502-1	5/8/2014	U
1404392-3	LF008-30007	Sample	Ra-228	0.28 +/- 0.24	0.48	pCi/l	WATER	RA140502-1	5/8/2014	U

Comments:

Data Package ID: *RA1404392-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140502-1MB

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 05-May-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.39 +/- 0.31	0.62	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34110	30000	ug	88.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *RA1404392-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140502-1LCS

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 05-May-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0508

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	8.2 +/- 2.0	1.0	8.807	93.5	70 - 130	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34110	16610	ug	48.7	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *RA1404392-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF008-30005
Lab ID:	1404392-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 21-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.31 +/- 0.24	0.49	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34140	32500	ug	95.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404392-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF008-30006
Lab ID:	1404392-2

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 21-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.35 +/- 0.25	0.50	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34140	32300	ug	94.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404392-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30007
Lab ID: 1404392-3

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 21-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.28 +/- 0.24	0.48	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34130	32000	ug	93.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404392-1*

Section 5

RAW DATA

5

Radium-228 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404392

Prep SOP: SOP749
Analytical SOP: PAI 724

Reported on: Friday, May 09, 2014
11:06:23 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404392-1	Ra-228	4/21/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-C	RA140502-1A	5/8/2014	1.975	52.23%	120	0.31	0.49	pCi/l	NA	
SMP	Trg. Analyte	10:56:00 AM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	C2	RAC0508	12:37 PM	1.616	NA	95.2%	0.24	NA	Unfiltered	NA	U
1404392-2	Ra-228	4/21/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-C	RA140502-1A	5/8/2014	2.133	53.01%	120	0.35	0.50	pCi/l	NA	
SMP	Trg. Analyte	10:56:00 AM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	C3	RAC0508	12:37 PM	1.727	NA	94.6%	0.25	NA	Unfiltered	NA	U
1404392-3	Ra-228	4/21/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-C	RA140502-1A	5/8/2014	2.000	54.57%	120	0.28	0.48	pCi/l	NA	
SMP	Trg. Analyte	3:26:00 PM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	D1	RAC0508	12:37 PM	1.670	NA	93.8%	0.24	NA	Unfiltered	NA	U
RA140502-1	Ra-228	5/5/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-A	RA140502-1A	5/8/2014	2.383	48.63%	120	0.39	0.62	pCi/l	NA	
MB	Trg. Analyte	1:39:31 PM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	B1	RAA0508	12:37 PM	1.989	NA	88.0%	0.31	NA	Unfiltered	NA	U
RA140502-1	Ra-228	5/5/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-A	RA140502-1A	5/8/2014	6.883	53.93%	120	8.2	1.0	pCi/l	NA	93.5
LCS	Trg. Analyte	1:39:31 PM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	B2	RAA0508	12:37 PM	1.823	NA	48.7%	2.0	NA	Unfiltered	NA	P

Comments:

Data Package ID: *RA1404392-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
+ - Duplicate RPD not within limits.
LT - Result is less than Request MDC, greater than sample specific MDC
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits
NC - Not Calculated for duplicate results less than 5 times MDC
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).
2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte
TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
DER - Duplicate Error Ratio
BDL - Below Detection Limit

May 16, 2014

Ms. Maryanne Walker
Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228

Re:	ALS Workorder:	14-04-448
	Project Name:	Kirtland AFB
	Project Number:	150577

Dear Ms. Walker:

Two water samples were received from Empirical Laboratories, LLC on April 25, 2014. The samples were scheduled for the following analyses:

Radium-226	pages 1-19
Radium-228	pages 1-19
Gross Alpha/Beta	pages 1-20

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Julie Ellingson
Project Manager

JME/mlc
Enclosure (s): CD

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 . PHONE +1 970 490 1511 · FAX +1 970 490 1522
ALS GROUP USA, CORP. Part of the ALS Laboratory Group An ALS Limited Company

www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404448
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30002	1404448-1		WATER	24-Apr-14	13:46
LF008-30004	1404448-2		WATER	24-Apr-14	15:51

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404448

Reference Document No: 150577-312

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 24 APR 2014
Lab Destination: ALSSL
Lab Contact:
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371150

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) N Vogel/Shaw — Date: 4/24/14 Time: 1600
1. Received By (Signature/Affiliation) C Trumble/ALS — Date: 4-25-14 Time: 0935
2. Relinquished By (Signature/Affiliation) — Date: Time:
2. Received By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF008-30002	KAFB0310-GW-LF008-30002-REG	24 APR 2014	13:46	1 L HDPE	4 ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30002-MS	KAFB0310-GW-LF008-30002-MS-MS	24 APR 2014	13:46	1 L HDPE	4 ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30002-MSD	KAFB0310-GW-LF008-30002-MSD-MSD	24 APR 2014	13:46	1 L HDPE	4 ~~2~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30004	KAFB0312-GW-LF008-30004-REG	23 APR 2014	15:51	1 L HDPE	~~4~~	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Shaw Workorder No: 1404448

Project Manager: JE Initials: CDT Date: 4-25-14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	NO
2. Are custody seals on shipping containers intact?	NONE	YES	NO
3. Are Custody seals on sample containers intact?	NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		YES	NO
5. Are the COC and bottle labels complete and legible?		YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		YES	NO
12. Are all samples within holding times for the requested analyses?		YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	NO
16. Were the samples shipped on ice?		YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES	NO

Cooler #:	1							
Temperature (°C):	7.2							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

Cooling not needed for these tests

If applicable, was the client contacted? **YES / NO / NA** Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/25/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J1213121006025

Ship Date: 24APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

1404448

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511

BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

7.2

FRI - 25 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 1150

80524
CO-US
DEN

XH FTCA

512C1/C4FHA/HBD

RAD

Gross Alpha/Beta

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404448

1. This report consists of the analytical results for two water samples received by ALS on 04/25/2014.

2. These samples were prepared according to the current revision of SOP 702. This SOP is compliant with method SW-846 9310.

3. The samples were analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. This SOP is compliant with method SW-846 9310. The analyses were completed on 05/01/2014. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. No anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Jean Anderson — 5/12/14

Jean Anderson
Radiochemistry Primary Data Reviewer

Date

Radiochemistry Final Data Reviewer — 05/16/14

Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404448
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30002	1404448-1		WATER	24-Apr-14	13:46
LF008-30004	1404448-2		WATER	24-Apr-14	15:51

RAD

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Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404448

Reference Document No: 150577-312

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 24 APR 2014
Lab Destination: ALSSL
Lab Contact:
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371150

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Unknown Radiological

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) Roger Shaw — Date: 4/24/14 Time: 1600
1. Received By (Signature/Affiliation) C Trimble/ALS — Date: 4-25-14 Time: 0935
2. Relinquished By (Signature/Affiliation) — Date: Time:
2. Received By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF008-30002	KAFB0310-GW-LF008-30002-REG	24 APR 2014	13:46	1 L HDPE	~~4~~ 2 TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30002-MS	KAFB0310-GW-LF008-30002-MS-MS	24 APR 2014	13:46	1 L HDPE	~~4~~ 2 TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30002-MS	KAFB0310-GW-LF008-30002-MSD-MSD	24 APR 2014	13:46	1 L HDPE	~~4~~ 2 TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30004	KAFB0312-GW-LF008-30004-REG	23 APR 2014	15:51	1 L HDPE	~~4~~ 2 TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Shaw Workorder No: 1404448

Project Manager: JE Initials: CDS Date: 4-25-14

1.	Does this project require any special handling in addition to standard ALS procedures?		YES	NO
2.	Are custody seals on shipping containers intact?	NONE	YES	NO
3.	Are Custody seals on sample containers intact?	NONE	YES	NO
4.	Is there a COC (Chain-of-Custody) present or other representative documents?		YES	NO
5.	Are the COC and bottle labels complete and legible?		YES	NO
6.	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	NO
7.	Were airbills / shipping documents present and/or removable?	DROP OFF	YES	NO
8.	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	YES	NO
9.	Are all aqueous non-preserved samples pH 4-9?	N/A	YES	NO
10.	Is there sufficient sample for the requested analyses?		YES	NO
11.	Were all samples placed in the proper containers for the requested analyses?		YES	NO
12.	Are all samples within holding times for the requested analyses?		YES	NO
13.	Were all sample containers received intact? (not broken or leaking, etc.)		YES	NO
14.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	N/A	YES	NO
15.	Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	NO
16.	Were the samples shipped on ice?		YES	NO
17.	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES	NO

Cooler #:	1							
Temperature (°C):	7.2							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
DOT Survey/ Acceptance Information — Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

Cooling not needed for these tests

If applicable, was the client contacted? **YES / NO / NA** Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/25/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J1213121006/025

Ship Date: 24APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

1404448

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511
JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

BILL SENDER

7.2

FRI - 25 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 1150

80524
CO-US
DEN

XH FTCA

512C1/C4FH/JF6D

RAD

Section 2

❷

SAMPLE RESULTS SUMMARY

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404448

Reported on: Monday, May 12, 2014
3:20:28 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404448-1	LF008-30002	Sample	GROSS ALPHA	1.8 +/- 1.2	2.1	pCi/l	WATER	AB140428-2	5/1/2014	U
1404448-1	LF008-30002	Sample	GROSS BETA	2.1 +/- 1.3	2.3	pCi/l	WATER	AB140428-2	5/1/2014	U
1404448-2	LF008-30004	Sample	GROSS ALPHA	3.9 +/- 2.0	2.8	pCi/l	WATER	AB140428-2	4/30/2014	
1404448-2	LF008-30004	Sample	GROSS BETA	2.1 +/- 1.7	3.4	pCi/l	WATER	AB140428-2	4/30/2014	U

Comments:

Data Package ID: *AB1404448-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140428-2MB

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 28-Apr-14
Date Prepared: 28-Apr-14
Date Analyzed: 29-Apr-14

Prep Batch: AB140428-2
QCBatchID: AB140428-2-2
Run ID: AB140428-2A
Count Time: 1000 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABC0429C

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	-0.24 +/- 0.38	0.68	3	U
12587-47-2	GROSS BETA	-0.49 +/- 0.63	1.05	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *AB1404448-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140428-2LCS

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 28-Apr-14
Date Prepared: 28-Apr-14
Date Analyzed: 30-Apr-14

Prep Batch: AB140428-2
QCBatchID: AB140428-2-2
Run ID: AB140428-2A
Count Time: 120 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABC0430A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
12587-46-1	GROSS ALPHA	202 +/- 34	3	206.8	97.7	70 - 130	P,M3
12587-47-2	GROSS BETA	218 +/- 35	6	216.3	101	70 - 130	P,M3

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *AB1404448-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Matrix Spike Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1MS

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 24-Apr-14
Date Prepared: 28-Apr-14
Date Analyzed: 30-Apr-14

Prep Batch: AB140428-2
QCBatchID: AB140428-2-2
Run ID: AB140428-2A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 150 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0430A

CASNO	Target Nuclide	Matrix Spike	Sample Results	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
12587-46-1	GROSS ALPHA	286	1.8	5	276	103	70 - 130	P,M3
12587-47-2	GROSS BETA	308	2.1	7	288	106	70 - 130	P,M3

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

N - Matrix Spike Recovery outside control limits

P - Matrix Spike Recovery within control limits

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

MDC - Minimum Detectable Concentration

Data Package ID: *AB1404448-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 24-Apr-14
Date Prepared: 28-Apr-14
Date Analyzed: 01-May-14

Prep Batch: AB140428-2
QCBatchID: AB140428-2-2
Run ID: AB140428-2A
Count Time: 400 minutes
Report Basis: Unfiltered

Final Aliquot: 150 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0501A

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
12587-46-1	GROSS ALPHA	1.8 +/- 1.2	2.1	U	2.6 +/- 1.2	1.9	LT	0.459	2.13
12587-47-2	GROSS BETA	2.1 +/- 1.3	2.3	U	1.2 +/- 1.2	2.4	U	0.528	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *AB1404448-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 24-Apr-14
Date Prepared: 28-Apr-14
Date Analyzed: 01-May-14

Prep Batch: AB140428-2
QCBatchID: AB140428-2-2
Run ID: AB140428-2A
Count Time: 400 minutes
Report Basis: Unfiltered

Final Aliquot: 150 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0501A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	1.8 +/- 1.2	2.1	3	U
12587-47-2	GROSS BETA	2.1 +/- 1.3	2.3	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404448-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Duplicate Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 24-Apr-14
Date Prepared: 28-Apr-14
Date Analyzed: 01-May-14

Prep Batch: AB140428-2
QCBatchID: AB140428-2-2
Run ID: AB140428-2A
Count Time: 400 minutes
Report Basis: Unfiltered

Final Aliquot: 150 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0501A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	2.6 +/- 1.2	1.9	3	LT
12587-47-2	GROSS BETA	1.2 +/- 1.2	2.4	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404448-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30004
Lab ID: 1404448-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 24-Apr-14
Date Prepared: 28-Apr-14
Date Analyzed: 30-Apr-14

Prep Batch: AB140428-2
QCBatchID: AB140428-2-2
Run ID: AB140428-2A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 190 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0430A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.9 +/- 2.0	2.8	3	
12587-47-2	GROSS BETA	2.1 +/- 1.7	3.4	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404448-1*

Section 5

RAW DATA

5

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404448

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Friday, May 02, 2014
12:11:32 PM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404448-1	GROSS ALPHA	4/24/2014	AB140428-2	NA	NA	WATER	150 ml	LB4100-C	AB140428-2A	5/1/2014	0.225	22.37%	400	1.8	2.1	pCi/l	NA	
SMP	Trg. Analyte	1:46:00 PM	AB140428-2-2	NA	NA	NA	150 ml	B2	ABC0501A	12:05 PM	0.143	NA	NA	1.2	NA	Unfiltered	NA	U
1404448-1	GROSS BETA	4/24/2014	AB140428-2	NA	NA	WATER	150 ml	LB4100-C	AB140428-2A	5/1/2014	1.888	42.65%	400	2.1	2.3	pCi/l	NA	
SMP	Trg. Analyte	1:46:00 PM	AB140428-2-2	NA	NA	NA	150 ml	B2	ABC0501A	12:05 PM	1.588	NA	NA	1.3	NA	Unfiltered	NA	U
1404448-1	GROSS ALPHA	4/24/2014	AB140428-2	NA	NA	WATER	150 ml	LB4100-C	AB140428-2A	5/1/2014	0.218	21.48%	400	2.6	1.9	pCi/l	0.46	
DUP	Trg. Analyte	1:46:00 PM	AB140428-2-2	NA	NA	NA	150 ml	B3	ABC0501A	12:05 PM	0.105	NA	NA	1.2	NA	Unfiltered	NA	LT
1404448-1	GROSS BETA	4/24/2014	AB140428-2	NA	NA	WATER	150 ml	LB4100-C	AB140428-2A	5/1/2014	1.890	43.01%	400	1.2	2.4	pCi/l	0.53	
DUP	Trg. Analyte	1:46:00 PM	AB140428-2-2	NA	NA	NA	150 ml	B3	ABC0501A	12:05 PM	1.703	NA	NA	1.2	NA	Unfiltered	NA	U
1404448-1	GROSS ALPHA	4/24/2014	AB140428-2	NA	NA	WATER	150 ml	LB4100-C	AB140428-2A	4/30/2014	12.725	21.67%	120	286	5	pCi/l	NA	103
MS	Trg. Analyte	1:46:00 PM	AB140428-2-2	NA	NA	NA	150 ml	D3	ABC0430A	10:16 AM	0.106	NA	NA	48	NA	Unfiltered	NA	P,M3
1404448-1	GROSS BETA	4/24/2014	AB140428-2	NA	NA	WATER	150 ml	LB4100-C	AB140428-2A	4/30/2014	46.375	43.43%	120	308	7	pCi/l	NA	106
MS	Trg. Analyte	1:46:00 PM	AB140428-2-2	NA	NA	NA	150 ml	D3	ABC0430A	10:16 AM	1.581	NA	NA	50	NA	Unfiltered	NA	P,M3
1404448-2	GROSS ALPHA	4/24/2014	AB140428-2	NA	NA	WATER	190 ml	LB4100-C	AB140428-2A	4/30/2014	0.325	21.10%	120	3.9	2.8	pCi/l	NA	
SMP	Trg. Analyte	3:51:00 PM	AB140428-2-2	NA	NA	NA	190 ml	D4	ABC0430A	10:16 AM	0.103	NA	NA	2.0	NA	Unfiltered	NA	
1404448-2	GROSS BETA	4/24/2014	AB140428-2	NA	NA	WATER	190 ml	LB4100-C	AB140428-2A	4/30/2014	2.125	43.75%	120	2.1	3.4	pCi/l	NA	
SMP	Trg. Analyte	3:51:00 PM	AB140428-2-2	NA	NA	NA	190 ml	D4	ABC0430A	10:16 AM	1.702	NA	NA	1.7	NA	Unfiltered	NA	U
AB140428-2	GROSS ALPHA	4/28/2014	AB140428-2	NA	NA	WATER	200 ml	LB4100-C	AB140428-2A	4/29/2014	0.085	21.10%	1000	-0.24	0.68	pCi/l	NA	
MB	Trg. Analyte	1:50:42 PM	AB140428-2-2	NA	NA	NA	200 ml	D4	ABC0429C	3:46 PM	0.103	NA	NA	0.38	NA	Unfiltered	NA	U
AB140428-2	GROSS BETA	4/28/2014	AB140428-2	NA	NA	WATER	200 ml	LB4100-C	AB140428-2A	4/29/2014	1.612	43.75%	1000	-0.49	1.05	pCi/l	NA	
MB	Trg. Analyte	1:50:42 PM	AB140428-2-2	NA	NA	NA	200 ml	D4	ABC0429C	3:46 PM	1.702	NA	NA	0.63	NA	Unfiltered	NA	U
AB140428-2	GROSS ALPHA	4/28/2014	AB140428-2	NA	NA	WATER	200 ml	LB4100-C	AB140428-2A	4/30/2014	16.017	22.37%	120	202	3	pCi/l	NA	97.7
LCS	Trg. Analyte	1:50:42 PM	AB140428-2-2	NA	NA	NA	200 ml	B2	ABC0430A	10:16 AM	0.143	NA	NA	34	NA	Unfiltered	NA	P,M3

Comments:

Data Package ID: *AB1404448-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
+ - Duplicate RPD not within limits.
LT - Result is less than Request MDC, greater than sample specific MDC
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits
NC - Not Calculated for duplicate results less than 5 times MDC
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).
2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte
TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
DER - Duplicate Error Ratio
BDL - Below Detection Limit

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404448

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Friday, May 02, 2014
12:11:32 PM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
AB140428-2	GROSS BETA	4/28/2014	AB140428-2	NA	NA	WATER	200 ml	LB4100-C	AB140428-2A	4/30/2014	44.975	42.65%	120	218	6	pCi/l	NA	101
LCS	Trg. Analyte	1:50:42 PM	AB140428-2-2	NA	NA	NA	200 ml	B2	ABC0430A	10:16 AM	1.588	NA	NA	35	NA	Unfiltered	NA	P,M3

Comments:

Data Package ID: *AB1404448-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

+ - Duplicate RPD not within limits.

LT - Result is less than Request MDC, greater than sample specific MDC

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).

2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

DER - Duplicate Error Ratio

BDL - Below Detection Limit

Radium-226

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404448

1. This report consists of the analytical results for two water samples received by ALS on 04/25/14.

2. These samples were prepared according to the current revision of SOP 712. Standard Operating Procedure 712 is compliant with method SW846-9315.

3. These samples were analyzed for the presence of ^{226}Ra according to the current revision of SOP 724. The analysis was completed on 05/13/14.

4. This test is a screen for ^{226}Ra and could show high bias in sample results if other alpha emitting isotopes of radium are contained in the samples (esp.^{224}Ra and ^{223}Ra). The potential for this interference has been reduced by allowing the interfering nuclides to decay for at least 14 days.

5. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

6. ICP-AES measurement of barium concentrations prior to chemical separation for the associated QC samples showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

7. ALS uses the following convention for reporting significant digits in the TPU and MDC results. The TPU value is rounded to two significant digits. The MDC value is rounded to the same decimal place as the TPU value. In practice, this could result in an MDC reported value of zero for samples with significant activity, including the batch laboratory control sample.

8. No further anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Linda Arend — 5/14/14
Radiochemistry Primary Data Reviewer — Date

Radiochemistry Final Data Reviewer — 05/16/14
Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404448
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number: 14-0408

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30002	1404448-1		WATER	24-Apr-14	13:46
LF008-30004	1404448-2		WATER	24-Apr-14	15:51

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404448

Reference Document No: 150577-312

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 24 APR 2014
Lab Destination: ALSSL
Lab Contact:
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371150

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Unknown Radiological

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) Roger Shaw — Date: 4/24/14 Time: 1600
1. Received By (Signature/Affiliation) C Trimble/ALS — Date: 4-25-14 Time: 0935
2. Relinquished By (Signature/Affiliation) — Date: Time:
2. Received By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF008-30002	KAFB0310-GW-LF008-30002-REG	24 APR 2014	13:46	1 L HDPE	~~4~~ 2	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
	LF008-30002-MS	KAFB0310-GW-LF008-30002-MS-MS	24 APR 2014	13:46	1 L HDPE	~~4~~ 2	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
	LF008-30002-MSD	KAFB0310-GW-LF008-30002-MSD-MSD	24 APR 2014	13:46	1 L HDPE	~~4~~ 2	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
2	LF008-30004	KAFB0312-GW-LF008-30004-REG	23 APR 2014	15:51	1 L HDPE	~~4~~ 2	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Shaw Workorder No: 1404448

Project Manager: JE Initials: CDS Date: 4-25-14

1.	Does this project require any special handling in addition to standard ALS procedures?		YES	NO
2.	Are custody seals on shipping containers intact?	NONE	YES	NO
3.	Are Custody seals on sample containers intact?	NONE	YES	NO
4.	Is there a COC (Chain-of-Custody) present or other representative documents?		YES	NO
5.	Are the COC and bottle labels complete and legible?		YES	NO
6.	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	NO
7.	Were airbills / shipping documents present and/or removable?	DROP OFF	YES	NO
8.	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	YES	NO
9.	Are all aqueous non-preserved samples pH 4-9?	N/A	YES	NO
10.	Is there sufficient sample for the requested analyses?		YES	NO
11.	Were all samples placed in the proper containers for the requested analyses?		YES	NO
12.	Are all samples within holding times for the requested analyses?		YES	NO
13.	Were all sample containers received intact? (not broken or leaking, etc.)		YES	NO
14.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	N/A	YES	NO
15.	Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	NO
16.	Were the samples shipped on ice?		YES	NO
17.	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES	NO

Cooler #:	1							
Temperature (°C):	7.2							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
DOT Survey/ Acceptance Information — Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

Cooling not needed for these tests

If applicable, was the client contacted? **YES / NO / NA** Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/25/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J1213121004/025

Ship Date: 24APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

1404448

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511
JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

BILL SENDER

7.2

FRI - 25 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 1150

80524
CO-US
DEN

XH FTCA

512C1/C4FH/JF6D

RAD

Section 2

❷

SAMPLE RESULTS SUMMARY

Ra-226 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404448

Reported on: Wednesday, May 14, 2014
1:12:16 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404448-1	LF008-30002	Sample	Ra-226	0.068 +/- 0.095	0.187	pCi/l	WATER	TR140429-1	5/13/2014	U
1404448-2	LF008-30004	Sample	Ra-226	0.13 +/- 0.13	0.22	pCi/l	WATER	TR140429-1	5/13/2014	U

Comments:

Data Package ID: *TR1404448-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140429-1MB

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 29-Apr-14
Date Prepared: 29-Apr-14
Date Analyzed: 13-May-14

Prep Batch: TR140429-1
QCBatchID: TR140429-1-1
Run ID: TR140429-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0513A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.15 +/- 0.13	0.19	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16840	16100	ug	95.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *TR1404448-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140429-1LCS

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 29-Apr-14
Date Prepared: 29-Apr-14
Date Analyzed: 13-May-14

Prep Batch: TR140429-1
QCBatchID: TR140429-1-1
Run ID: TR140429-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0513A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	41 +/- 10	0	45.30	90.5	75 - 125	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16840	16210	ug	96.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404448-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1DUP

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 24-Apr-14
Date Prepared: 29-Apr-14
Date Analyzed: 13-May-14

Prep Batch: TR140429-1
QCBatchID: TR140429-1-1
Run ID: TR140429-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0513

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	0.068 +/- 0.095	0.187	U	0.10 +/- 0.11	0.20	U	0.218	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *TR1404448-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 24-Apr-14
Date Prepared: 29-Apr-14
Date Analyzed: 13-May-14

Prep Batch: TR140429-1
QCBatchID: TR140429-1-1
Run ID: TR140429-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0513

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.068 +/- 0.095	0.187	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16920	16860	ug	99.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404448-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1DUP

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 24-Apr-14
Date Prepared: 29-Apr-14
Date Analyzed: 13-May-14

Prep Batch: TR140429-1
QCBatchID: TR140429-1-1
Run ID: TR140429-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0513

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.10 +/- 0.11	0.20	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16910	16610	ug	98.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404448-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30004
Lab ID: 1404448-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 24-Apr-14
Date Prepared: 29-Apr-14
Date Analyzed: 13-May-14

Prep Batch: TR140429-1
QCBatchID: TR140429-1-1
Run ID: TR140429-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0513A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.13 +/- 0.13	0.22	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	17020	16860	ug	99.1	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404448-1*

Section 5

RAW DATA

5

Ra-226 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404448

Prep SOP: PAI 712
Analytical SOP: PAI 724

Reported on: Wednesday, May 14, 2014
9:48:44 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404448-1	Ra-226	4/24/2014	TR140429-1	4/29/2014	NA	WATER	1000 ml	LB4100-C	TR140429-1A	5/13/2014	0.200	20.63%	30	0.068	0.187	pCi/l	NA	
SMP	Trg. Analyte	1:46:00 PM	TR140429-1-1	4:50:00 PM	NA	NA	995 ml	D3	RDC0513	11:46 AM	0.080	21.88%	99.6%	0.095	NA	Unfiltered	NA	U
1404448-1	Ra-226	4/24/2014	TR140429-1	4/29/2014	NA	WATER	1000 ml	LB4100-C	TR140429-1A	5/13/2014	0.267	19.87%	30	0.10	0.20	pCi/l	0.22	
DUP	Trg. Analyte	1:46:00 PM	TR140429-1-1	4:50:00 PM	NA	NA	995 ml	D4	RDC0513	11:46 AM	0.094	21.90%	98.2%	0.11	NA	Unfiltered	NA	U
1404448-2	Ra-226	4/24/2014	TR140429-1	4/29/2014	NA	WATER	1000 ml	LB4100-C	TR140429-1A	5/13/2014	0.333	19.72%	30	0.13	0.22	pCi/l	NA	
SMP	Trg. Analyte	3:51:00 PM	TR140429-1-1	4:50:00 PM	NA	NA	995 ml	D1	RDC0513A	12:26 PM	0.107	21.17%	99.1%	0.13	NA	Unfiltered	NA	U
TR140429-1	Ra-226	4/29/2014	TR140429-1	4/29/2014	NA	WATER	1000 ml	LB4100-C	TR140429-1A	5/13/2014	0.333	20.63%	30	0.15	0.19	pCi/l	NA	
MB	Trg. Analyte	9:40:03 AM	TR140429-1-1	6:30:00 PM	NA	NA	995 ml	D3	RDC0513A	12:26 PM	0.080	21.88%	95.6%	0.13	NA	Unfiltered	NA	U
TR140429-1	Ra-226	4/29/2014	TR140429-1	4/29/2014	NA	WATER	1000 ml	LB4100-C	TR140429-1A	5/13/2014	69.100	19.87%	30	41	0	pCi/l	NA	90.5
LCS	Trg. Analyte	9:40:03 AM	TR140429-1-1	6:30:00 PM	NA	NA	995 ml	D4	RDC0513A	12:26 PM	0.094	21.90%	96.2%	10	NA	Unfiltered	NA	P

Comments:

Data Package ID: *TR1404448-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
+ - Duplicate RPD not within limits.
LT - Result is less than Request MDC, greater than sample specific MDC
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits
NC - Not Calculated for duplicate results less than 5 times MDC
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).
2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte
TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
DER - Duplicate Error Ratio
BDL - Below Detection Limit

Radium-228

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404448

1. This report consists of the analytical results for two water samples received by ALS on 04/25/2014.

2. These samples were prepared according to the current revision of SOP 749. Standard Operating Procedure 749 is compliant with method SW-846 9320.

3. The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724. This SOP is compliant with method SW-846 9320. The analyses were completed on 05/08/2014.

4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.

5. ICP-AES measurement of barium concentrations prior to chemical separation for all associated QC samples showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

6. No further anomalous situations were noted during the preparation and analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Jean Anderson — 5/12/14

Jean Anderson
Radiochemistry Primary Data Reviewer

Date

Julie Ellzey — 05/16/14

Radiochemistry Final Data Reviewer

Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404448
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30002	1404448-1		WATER	24-Apr-14	13:46
LF008-30004	1404448-2		WATER	24-Apr-14	15:51

RAD

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404448

Reference Document No: 150577-312

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 24 APR 2014
Lab Destination: ALSSL
Lab Contact:
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371150

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:
Non-hazard ✓ Flammable Skin Irritant Poison B Unknown Radiological

Sample Disposal:
Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) Roger Shaw — Date: 4/24/14 Time: 1600
1. Received By (Signature/Affiliation) C Trimble/ALS — Date: 4-25-14 Time: 0935
2. Relinquished By (Signature/Affiliation) — Date: Time:
2. Received By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
LF008-30002	KAFB0310-GW-LF008-30002-REG	24 APR 2014	13:46	1 L HDPE	~~4~~ 2 TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30002-MS	KAFB0310-GW-LF008-30002-MS-MS	24 APR 2014	13:46	1 L HDPE	~~4~~ 2 TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30002-MS	KAFB0310-GW-LF008-30002-MSD-MSD	24 APR 2014	13:46	1 L HDPE	~~4~~ 2 TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		
LF008-30004	KAFB0312-GW-LF008-30004-REG	23 APR 2014	15:51	1 L HDPE	~~4~~ 2 TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Shaw Workorder No: 1404448

Project Manager: JE Initials: CDS Date: 4-25-14

1.	Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2.	Are custody seals on shipping containers intact?	NONE	(YES)	NO
3.	Are Custody seals on sample containers intact?	(NONE)	YES	NO
4.	Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5.	Are the COC and bottle labels complete and legible?		(YES)	NO
6.	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7.	Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8.	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9.	Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10.	Is there sufficient sample for the requested analyses?		(YES)	NO
11.	Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12.	Are all samples within holding times for the requested analyses?		(YES)	NO
13.	Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15.	Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16.	Were the samples shipped on ice?		(YES)	NO
17.	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: (#2) #4	(RAD ONLY)	YES	(NO)

Cooler #:	1							
Temperature (°C):	7.2							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
DOT Survey/ Acceptance Information — Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

Cooling not needed for these tests

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/25/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J1213121006/025

Ship Date: 24APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

1404448

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (970) 490-1511
JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

BILL SENDER

7.2

FRI - 25 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 1150

80524
CO-US
DEN

XH FTCA

512C1/C4FH/JF6D

RAD

Section 2

❷

SAMPLE RESULTS SUMMARY

Radium-228 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404448

Reported on: Monday, May 12, 2014
3:28:59 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404448-1	LF008-30002	Sample	Ra-228	0.08 +/- 0.22	0.48	pCi/l	WATER	RA140502-1	5/8/2014	U
1404448-2	LF008-30004	Sample	Ra-228	0.21 +/- 0.26	0.55	pCi/l	WATER	RA140502-1	5/8/2014	U

Comments:

Data Package ID: *RA1404448-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140502-1MB

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 05-May-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.39 +/- 0.31	0.62	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34110	30000	ug	88.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *RA1404448-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140502-1LCS

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 05-May-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0508

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	8.2 +/- 2.0	1.0	8.807	93.5	70 - 130	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34110	16610	ug	48.7	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *RA1404448-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1DUP

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 24-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0508

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
15262-20-1	Ra-228	0.08 +/- 0.22	0.48	U	0.35 +/- 0.29	0.59	U	0.73	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *RA1404448-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 24-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.08 +/- 0.22	0.48	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34170	33100	ug	96.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404448-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1DUP

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 24-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.35 +/- 0.29	0.59	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34170	32500	ug	95.1	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404448-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30004
Lab ID: 1404448-2

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 24-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.21 +/- 0.26	0.55	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34330	32490	ug	94.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404448-1*

Section 5

RAW DATA

5

Radium-228 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404448

Prep SOP: SOP749
Analytical SOP: PAI 724

Reported on: Friday, May 09, 2014
11:06:23 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404448-1	Ra-228	4/24/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-C	RA140502-1A	5/8/2014	1.808	53.13%	120	0.08	0.48	pCi/l	NA	
SMP	Trg. Analyte	1:46:00 PM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	D4	RAC0508	12:37 PM	1.711	NA	96.9%	0.22	NA	Unfiltered	NA	U
1404448-1	Ra-228	4/24/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-A	RA140502-1A	5/8/2014	2.308	48.58%	120	0.35	0.59	pCi/l	0.73	
DUP	Trg. Analyte	1:46:00 PM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	A1	RAA0508	12:54 PM	1.948	NA	95.1%	0.29	NA	Unfiltered	NA	U
1404448-2	Ra-228	4/24/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-A	RA140502-1A	5/8/2014	2.133	52.18%	120	0.21	0.55	pCi/l	NA	
SMP	Trg. Analyte	3:51:00 PM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	A2	RAA0508	12:54 PM	1.900	NA	94.6%	0.26	NA	Unfiltered	NA	U
RA140502-1	Ra-228	5/5/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-A	RA140502-1A	5/8/2014	2.383	48.63%	120	0.39	0.62	pCi/l	NA	
MB	Trg. Analyte	1:39:31 PM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	B1	RAA0508	12:37 PM	1.989	NA	88.0%	0.31	NA	Unfiltered	NA	U
RA140502-1	Ra-228	5/5/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-A	RA140502-1A	5/8/2014	6.883	53.93%	120	8.2	1.0	pCi/l	NA	93.5
LCS	Trg. Analyte	1:39:31 PM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	B2	RAA0508	12:37 PM	1.823	NA	48.7%	2.0	NA	Unfiltered	NA	P

Comments:

Data Package ID: *RA1404448-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
+ - Duplicate RPD not within limits.
LT - Result is less than Request MDC, greater than sample specific MDC
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits
NC - Not Calculated for duplicate results less than 5 times MDC
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).
2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte
TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
DER - Duplicate Error Ratio
BDL - Below Detection Limit

Tuesday, May 20, 2014

Ms. Maryanne Walker
Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228

Re: ALS Workorder: 1404514
Project Name: Kirtland AFB
Project Number: 150577

Dear Ms. Walker:

One water sample was received from Empirical Laboratories, LLC, on 4/30/2014. The sample was scheduled for the following analyses:

Radium-226	pages 1-18
Radium-228	pages 1-16
Gross Alpha/Beta	pages 1-17

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Julie Ellingson
Project Manager

JME/mlc
Enclosure(s): CD

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Laboratory Certifications	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri	175
Nebraska	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
North Dakota (ND)	R-057
Oklahoma	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241-09-1
Utah (UT)	CO01099
Washington	C1280

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404514
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30008	1404514-1		WATER	28-Apr-14	8:00

RAD org.

Shaw
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404514

Reference Document No: 150577-0315

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 29 APR 2014
Lab Destination: ALSSL
Lab Contact:
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371312

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Identification:

Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:

Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) TT Jaeger / Shaw Date: 4/29/14 Time: 1600
1. Received By (Signature/Affiliation) C Trimble / ALS Date: 4-30-14 0935 Time:
2. Relinquished By (Signature/Affiliation) Date: Time:
2. Received By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF008-30008	KAFB0315-GW-LF008-30008-REG	28 APR 2014	08:00	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: SRC 4/30/14 Kempirical Workorder No: 1404514

Project Manager: JE Initials: CDJ Date: 4-30-14

1. Does this project require any special handling in addition to standard ALS procedures?			YES	(NO)
2. Are custody seals on shipping containers intact?	NONE		(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)		YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?			(YES)	NO
5. Are the COC and bottle labels complete and legible?			(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)			(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF		(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A		(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	(N/A)		YES	NO
10. Is there sufficient sample for the requested analyses?			(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?			(YES)	NO
12. Are all samples within holding times for the requested analyses?			(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)			(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)		YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A		YES	(NO)
16. Were the samples shipped on ice?			(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: (#2) #4	RAD ONLY		(YES)	NO

Cooler #:	1							
Temperature (°C):	3.4							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	11							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? **YES / NO / (NA)** Contact: _____ Date/Time: _____

Project Manager Signature / Date: 4/30/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J12131210000025

Ship Date: 29APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

140451 4
CDI
4-30-14

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

3.4°

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

WED - 30 APR A2
PRIORITY OVERNIGHT

TRK# 5651 1937 1312
0201

XH FTCA 11-2

80524
CO-US
DEN

5120/C4HA/HB0

Gross Alpha/Beta

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404514

1. This report consists of the analytical results for one water sample received by ALS on 04/30/14.

2. This sample was prepared according to the current revision of SOP 702. Standard Operating Procedure 702 is compliant with method SW846-9310.

3. The sample was analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. The analysis was completed on 05/05/14. Gross alpha results are referenced to ^{241}Am. Gross beta results are referenced to ^{90}Sr/Y.

4. The analysis results for this sample are reported in units of pCi/L. The sample was not filtered prior to analysis.

5. No anomalous situations were encountered during the preparation or analysis of this sample. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Linda Arend — 5/13/14
Radiochemistry Primary Data Reviewer — Date

Radiochemistry Final Data Reviewer — 05/20/14
Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404514
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number: 14-0408

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30008	1404514-1		WATER	28-Apr-14	8:00

RAD org.

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404514

Reference Document No: 150577-0315

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 29 APR 2014
Lab Destination: ALSSL
Lab Contact:
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371312

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Identification:

Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:

Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation): T Nagel / Shaw — Date: 4/29/14 Time: 1600
2. Relinquished By (Signature/Affiliation): Date: Time:
3. Relinquished By (Signature/Affiliation): Date: Time:

1. Received By (Signature/Affiliation): C Trimble / ALS — Date: 4-30-14 0935 Time:
2. Received By (Signature/Affiliation): Date: Time:
3. Received By (Signature/Affiliation): Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF008-30008	KAFB0315-GW-LF008-30008-REG	28 APR 2014	08:00	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ~~SHAW~~ 4/30/14 Kempirical Workorder No: 1404514

Project Manager: JE Initials: CDJ Date: 4-30-14

1.	Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2.	Are custody seals on shipping containers intact?	NONE	(YES)	NO
3.	Are Custody seals on sample containers intact?	(NONE)	YES	NO
4.	Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5.	Are the COC and bottle labels complete and legible?		(YES)	NO
6.	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7.	Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8.	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9.	Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10.	Is there sufficient sample for the requested analyses?		(YES)	NO
11.	Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12.	Are all samples within holding times for the requested analyses?		(YES)	NO
13.	Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15.	Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16.	Were the samples shipped on ice?		(YES)	NO
17.	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: (#2) #4	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	3.4							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	11							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? **YES / NO / (NA)** Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/30/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J121312100/2325

Ship Date: 29APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

140451 4
CDI
4-30-14

Delivery Address Bar Code

SHIP TO: (970) 490-1511

BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

Ref #
Invoice #
PO #
Dept #

3.4°

WED - 30 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 1312

XH FTCA

11-2

80524
CO-US
DEN

512C1/C4FE/A7BG

Section 2

❷

SAMPLE RESULTS SUMMARY

Gross Alpha/Beta Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404514

Reported on: Tuesday, May 13, 2014
12:02:39 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404514-1	LF008-30008	Sample	GROSS ALPHA	3.2 +/- 1.6	2.3	pCi/l	WATER	AB140501-1	5/5/2014	
1404514-1	LF008-30008	Sample	GROSS BETA	1.7 +/- 1.4	2.9	pCi/l	WATER	AB140501-1	5/5/2014	U

Comments:

Data Package ID: *AB1404514-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140501-1MB

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 01-May-14
Date Prepared: 01-May-14
Date Analyzed: 05-May-14

Prep Batch: AB140501-1
QCBatchID: AB140501-1-3
Run ID: AB140501-1A
Count Time: 1000 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABC0505D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.38 +/- 0.46	0.75	3	U
12587-47-2	GROSS BETA	0.32 +/- 0.63	1.05	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *AB1404514-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: AB140501-1LCS

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 01-May-14
Date Prepared: 01-May-14
Date Analyzed: 05-May-14

Prep Batch: AB140501-1
QCBatchID: AB140501-1-3
Run ID: AB140501-1A
Count Time: 30 minutes

Final Aliquot: 200 ml
Result Units: pCi/l
File Name: ABA0505B

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
12587-46-1	GROSS ALPHA	217 +/- 40	5	206.8	105	70 - 130	P,M3
12587-47-2	GROSS BETA	197 +/- 34	11	216.3	91.1	70 - 130	P,M3

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *AB1404514-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30008
Lab ID: 1404514-1DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 28-Apr-14
Date Prepared: 01-May-14
Date Analyzed: 05-May-14

Prep Batch: AB140501-1
QCBatchID: AB140501-1-3
Run ID: AB140501-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0505

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
12587-46-1	GROSS ALPHA	3.2 +/- 1.6	2.3		0.9 +/- 1.2	2.5	U	1.15	2.13
12587-47-2	GROSS BETA	1.7 +/- 1.4	2.9	U	2.7 +/- 1.5	2.8	U	0.499	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *AB1404514-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30008
Lab ID: 1404514-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 28-Apr-14
Date Prepared: 01-May-14
Date Analyzed: 05-May-14

Prep Batch: AB140501-1
QCBatchID: AB140501-1-3
Run ID: AB140501-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0505

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.2 +/- 1.6	2.3	3	
12587-47-2	GROSS BETA	1.7 +/- 1.4	2.9	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404514-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Duplicate Results

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:	LF008-30008
Lab ID:	1404514-1DUP

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 28-Apr-14
Date Prepared: 01-May-14
Date Analyzed: 05-May-14

Prep Batch: AB140501-1
QCBatchID: AB140501-1-3
Run ID: AB140501-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0505

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.9 +/- 1.2	2.5	3	U
12587-47-2	GROSS BETA	2.7 +/- 1.5	2.8	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404514-1*

Section 5

RAW DATA

5

Gross Alpha/Beta Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404514

Prep SOP: PAI 702
Analytical SOP: PAI 724

Reported on: Wednesday, May 07, 2014
9:38:58 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404514-1	GROSS ALPHA	4/28/2014	AB140501-1	NA	NA	WATER	200 ml	LB4100-A	AB140501-1A	5/5/2014	0.267	21.55%	180	3.2	2.3	pCi/l	NA	
SMP	Trg. Analyte	8:00:00 AM	AB140501-1-3	NA	NA	NA	200 ml	A3	ABA0505	11:09 AM	0.097	NA	NA	1.6	NA	Unfiltered	NA	
1404514-1	GROSS BETA	4/28/2014	AB140501-1	NA	NA	WATER	200 ml	LB4100-A	AB140501-1A	5/5/2014	2.544	43.49%	180	1.7	2.9	pCi/l	NA	
SMP	Trg. Analyte	8:00:00 AM	AB140501-1-3	NA	NA	NA	200 ml	A3	ABA0505	11:09 AM	2.179	NA	NA	1.4	NA	Unfiltered	NA	U
1404514-1	GROSS ALPHA	4/28/2014	AB140501-1	NA	NA	WATER	200 ml	LB4100-A	AB140501-1A	5/5/2014	0.167	21.95%	180	0.9	2.5	pCi/l	1.15	
DUP	Trg. Analyte	8:00:00 AM	AB140501-1-3	NA	NA	NA	200 ml	A4	ABA0505	11:09 AM	0.117	NA	NA	1.2	NA	Unfiltered	NA	U
1404514-1	GROSS BETA	4/28/2014	AB140501-1	NA	NA	WATER	200 ml	LB4100-A	AB140501-1A	5/5/2014	2.528	42.98%	180	2.7	2.8	pCi/l	0.50	
DUP	Trg. Analyte	8:00:00 AM	AB140501-1-3	NA	NA	NA	200 ml	A4	ABA0505	11:09 AM	2.014	NA	NA	1.5	NA	Unfiltered	NA	U
AB140501-1	GROSS ALPHA	5/1/2014	AB140501-1	NA	NA	WATER	200 ml	LB4100-C	AB140501-1A	5/5/2014	0.148	20.63%	1000	0.38	0.75	pCi/l	NA	
MB	Trg. Analyte	12:06:34 PM	AB140501-1-3	NA	NA	NA	200 ml	B4	ABC0505D	2:33 PM	0.121	NA	NA	0.46	NA	Unfiltered	NA	U
AB140501-1	GROSS BETA	5/1/2014	AB140501-1	NA	NA	WATER	200 ml	LB4100-C	AB140501-1A	5/5/2014	1.697	43.31%	1000	0.32	1.05	pCi/l	NA	
MB	Trg. Analyte	12:06:34 PM	AB140501-1-3	NA	NA	NA	200 ml	B4	ABC0505D	2:33 PM	1.632	NA	NA	0.63	NA	Unfiltered	NA	U
AB140501-1	GROSS ALPHA	5/1/2014	AB140501-1	NA	NA	WATER	200 ml	LB4100-A	AB140501-1A	5/5/2014	17.467	22.41%	30	217	5	pCi/l	NA	105
LCS	Trg. Analyte	12:06:34 PM	AB140501-1-3	NA	NA	NA	200 ml	B2	ABA0505B	11:46 AM	0.093	NA	NA	40	NA	Unfiltered	NA	P,M3
AB140501-1	GROSS BETA	5/1/2014	AB140501-1	NA	NA	WATER	200 ml	LB4100-A	AB140501-1A	5/5/2014	45.533	44.89%	30	197	11	pCi/l	NA	91.1
LCS	Trg. Analyte	12:06:34 PM	AB140501-1-3	NA	NA	NA	200 ml	B2	ABA0505B	11:46 AM	1.915	NA	NA	34	NA	Unfiltered	NA	P,M3

Comments:

Data Package ID: *AB1404514-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
+ - Duplicate RPD not within limits.
LT - Result is less than Request MDC, greater than sample specific MDC
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits
NC - Not Calculated for duplicate results less than 5 times MDC
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).
2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte
TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
DER - Duplicate Error Ratio
BDL - Below Detection Limit

Radium-226

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404514

1. This report consists of the analytical results for one water sample received by ALS on 04/30/14.

2. The sample was prepared according to the current revision of SOP 712. Standard Operating Procedure 712 is compliant with method SW846-9315.

3. The sample was analyzed for the presence of ^{226}Ra according to the current revision of SOP 724. The analysis was completed on 05/19/14.

4. This test is a screen for ^{226}Ra and could show high bias in sample results if other alpha emitting isotopes of radium are contained in the sample (esp.^{224}Ra and ^{223}Ra). The potential for this interference has been reduced by allowing the interfering nuclides to decay for at least 14 days.

5. The analysis results for this sample are reported in units of pCi/L. The sample was not filtered prior to analysis.

6. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.

7. ICP-AES measurement of barium concentrations prior to chemical separation for the associated QC samples showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

8. Due to uncertainty associated with the ICP-AES determination of barium concentration in the samples, the calculated yield for TR140502-1LCS and -1LCSD fell between 100% and 110%. To minimize the potential for low bias, results have been calculated conservatively assuming quantitative chemical yield (100%). The magnitude of the low bias is estimated to be less than 10% of the reported value and is acceptable according the ALS LQAP. These samples are identified with a “Y1” flag on the final reports.

9. ALS uses the following convention for reporting significant digits in the TPU and MDC results. The TPU value is rounded to two significant digits. The MDC value is rounded to the same decimal place as the TPU value. In practice, this could result in an MDC reported value of zero for samples with significant activity, including the batch laboratory control sample.

10. No further anomalous situations were encountered during the preparation or analysis of this sample. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Linda Arend Radiochemistry Primary Data Reviewer	5/20/14 Date
Radiochemistry Final Data Reviewer	05/20/14 Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404514
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number: 14-0408

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30008	1404514-1		WATER	28-Apr-14	8:00

RAD org.

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404514

Reference Document No: 150577-0315

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 29 APR 2014
Lab Destination: ALSSL
Lab Contact:
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371312

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Identification:

Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:

Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation): T Nagel / Shaw — Date: 4/29/14 Time: 1600
1. Received By (Signature/Affiliation): C Trimble / ALS — Date: 4-30-14 0935 Time:
2. Relinquished By (Signature/Affiliation) — Date: Time:
2. Received By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF008-30008	KAFB0315-GW-LF008-30008-REG	28 APR 2014	08:00	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ~~SHAW~~ 4/30/14 Kempirical Workorder No: 1404514

Project Manager: JE Initials: CDJ Date: 4-30-14

1.	Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2.	Are custody seals on shipping containers intact?	NONE	(YES)	NO
3.	Are Custody seals on sample containers intact?	(NONE)	YES	NO
4.	Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5.	Are the COC and bottle labels complete and legible?		(YES)	NO
6.	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7.	Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8.	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9.	Are all aqueous non-preserved samples pH 4-9?	(N/A)	YES	NO
10.	Is there sufficient sample for the requested analyses?		(YES)	NO
11.	Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12.	Are all samples within holding times for the requested analyses?		(YES)	NO
13.	Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	(N/A)	YES	NO
15.	Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16.	Were the samples shipped on ice?		(YES)	NO
17.	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: (#2) #4	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	3.4							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	11							
Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? **YES / NO / (NA)** Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 4/30/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J12131210/2/25

Ship Date: 29APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

140451 4
CDI
4-30-14

Delivery Address Bar Code

SHIP TO: (970) 490-1511

BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

Ref #
Invoice #
PO #
Dept #

3.4°

WED - 30 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 1312

XH FTCA

11-2

80524
CO-US
DEN

512C1/C4FLA7BG

Section 2

❷

SAMPLE RESULTS SUMMARY

Ra-226 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404514

Reported on: Tuesday, May 20, 2014
12:54:08 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404514-1	LF008-30008	Sample	Ra-226	0.12 +/- 0.12	0.20	pCi/l	WATER	TR140502-1	5/19/2014	U

Comments:

Data Package ID: *TR1404514-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140502-1MB

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 02-May-14
Date Prepared: 02-May-14
Date Analyzed: 19-May-14

Prep Batch: TR140502-1
QCBatchID: TR140502-1-1
Run ID: TR140502-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0519

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.030 +/- 0.089	0.224	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	17870	17330	ug	97.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *TR1404514-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140502-1LCS

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 02-May-14
Date Prepared: 02-May-14
Date Analyzed: 19-May-14

Prep Batch: TR140502-1
QCBatchID: TR140502-1-1
Run ID: TR140502-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0519

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	42 +/- 11	0	45.30	93.2	75 - 125	P,Y1

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	17870	18290	ug	102	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404514-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140502-1LCSD

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 02-May-14
Date Prepared: 02-May-14
Date Analyzed: 19-May-14

Prep Batch: TR140502-1
QCBatchID: TR140502-1-1
Run ID: TR140502-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0519

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	45 +/- 11	0	45.30	99.8	75 - 125	P,Y1

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	17870	18360	ug	103	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404514-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID:
Lab ID: TR140502-1LCSD

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 02-May-14
Date Prepared: 02-May-14
Date Analyzed: 19-May-14

Prep Batch: TR140502-1
QCBatchID: TR140502-1-1
Run ID: TR140502-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0519

CASNO	Analyte	Sample			Duplicate			DER	DER Lim
		Result +/- 2 s TPU	MDC	Flags	Result +/- 2 s TPU	MDC	Flags		
13982-63-3	Ra-226	42 +/- 11	0	P,Y1	45 +/- 11	0	P,Y1	0.191	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: *TR1404514-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30008
Lab ID: 1404514-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 28-Apr-14
Date Prepared: 02-May-14
Date Analyzed: 19-May-14

Prep Batch: TR140502-1
QCBatchID: TR140502-1-1
Run ID: TR140502-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0519

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.12 +/- 0.12	0.20	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	17920	16110	ug	89.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404514-1*

Section 5

RAW DATA

5

Ra-226 Analysis by GFPC Raw Data Report

Laboratory Name: ALS Environmental -- FC
PAI Work Order: 1404514

Prep SOP: PAI 712
Analytical SOP: PAI 724

Reported on: Tuesday, May 20, 2014
11:36:30 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404514-1	Ra-226	4/28/2014	TR140502-1	5/05/2014	NA	WATER	1000 ml	LB4100-C	TR140502-1A	5/19/2014	0.267	19.84%	30	0.12	0.20	pCi/l	NA	
SMP	Trg. Analyte	8:00:00 AM	TR140502-1-1	12:10:00 PM	NA	NA	995 ml	A1	RDC0519	11:46 AM	0.076	22.28%	89.9%	0.12	NA	Unfiltered	NA	U
TR140502-1	Ra-226	5/2/2014	TR140502-1	5/05/2014	NA	WATER	1000 ml	LB4100-C	TR140502-1A	5/19/2014	0.167	20.43%	30	0.030	0.224	pCi/l	NA	
MB	Trg. Analyte	12:01:02 PM	TR140502-1-1	12:10:00 PM	NA	NA	995 ml	D2	RDC0519	11:46 AM	0.116	21.37%	97.0%	0.089	NA	Unfiltered	NA	U
TR140502-1	Ra-226	5/2/2014	TR140502-1	5/05/2014	NA	WATER	1000 ml	LB4100-C	TR140502-1A	5/19/2014	75.533	20.63%	30	42	0	pCi/l	NA	93.2
LCS	Trg. Analyte	12:01:02 PM	TR140502-1-1	12:10:00 PM	NA	NA	995 ml	D3	RDC0519	11:46 AM	0.080	21.88%	102.0%	11	NA	Unfiltered	NA	P,Y1
TR140502-1	Ra-226	5/2/2014	TR140502-1	5/05/2014	NA	WATER	1000 ml	LB4100-C	TR140502-1A	5/19/2014	80.233	19.87%	30	45	0	pCi/l	0.19	99.8
LCSD	Trg. Analyte	12:01:02 PM	TR140502-1-1	12:10:00 PM	NA	NA	995 ml	D4	RDC0519	11:46 AM	0.094	21.90%	103.0%	11	NA	Unfiltered	NA	P,Y1

Comments:

Data Package ID: *TR1404514-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
+ - Duplicate RPD not within limits.
LT - Result is less than Request MDC, greater than sample specific MDC
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits
NC - Not Calculated for duplicate results less than 5 times MDC
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).
2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte
TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
DER - Duplicate Error Ratio
BDL - Below Detection Limit

Radium-228

Case Narrative

Empirical Laboratories, LLC

Kirtland AFB -- 150577

Work Order Number: 1404514

1. This report consists of the analytical results for one water sample received by ALS on 04/30/14.

2. The sample was prepared according to the current revision of SOP 749. Standard Operating Procedure 749 is compliant with method SW846-9320.

3. The sample was analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724. The analysis was completed on 05/08/14.

4. The analysis results for this sample are reported in units of pCi/L. The sample was not filtered prior to analysis.

5. ICP-AES measurement of barium concentrations prior to chemical separation for the method blank and laboratory control sample showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.

6. No further anomalous situations were noted during the preparation and analysis of this sample. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Linda Arend Radiochemistry Primary Data Reviewer	5/13/14 Date
Radiochemistry Final Data Reviewer	05/20/14 Date

1

Section 1

CHAIN OF CUSTODY

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1404514
Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Client PO Number: 14-0408

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
LF008-30008	1404514-1		WATER	28-Apr-14	8:00

RAD org.

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1404514

Reference Document No: 150577-0315

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 29 APR 2014
Lab Destination: ALSSL
Lab Contact:
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371312

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Identification:

Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:

Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation): T Nagel / Shaw — Date: 4/29/14 Time: 1600
1. Received By (Signature/Affiliation): C Trimble / ALS — Date: 4-30-14 0935 Time:
2. Relinquished By (Signature/Affiliation) — Date: Time:
2. Received By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
1	LF008-30008	KAFB0315-GW-LF008-30008-REG	28 APR 2014	08:00	1 L HDPE	4 ~~2~~ TN	HNO3<pH 2	Gross Alpha and Beta by EPA 9310, Radium-226/228 by EPA 9315/9320			N		

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ~~SHAW~~ 4/30/14 Kempirical Workorder No: 1404514

Project Manager: JE Initials: CDJ Date: 4-30-14

1.	Does this project require any special handling in addition to standard ALS procedures?		YES	NO
2.	Are custody seals on shipping containers intact?	NONE	YES	NO
3.	Are Custody seals on sample containers intact?	NONE	YES	NO
4.	Is there a COC (Chain-of-Custody) present or other representative documents?		YES	NO
5.	Are the COC and bottle labels complete and legible?		YES	NO
6.	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	NO
7.	Were airbills / shipping documents present and/or removable?	DROP OFF	YES	NO
8.	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	YES	NO
9.	Are all aqueous non-preserved samples pH 4-9?	N/A	YES	NO
10.	Is there sufficient sample for the requested analyses?		YES	NO
11.	Were all samples placed in the proper containers for the requested analyses?		YES	NO
12.	Are all samples within holding times for the requested analyses?		YES	NO
13.	Were all sample containers received intact? (not broken or leaking, etc.)		YES	NO
14.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	N/A	YES	NO
15.	Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	NO
16.	Were the samples shipped on ice?		YES	NO
17.	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES	NO

Cooler #:	1							
Temperature (°C):	3.4							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information: External µR/hr reading:	11							
DOT Survey/ Acceptance Information: Background µR/hr reading:	10							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? **YES / NO / NA** Contact: _____ Date/Time: _____

Project Manager Signature / Date: 4/30/14

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

RAD

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer
2. Fold the printed page along the horizontal line
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

From: (505) 307-8968
DAVID AUBREY
SHAW E&I
5202 RANDOLPH AVE SE

ALBUQUERQUE, NM 87117

Origin ID: ABQA

FedEx Express

J12131210/2/25

Ship Date: 29APR14
ActWgt: 50.0 LB MAN
CAD: 0178232/CAFE2608

140451 4
CDI
4-30-14

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

3.4°

SHIP TO: (970) 490-1511 BILL SENDER

JULIE ELLINGSON
ALS FORT COLLINS
225 COMMERCE DR

FORT COLLINS, CO 805242762

WED - 30 APR A2
PRIORITY OVERNIGHT

TRK# 0201 5651 1937 1312

XH FTCA 11-2

80524
CO-US
DEN

512C1/C4FE A7BG

Section 2

SAMPLE RESULTS SUMMARY

Radium-228 Analysis by GFPC Sample Results Summary

Client Name: Empirical Laboratories, LLC
Client Project Name: Kirtland AFB
Client Project Number: 150577
Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404514

Page: 1 of 1
Reported on: Tuesday, May 13, 2014
3:42:27 PM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
1404514-1	LF008-30008	Sample	Ra-228	0.24 +/- 0.26	0.56	pCi/l	WATER	RA140502-1	5/8/2014	U

Comments:

Data Package ID: *RA1404514-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
BDL - Below Detection Limit

Section 3

QC RESULTS SUMMARY ❸

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140502-1MB

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 05-May-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.39 +/- 0.31	0.62	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34110	30000	ug	88.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *RA1404514-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: RA140502-1LCS

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 05-May-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes

Final Aliquot: 1500 ml
Result Units: pCi/l
File Name: RAA0508

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
15262-20-1	Ra-228	8.2 +/- 2.0	1.0	8.807	93.5	70 - 130	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34110	16610	ug	48.7	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *RA1404514-1*

Section 4

INDIVIDUAL SAMPLE RESULTS

4

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30008
Lab ID: 1404514-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 28-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.24 +/- 0.26	0.56	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34200	31630	ug	92.5	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404514-1*

Section 5

RAW DATA

5

Radium-228 Analysis by GFPC Raw Data Report

Laboratory Name: **ALS Environmental -- FC**
PAI Work Order: 1404514

Prep SOP: SOP749
Analytical SOP: PAI 724

Reported on: Friday, May 09, 2014
11:06:23 AM

Sample ID QC Type	Nuclide Type	Sample Date/Time	Prep Batch QCBatchID	Ingrowth Date /Time	Decay Date/Time	Matrix %Moist.	Samp Alq Analy Alq	Inst ID Det ID	AnRunID File Name	Count Date/Time	GrossCPM BkgCPM	BaseEff ProgEff	CntDur(min) Yield	Activity +/- 2 s TPU	MDC DecLev	ReportUnits ReportBasis	DER RPD	%Spk. Recov Flags
1404514-1	Ra-228	4/28/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-A	RA140502-1A	5/8/2014	2.283	53.71%	120	0.24	0.56	pCi/l	NA	
SMP	Trg. Analyte	8:00:00 AM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	A4	RAA0508	12:54 PM	2.019	NA	92.5%	0.26	NA	Unfiltered	NA	U
RA140502-1	Ra-228	5/5/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-A	RA140502-1A	5/8/2014	2.383	48.63%	120	0.39	0.62	pCi/l	NA	
MB	Trg. Analyte	1:39:31 PM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	B1	RAA0508	12:37 PM	1.989	NA	88.0%	0.31	NA	Unfiltered	NA	U
RA140502-1	Ra-228	5/5/2014	RA140502-1	5/05/2014	5/08/2014	WATER	1500 ml	LB4100-A	RA140502-1A	5/8/2014	6.883	53.93%	120	8.2	1.0	pCi/l	NA	93.5
LCS	Trg. Analyte	1:39:31 PM	RA140502-1-1	7:00:00 PM	10:30:00 AM	NA	1500 ml	B2	RAA0508	12:37 PM	1.823	NA	48.7%	2.0	NA	Unfiltered	NA	P

Comments:

Data Package ID: *RA1404514-1*

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
+ - Duplicate RPD not within limits.
LT - Result is less than Request MDC, greater than sample specific MDC
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits
NC - Not Calculated for duplicate results less than 5 times MDC
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Notes:

1) The Tracer results are not yield corrected (i.e. activity measured not activity added).
2) Where sample time is not available, 12:00 PM (Mountain) is used for decay correction.

Abbreviations:

TR- Tracer TA - Target Analyte
TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration
DER - Duplicate Error Ratio
BDL - Below Detection Limit

Subcontractor Data Package
TestAmerica

ANALYTICAL REPORT

Job Number: 160-6422-1

Job Description: Kirtland

For:
Empirical Laboratories, LLC
621 Mainstream Drive
Suite 270
Nashville, TN 37228

Attention: Marianne Walker

Approved for release.
Erika K Gish
Project Manager II
5/14/2014 10:53 AM

Erika K Gish, Project Manager II
13715 Rider Trail North, Earth City, MO, 63045
(314)298-8566
erika.gish@testamericainc.com
05/14/2014

The test results in this report meet NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted. Results pertain only to samples listed in this report. Pursuant to NELAP, this report shall not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager.

Louisiana Lab Certification ID (Non-Potable, Solid/Haz. Material): 106151
Florida Lab Certification ID (Drinking Water): E87689.

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Qualifiers

Metals

Qualifier	Qualifier Description
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
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

CASE NARRATIVE

Client: Empirical Laboratories, LLC

Project: Kirtland

Report Number: 160-6422-1

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.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

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.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT
The samples were received on 4/29/2014 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4º C.

Sample IDs changed per client request.

METALS (ICP/MS)
Samples LF008-30005 (160-6422-2), LF008-30006 (160-6422-4) and LF008-30007 (160-6422-6) were analyzed for Metals (ICP/MS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 05/01/2014 and analyzed on 05/02/2014.

A reduced aliquot was used due to insufficient volume: LF008-30005 (160-6422-2), LF008-30006 (160-6422-4), LF008-30007 (160-6422-6).

No difficulties were encountered during the Metals (ICP/MS) analysis.

All quality control parameters were within the acceptance limits.

METALS (ICPMS)

Samples LF008-30005 (160-6422-1), LF008-30006 (160-6422-3) and LF008-30007 (160-6422-5) were analyzed for Metals (ICPMS) in accordance with EPA SW-846 Methods 6020A. The samples were prepared on 05/01/2014 and analyzed on 05/02/2014.

A reduced aliquot was used due to insufficient volume: (160-6422-1 MS), (160-6422-1 MSD), LF008-30005 (160-6422-1), LF008-30006 (160-6422-3), LF008-30007 (160-6422-5).

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

Detection Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6422-1

Client Sample ID: LF008-30005 — Lab Sample ID: 160-6422-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.6		2.5	0.58	ug/L	1		6020A	Total/NA

Client Sample ID: LF008-30005 — Lab Sample ID: 160-6422-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.8		2.5	0.58	ug/L	1		6020A	Dissolved

Client Sample ID: LF008-30006 — Lab Sample ID: 160-6422-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.4	J	2.5	0.58	ug/L	1		6020A	Total/NA

Client Sample ID: LF008-30006 — Lab Sample ID: 160-6422-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.3	J	2.5	0.58	ug/L	1		6020A	Dissolved

Client Sample ID: LF008-30007 — Lab Sample ID: 160-6422-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	1.9	J	2.5	0.58	ug/L	1		6020A	Total/NA

Client Sample ID: LF008-30007 — Lab Sample ID: 160-6422-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.2	J	2.5	0.58	ug/L	1		6020A	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6422-1

Client Sample ID: LF008-30005 — Lab Sample ID: 160-6422-1

Date Collected: 04/21/14 10:56
Date Received: 04/29/14 09:35
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.6		2.5	0.58	ug/L		05/01/14 12:13	05/02/14 20:56	1

Client Sample ID: LF008-30005 — Lab Sample ID: 160-6422-2

Date Collected: 04/21/14 10:56
Date Received: 04/29/14 09:35
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.8		2.5	0.58	ug/L		05/01/14 12:13	05/02/14 21:22	1

Client Sample ID: LF008-30006 — Lab Sample ID: 160-6422-3

Date Collected: 04/21/14 10:56
Date Received: 04/29/14 09:35
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.4	J	2.5	0.58	ug/L		05/01/14 12:13	05/02/14 21:29	1

Client Sample ID: LF008-30006 — Lab Sample ID: 160-6422-4

Date Collected: 04/21/14 10:56
Date Received: 04/29/14 09:35
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.3	J	2.5	0.58	ug/L		05/01/14 12:13	05/02/14 21:35	1

Client Sample ID: LF008-30007 — Lab Sample ID: 160-6422-5

Date Collected: 04/21/14 15:26
Date Received: 04/29/14 09:35
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	1.9	J	2.5	0.58	ug/L		05/01/14 12:13	05/02/14 21:42	1

Client Sample ID: LF008-30007 — Lab Sample ID: 160-6422-6

Date Collected: 04/21/14 15:26
Date Received: 04/29/14 09:35
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.2	J	2.5	0.58	ug/L		05/01/14 12:13	05/02/14 22:02	1

Default Detection Limits

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6422-1

Method: 6020A - Metals (ICP/MS)

Analyte	LOQ	DL	Units	Method
Uranium	1.0	0.23	ug/L	6020A

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	LOQ	DL	Units	Method
Uranium	1.0	0.23	ug/L	6020A

QC Sample Results

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6422-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-119629/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 120163 — **Prep Batch: 119629**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	0.69	U	1.0	0.23	ug/L		05/01/14 12:13	05/02/14 20:42	1

Lab Sample ID: LCS 160-119629/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 120163 — **Prep Batch: 119629**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	1000	1060		ug/L		106	80 - 120

Lab Sample ID: 160-6422-1 MS — **Client Sample ID: LF008-30005**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 120163 — **Prep Batch: 119629**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	2.6		2500	2440		ug/L		97	75 - 125

Lab Sample ID: 160-6422-1 MSD — **Client Sample ID: LF008-30005**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 120163 — **Prep Batch: 119629**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Uranium	2.6		2500	2450		ug/L		98	75 - 125	1	20

Lab Sample ID: LRC 160-120163/13 — **Client Sample ID: Lab Control Sample**
Matrix: Water
Analysis Batch: 120163

Analyte	Spike Added	LRC Result	LRC Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	2000	1990		ug/L		100	90 - 110

QC Association Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6422-1

Metals

Prep Batch: 119629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6422-1	LF008-30005	Total/NA	Water	3010A	
160-6422-1 MS	LF008-30005	Total/NA	Water	3010A	
160-6422-1 MSD	LF008-30005	Total/NA	Water	3010A	
160-6422-1 SD	LF008-30005	Total/NA	Water	3010A	
160-6422-2	LF008-30005	Dissolved	Water	3010A	
160-6422-3	LF008-30006	Total/NA	Water	3010A	
160-6422-4	LF008-30006	Dissolved	Water	3010A	
160-6422-5	LF008-30007	Total/NA	Water	3010A	
160-6422-6	LF008-30007	Dissolved	Water	3010A	
LCS 160-119629/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 160-119629/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 120163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6422-1	LF008-30005	Total/NA	Water	6020A	119629
160-6422-1 MS	LF008-30005	Total/NA	Water	6020A	119629
160-6422-1 MSD	LF008-30005	Total/NA	Water	6020A	119629
160-6422-1 SD	LF008-30005	Total/NA	Water	6020A	119629
160-6422-2	LF008-30005	Dissolved	Water	6020A	119629
160-6422-3	LF008-30006	Total/NA	Water	6020A	119629
160-6422-4	LF008-30006	Dissolved	Water	6020A	119629
160-6422-5	LF008-30007	Total/NA	Water	6020A	119629
160-6422-6	LF008-30007	Dissolved	Water	6020A	119629
CRI 160-120163/33	DL		Water	6020A	
ICSA 160-120163/27	ICS		Water	6020A	
ICSAB 160-120163/28	ICS		Water	6020A	
LCS 160-119629/2-A	Lab Control Sample	Total/NA	Water	6020A	119629
LRC 160-120163/13	Lab Control Sample		Water	6020A	
MB 160-119629/1-A	Method Blank	Total/NA	Water	6020A	119629

Lab Chronicle

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6422-1

Client Sample ID: LF008-30005 — Lab Sample ID: 160-6422-1

Date Collected: 04/21/14 10:56
Matrix: Water
Date Received: 04/29/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			119629	05/01/14 12:13	LJT	TAL SL
Total/NA	Analysis	6020A		1	120163	05/02/14 20:56	CCB	TAL SL

Client Sample ID: LF008-30005 — Lab Sample ID: 160-6422-2

Date Collected: 04/21/14 10:56
Matrix: Water
Date Received: 04/29/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			119629	05/01/14 12:13	LJT	TAL SL
Dissolved	Analysis	6020A		1	120163	05/02/14 21:22	CCB	TAL SL

Client Sample ID: LF008-30006 — Lab Sample ID: 160-6422-3

Date Collected: 04/21/14 10:56
Matrix: Water
Date Received: 04/29/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			119629	05/01/14 12:13	LJT	TAL SL
Total/NA	Analysis	6020A		1	120163	05/02/14 21:29	CCB	TAL SL

Client Sample ID: LF008-30006 — Lab Sample ID: 160-6422-4

Date Collected: 04/21/14 10:56
Matrix: Water
Date Received: 04/29/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			119629	05/01/14 12:13	LJT	TAL SL
Dissolved	Analysis	6020A		1	120163	05/02/14 21:35	CCB	TAL SL

Client Sample ID: LF008-30007 — Lab Sample ID: 160-6422-5

Date Collected: 04/21/14 15:26
Matrix: Water
Date Received: 04/29/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			119629	05/01/14 12:13	LJT	TAL SL
Total/NA	Analysis	6020A		1	120163	05/02/14 21:42	CCB	TAL SL

Client Sample ID: LF008-30007 — Lab Sample ID: 160-6422-6

Date Collected: 04/21/14 15:26
Matrix: Water
Date Received: 04/29/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			119629	05/01/14 12:13	LJT	TAL SL
Dissolved	Analysis	6020A		1	120163	05/02/14 22:02	CCB	TAL SL

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6422-1

Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-14
California	NELAP	9	09266CA	03-31-14 *
Connecticut	State Program	1	PH-0241	03-31-15
Florida	NELAP	4	E87689	06-30-14
Illinois	NELAP	5	200023	11-30-14
Iowa	State Program	7	373	12-01-14
Kansas	NELAP	7	E-10236	10-31-14
Kentucky (DW)	State Program	4	90125	12-31-14
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA140007	12-31-14
Maryland	State Program	3	310	09-30-14
Missouri	State Program	7	780	06-30-14
Nevada	State Program	9	MO000542013-1	07-31-14
New Jersey	NELAP	2	MO002	06-30-14 *
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-15
North Dakota	State Program	8	R207	06-30-14
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	2013-049	08-31-14
Pennsylvania	NELAP	3	68-00540	02-28-15
South Carolina	State Program	4	85002001	06-30-14 *
Texas	NELAP	6	T104704193-13-6	07-31-14
USDA	Federal		P330-07-00122	01-09-17
USEPA Reg V SDWA	Federal	1	WG-15J	08-30-14
Utah	NELAP	8	MO000542013-5	07-31-14
Virginia	NELAP	3	2236	06-14-14 *
Washington	State Program	10	C592	08-30-14
West Virginia DEP	State Program	3	381	08-30-14

* Expired certification is currently pending renewal and is considered valid.

Method Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6422-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL SL

Protocol References:

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

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6422-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-6422-1	LF008-30005	Water	04/21/14 10:56	04/29/14 09:35
160-6422-2	LF008-30005	Water	04/21/14 10:56	04/29/14 09:35
160-6422-3	LF008-30006	Water	04/21/14 10:56	04/29/14 09:35
160-6422-4	LF008-30006	Water	04/21/14 10:56	04/29/14 09:35
160-6422-5	LF008-30007	Water	04/21/14 15:26	04/29/14 09:35
160-6422-6	LF008-30007	Water	04/21/14 15:26	04/29/14 09:35

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
MS A CAL1 LLC_00112	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	500 mL	MS CAL1_00005	0.5 mL	Uranium	1 ug/L
.MS CAL1_00005	12/23/14	Environmental Expres, Lot 1335201			(Purchased Reagent)		Uranium	1 ug/mL
MS A CAL2 CCV_00108	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	500 mL	MS CAL3 A_00004	0.25 mL	Uranium	100 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A CAL3_00108	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	250 mL	MS CAL3 A_00004	0.25 mL	Uranium	200 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A ICSA_00108	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	250 mL	MS ICSA_00012	25 mL	Al	100 mg/L
.MS ICSA_00012	12/19/14	Inorganic Ventures, Lot G2-MEB476152			(Purchased Reagent)		Al	1000 ug/mL
MS A ICSAB_00109	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	250 mL	MS CAL3 A_00004	0.125 mL	Uranium	100 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A ICV_00108	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	250 mL	MS ICV 2_00003	0.125 mL	Uranium	100 ug/L
.MS ICV 2_00003	12/19/14	SPEX, Lot 5-29NY			(Purchased Reagent)		Uranium	200 ug/mL
MS LDR 2PPM_00108	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	100 mL	MS CAL3 A_00004	1 mL	Uranium	2 ug/mL
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
PREP 1 and 2_00002	01/30/15	AccuScience, Lot 1055262			(Purchased Reagent)		Ag	40 mg/L
							Al	2000 mg/L
							As	200 mg/L
							B	400 mg/L
							Ba	200 mg/L
							Be	200 mg/L
							Bi	200 mg/L
							Ca	2000 mg/L
							Cd	200 mg/L
							Co	200 mg/L
							Cr	200 mg/L
							Cu	200 mg/L
							Fe	2000 mg/L
							K	2000 mg/L
							Li	200 mg/L
							Mg	2000 mg/L
							Mn	200 mg/L
							Mo	100 mg/L
							Na	2000 mg/L
							Nb	100 mg/L
							Ni	200 mg/L
							P	200 mg/L
							Pb	200 mg/L
							Sb	100 mg/L
							Se	100 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Sm	200 mg/L
							Sn	200 mg/L
							Sr	200 mg/L
							Sulfur	2000 mg/L
							Th	200 mg/L
							Ti	200 mg/L
							Tl	40 mg/L
							Uranium	200 mg/L
							V	200 mg/L
							W	200 mg/L
							Zn	200 mg/L
							Zr	200 mg/L

METALS

COVER PAGE
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6422-1

SDG No.:

Project: Kirtland

Client Sample ID	Lab Sample ID
LF008-30005	160-6422-1
LF008-30005	160-6422-2
LF008-30006	160-6422-3
LF008-30006	160-6422-4
LF008-30007	160-6422-5
LF008-30007	160-6422-6

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: LF008-30005

Lab Sample ID: 160-6422-1

Lab Name: TestAmerica St. Louis

Job No.: 160-6422-1

SDG ID.:

Matrix: Water

Date Sampled: 04/21/2014 10:56

Reporting Basis: WET

Date Received: 04/29/2014 09:35

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.6	2.5	1.7	0.58	ug/L			1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - DISSOLVED

Client Sample ID: LF008-30005
Lab Sample ID: 160-6422-2
Lab Name: TestAmerica St. Louis
Job No.: 160-6422-1
SDG ID.:
Matrix: Water
Date Sampled: 04/21/2014 10:56
Reporting Basis: WET
Date Received: 04/29/2014 09:35

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.8	2.5	1.7	0.58	ug/L			1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: LF008-30006

Lab Sample ID: 160-6422-3

Lab Name: TestAmerica St. Louis

Job No.: 160-6422-1

SDG ID.:

Matrix: Water

Date Sampled: 04/21/2014 10:56

Reporting Basis: WET

Date Received: 04/29/2014 09:35

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.4	2.5	1.7	0.58	ug/L	J		1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - DISSOLVED

Client Sample ID: LF008-30006
Lab Sample ID: 160-6422-4
Lab Name: TestAmerica St. Louis
Job No.: 160-6422-1
SDG ID.:
Matrix: Water
Date Sampled: 04/21/2014 10:56
Reporting Basis: WET
Date Received: 04/29/2014 09:35

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.3	2.5	1.7	0.58	ug/L	J		1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: LF008-30007

Lab Sample ID: 160-6422-5

Lab Name: TestAmerica St. Louis

Job No.: 160-6422-1

SDG ID.:

Matrix: Water

Date Sampled: 04/21/2014 15:26

Reporting Basis: WET

Date Received: 04/29/2014 09:35

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	1.9	2.5	1.7	0.58	ug/L	J		1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - DISSOLVED

Client Sample ID: LF008-30007
Lab Sample ID: 160-6422-6
Lab Name: TestAmerica St. Louis
Job No.: 160-6422-1
SDG ID.:
Matrix: Water
Date Sampled: 04/21/2014 15:26
Reporting Basis: WET
Date Received: 04/29/2014 09:35

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.2	2.5	1.7	0.58	ug/L	J		1	6020A

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

ICV Source: MS A ICV_00108 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00108

Analyte	ICV 160-120163/24 05/02/2014 16:28				CCV 160-120163/34 05/02/2014 20:29				CCV 160-120163/46 05/02/2014 21:49			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Uranium	102		100	102	97.4		100	97	100		100	100

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

ICV Source: MS A ICV_00108 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00108

Analyte	CCV 160-120163/49 05/02/2014 23:09											
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Uranium	100		100	100								

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

Method: 6020A Instrument ID: ICPMS7500

Lab Sample ID: CRI 160-120163/33 Concentration Units: ug/L

CRQL Check Standard Source: MS A CAL1 LLC_00112

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Uranium	1.00	1.02		102	70-130

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

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 160-120163/25 05/02/2014 16:35		CCB 160-120163/35 05/02/2014 20:36		CCB 160-120163/47 05/02/2014 21:56		CCB 160-120163/50 05/02/2014 23:16	
		Found	C	Found	C	Found	C	Found	C
Uranium	1.0	0.69	U	0.69	U	0.69	U	0.69	U

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

Concentration Units: ug/L Lab Sample ID: MB 160-119629/1-A

Instrument Code: ICPMS7500 Batch No.: 120163

CAS No.	Analyte	Concentration	C	Q	Method
7440-61-1	Uranium	0.69	U		6020A

FORM III-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

Lab Sample ID: ICSA 160-120163/27 Instrument ID: ICPMS7500

Lab File ID: 032ICSA.D ICS Source: MS A ICSA_00108

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Uranium		**0.0070**	
Aluminum	*100000*	*94717*	*95*

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

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

Lab Sample ID: ICSAB 160-120163/28 Instrument ID: ICPMS7500

Lab File ID: 033ICSB.D ICS Source: MS A ICSAB_00109

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Uranium	**100**	**111**	**111**

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

FORM IVA-IN

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS

Client ID: LF008-30005 MS

Lab ID: 160-6422-1 MS

Lab Name: TestAmerica St. Louis

Job No.: 160-6422-1

SDG No.:

Matrix: Water

Concentration Units: ug/L

% Solids:

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Uranium	2440		2.6		2500	97	75-125		6020A

SSR = Spiked Sample Result

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

FORM VA - IN

5A-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
METALS

Client ID: LF008-30005 MSD

Lab ID: 160-6422-1 MSD

Lab Name: TestAmerica St. Louis

Job No.: 160-6422-1

SDG No.:

Matrix: Water

Concentration Units: ug/L

% Solids:

Analyte	(SDR)	C	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Uranium	2450		2500	98	75-125	1	20		6020A

SDR = Sample Duplicate Result

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

FORM VD - IN

LINEAR RANGE CHECK STANDARD
METALS -

Lab ID: LRC 160-120163/13

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

Sample Matrix: Water LCS Source: MS LDR 2PPM_00108

Analyte	Water(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Uranium	2000	1990		100	90	110		6020A

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

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 160-119629/2-A

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

Sample Matrix: Water LCS Source: PREP 1 and 2_00002

Analyte	Water(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Uranium	1000	1060		106	80	120		6020A

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

FORM VIIA - IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 160-6422-1

SDG No:

Lab Name: TestAmerica St. Louis Job No: 160-6422-1

Matrix: Water Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Uranium	2.6		8.6	U	NC		6020A

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

FORM VIII-IN

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6422-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A DL Date: 04/19/2013 16:43

Prep Method: 3010A

Analyte	Wavelength/ Mass	LOQ (ug/L)	DL (ug/L)
Uranium	238	1	0.231

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6422-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A XMDL Date: 04/19/2013 16:42

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Uranium	238	1	0.231

9-IN
DETECTION LIMITS
METALS - DISSOLVED

Lab Name: TestAmerica St. Louis Job Number: 160-6422-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A DL Date: 04/19/2013 16:43

Prep Method: 3010A

Analyte	Wavelength/ Mass	LOQ (ug/L)	DL (ug/L)
Uranium	238	1	0.231

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS - DISSOLVED

Lab Name: TestAmerica St. Louis Job Number: 160-6422-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A XMDL Date: 04/19/2013 16:42

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Uranium	238	1	0.231

11-IN
LINEAR RANGES
METALS

Lab Name: TestAmerica St. Louis Job No: 160-6422-1

SDG No.:

Instrument ID: ICPMS7500 Date: 02/14/2012 11:08

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Uranium		2000	6020A

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

Prep Method: 3010A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 160-119629/1-A	05/01/2014 12:13	119629		50	50
LCS 160-119629/2-A	05/01/2014 12:13	119629		50	50
160-6422-1	05/01/2014 12:13	119629		20	50
160-6422-1 MS	05/01/2014 12:13	119629		20	50
160-6422-1 MSD	05/01/2014 12:13	119629		20	50
160-6422-2	05/01/2014 12:13	119629		20	50
160-6422-3	05/01/2014 12:13	119629		20	50
160-6422-4	05/01/2014 12:13	119629		20	50
160-6422-5	05/01/2014 12:13	119629		20	50
160-6422-6	05/01/2014 12:13	119629		20	50

FORM XII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

Instrument ID: ICPMS7500 Analysis Method: 6020A

Start Date: 05/02/2014 13:33 End Date: 05/02/2014 23:16

Lab Sample Id	D/F	Type	Time	Analytes																							
				U																							
ICIS 160-120163/1			13:33	X																							
IC 160-120163/2			13:40	X																							
IC 160-120163/3			13:47	X																							
IC 160-120163/4			13:54	X																							
ICV 160-120163/5			14:00																								
ICB 160-120163/6			14:07																								
CRI 160-120163/7			14:14																								
ICSA 160-120163/8			14:21																								
ICSAB 160-120163/9			14:27																								
CCV 160-120163/10			14:34																								
CCB 160-120163/11			14:41																								
ZZZZZZ			14:47																								
LRC 160-120163/13	1		14:54	X																							
ZZZZZZ			15:01																								
ZZZZZZ			15:07																								
ZZZZZZ			15:14																								
ZZZZZZ			15:21																								
CCV 160-120163/18			15:27																								
CCB 160-120163/19			15:34																								
ICIS 160-120163/20			16:01	X																							
IC 160-120163/21	1		16:08	X																							
IC 160-120163/22	1		16:15	X																							
IC 160-120163/23	1		16:21	X																							
ICV 160-120163/24	1		16:28	X																							
ICB 160-120163/25	1		16:35	X																							
CRI 160-120163/26			16:42																								
ICSA 160-120163/27	1		16:48	X																							
ICSAB 160-120163/28	1		16:55	X																							
CCV 160-120163/29			17:02																								
CCB 160-120163/30			17:08																								
CCV 160-120163/31			19:15																								
CCB 160-120163/32			19:22																								
CRI 160-120163/33	1		20:22	X																							
CCV 160-120163/34	1		20:29	X																							
CCB 160-120163/35	1		20:36	X																							
MB 160-119629/1-A	1	T	20:42	X																							
LCS 160-119629/2-A	1	T	20:49	X																							
160-6422-1	1	T	20:56	X																							
160-6422-1 SD	5	T	21:02	X																							
160-6422-1 MS	1	T	21:09	X																							
160-6422-1 MSD	1	T	21:15	X																							
160-6422-2	1	D	21:22	X																							

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

Instrument ID: ICPMS7500 Analysis Method: 6020A

Start Date: 05/02/2014 13:33 End Date: 05/02/2014 23:16

Lab Sample Id	D/F	Type	Time	Analytes																							
				U																							
160-6422-3	1	T	21:29	X																							
160-6422-4	1	D	21:35	X																							
160-6422-5	1	T	21:42	X																							
CCV 160-120163/46	1		21:49	X																							
CCB 160-120163/47	1		21:56	X																							
160-6422-6	1	D	22:02	X																							
CCV 160-120163/49	1		23:09	X																							
CCB 160-120163/50	1		23:16	X																							

Prep Types:
D = Dissolved
T = Total/NA

FORM XIII-IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

ICP-MS Instrument ID: ICPMS7500 Start Date: 05/02/2014 End Date: 05/02/2014

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc/2	Q	Element Sc/3	Q	Element Ge/2	Q	Element Ge/3	Q
LRC 160-120163/13	14:54	84		100		100		104		101	
IC 160-120163/21	16:08	97		99		99		101		102	
IC 160-120163/22	16:15	97		99		100		103		102	
IC 160-120163/23	16:21	96		100		99		105		102	
ICV 160-120163/24	16:28	99		101		100		104		102	
ICB 160-120163/25	16:35	101		100		101		100		101	
ICSA 160-120163/27	16:48	96		102		100		101		100	
ICSAB 160-120163/28	16:55	93		104		98		105		101	
CRI 160-120163/33	20:22	110		117		114		123		119	
CCV 160-120163/34	20:29	107		113		112		119		114	
CCB 160-120163/35	20:36	108		115		113		115		114	
MB 160-119629/1-A	20:42	104		110		109		118		118	
LCS 160-119629/2-A	20:49	91		106		102		112		106	
160-6422-1	20:56	104		109		109		119		118	
160-6422-1 SD	21:02	105		112		111		119		118	
160-6422-1 MS	21:09	94		106		107		115		112	
160-6422-1 MSD	21:15	96		107		108		116		114	
160-6422-2	21:22	99		112		104		121		114	
160-6422-3	21:29	106		108		110		118		118	
160-6422-4	21:35	104		106		109		116		117	
160-6422-5	21:42	104		107		108		116		117	
CCV 160-120163/46	21:49	106		109		112		117		115	
CCB 160-120163/47	21:56	108		111		111		114		112	
160-6422-6	22:02	100		104		103		114		112	
CCV 160-120163/49	23:09	103		106		105		114		110	
CCB 160-120163/50	23:16	106		107		106		110		108	

FORM XV - IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

ICP-MS Instrument ID: ICPMS7500 Start Date: 05/02/2014 End Date: 05/02/2014

Lab Sample ID	Time	Internal Standards %RI For:									
		Element In	Q	Element Ho/2	Q	Element Ho/3	Q	Element Ir/2	Q	Element Ir/3	Q
LRC 160-120163/13	14:54	100		98		101		95		98	
IC 160-120163/21	16:08	101		98		99		100		101	
IC 160-120163/22	16:15	101		100		101		100		100	
IC 160-120163/23	16:21	99		100		99		99		98	
ICV 160-120163/24	16:28	102		100		101		101		101	
ICB 160-120163/25	16:35	101		100		99		100		99	
ICSA 160-120163/27	16:48	96		99		98		93		94	
ICSAB 160-120163/28	16:55	95		101		98		95		91	
CRI 160-120163/33	20:22	116		110		108		108		108	
CCV 160-120163/34	20:29	114		109		108		106		107	
CCB 160-120163/35	20:36	113		109		107		108		109	
MB 160-119629/1-A	20:42	112		105		106		106		108	
LCS 160-119629/2-A	20:49	101		105		100		104		98	
160-6422-1	20:56	111		108		109		106		107	
160-6422-1 SD	21:02	114		109		109		106		107	
160-6422-1 MS	21:09	108		107		108		104		106	
160-6422-1 MSD	21:15	109		107		108		104		107	
160-6422-2	21:22	108		112		105		109		103	
160-6422-3	21:29	112		108		111		107		109	
160-6422-4	21:35	112		109		110		107		109	
160-6422-5	21:42	111		108		110		107		108	
CCV 160-120163/46	21:49	114		110		112		108		111	
CCB 160-120163/47	21:56	114		110		109		110		110	
160-6422-6	22:02	107		106		105		105		103	
CCV 160-120163/49	23:09	109		108		107		104		104	
CCB 160-120163/50	23:16	109		107		106		106		107	

FORM XV - IN

METALS BATCH WORKSHEET

Lab Name: TestAmerica St. Louis Job No.: 160-6422-1

SDG No.:

Batch Number: 119629 Batch Start Date: 05/01/14 12:13 Batch Analyst: Taddeo, Louis J

Batch Method: 3010A Batch End Date: 05/02/14 09:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	PREP 1 and 2 00002			
MB 160-119629/1		3010A, 6020A		50 mL	50 mL				
LCS 160-119629/2		3010A, 6020A		50 mL	50 mL	0.25 mL			
160-6422-A-1	LF008-30005	3010A, 6020A	T	20 mL	50 mL				
160-6422-A-1 MS	LF008-30005	3010A, 6020A	T	20 mL	50 mL	0.25 mL			
160-6422-A-1 MSD	LF008-30005	3010A, 6020A	T	20 mL	50 mL	0.25 mL			
160-6422-A-2	LF008-30005	3010A, 6020A	D	20 mL	50 mL				
160-6422-A-3	LF008-30006	3010A, 6020A	T	20 mL	50 mL				
160-6422-A-4	LF008-30006	3010A, 6020A	D	20 mL	50 mL				
160-6422-A-5	LF008-30007	3010A, 6020A	T	20 mL	50 mL				
160-6422-A-6	LF008-30007	3010A, 6020A	D	20 mL	50 mL				

Batch Notes	
Balance ID	27150548
Batch Comment	(HOT BLOCK 1)
Lot # of hydrochloric acid	353918
Lot # of Nitric Acid	327704
Oven, Bath or Block Temperature 1	93.1 Degrees C
Pipette ID	M-PREP-2
ID number of the thermometer	111815886
Digestion Tube/Cup Lot #	175919

Basis	Basis Description
T	Total/NA
D	Dissolved

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Shipping and Receiving Documents

SUBCONTRACT ORDER

Empirical Laboratories, LLC

1404149

PO# 14-0397

SENDING LABORATORY:

Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Phone: 615.345.1115
Fax: 866.417.0548
Project Manager: Marianne J. Walker

RECEIVING LABORATORY:

Test America St.Louis
13715 Rider Trail North
Earth City, MO 63045-1205
Phone :(314) 298-8566
Fax: (314) 298-8757

160-6422 Chain of Custody

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: LF008-30005				
Reference No: 1404149-01	Water	Sampled:04/21/2014 10:56		
SUB_SPECIALTY	05/09/2014 14:00	10/18/2014 11:56		Uranium by 6020
Containers Supplied:				
Sample ID: LF008-30005				
Reference No: 1404149-02	Water	Sampled:04/21/2014 10:56		Filtered
SUB_SPECIALTY	05/09/2014 14:00	10/18/2014 11:56		Dissolved Uranium by 6020
Containers Supplied:				
Sample ID: LF008-30006				
Reference No: 1404149-03	Water	Sampled:04/21/2014 10:56		
SUB_SPECIALTY	05/09/2014 14:00	10/18/2014 11:56		Uranium by 6020
Containers Supplied:				
Sample ID: LF008-30006				
Reference No: 1404149-04	Water	Sampled:04/21/2014 10:56		Filtered
SUB_SPECIALTY	05/09/2014 14:00	10/18/2014 11:56		Dissolved Uranium by 6020
Containers Supplied:				
Sample ID: LF008-30007				
Reference No: 1404149-05	Water	Sampled:04/21/2014 15:26		
SUB_SPECIALTY	05/09/2014 14:00	10/18/2014 16:26		Uranium by 6020
Containers Supplied:				
Sample ID: LF008-30007				
Reference No: 1404149-06	Water	Sampled:04/21/2014 15:26		Filtered
SUB_SPECIALTY	05/09/2014 14:00	10/18/2014 16:26		Dissolved Uranium by 6020
Containers Supplied:				

Released By	Date	Received By	Date
[signature]	4/28/14	[signature]	4.29.14 0935
Released By	Date	Received By	Date

Ref:
Dep:

Date: 28Apr14
Wgt: 19.45 LBS
DV: 0.00

SHIPPING: 24.98
SPECIAL: 2.50
HANDLING: 0.00
TOTAL: 27.48

Svcs: PRIORITY OVERNIGHT
TRCK: 6040 4019 2282

Login Sample Receipt Checklist

Client: Empirical Laboratories, LLC

Job Number: 160-6422-1

Login Number: 6422

List Source: TestAmerica St. Louis

List Number: 1

Creator: Clarke, Jill C

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.	N/A	
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?	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Job Number: 160-6423-1

Job Description: Kirtland

For:
Empirical Laboratories, LLC
621 Mainstream Drive
Suite 270
Nashville, TN 37228

Attention: Marianne Walker

Approved for release.
Erika K Gish
Project Manager II
5/14/2014 10:54 AM

Erika K Gish, Project Manager II
13715 Rider Trail North, Earth City, MO, 63045
(314)298-8566
erika.gish@testamericainc.com
05/14/2014

The test results in this report meet NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted. Results pertain only to samples listed in this report. Pursuant to NELAP, this report shall not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager.

Louisiana Lab Certification ID (Non-Potable, Solid/Haz. Material): 106151
Florida Lab Certification ID (Drinking Water): E87689.

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Qualifiers

Metals

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
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

CASE NARRATIVE

Client: Empirical Laboratories, LLC

Project: Kirtland

Report Number: 160-6423-1

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.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

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.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT
The samples were received on 4/29/2014 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8º C.

Sample IDs changed per client request.

METALS (ICP/MS)
Samples LF008-30002 (160-6423-2) and LF008-30004 (160-6423-4) were analyzed for Metals (ICP/MS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 05/01/2014 and analyzed on 05/02/2014.

A reduced aliquot was used due to insufficient volume: LF008-30002 (160-6423-2), LF008-30004 (160-6423-4).

All quality control parameters were within the acceptance limits.

METALS (ICPMS)

Samples LF008-30002 (160-6423-1) and LF008-30004 (160-6423-3) were analyzed for Metals (ICPMS) in accordance with EPA SW-846 Methods 6020A. The samples were prepared on 05/01/2014 and analyzed on 05/02/2014.

A reduced aliquot was used due to insufficient volume: (160-6423-1 MS), (160-6423-1 MSD), LF008-30002 (160-6423-1), LF008-30004 (160-6423-3).

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

Detection Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6423-1

Client Sample ID: LF008-30002 — Lab Sample ID: 160-6423-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.3	J	2.5	0.58	ug/L	1		6020A	Total/NA

Client Sample ID: LF008-30002 — Lab Sample ID: 160-6423-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.4	J	2.5	0.58	ug/L	1		6020A	Dissolved

Client Sample ID: LF008-30004 — Lab Sample ID: 160-6423-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.5		2.5	0.58	ug/L	1		6020A	Total/NA

Client Sample ID: LF008-30004 — Lab Sample ID: 160-6423-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.4	J	2.5	0.58	ug/L	1		6020A	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6423-1

Client Sample ID: LF008-30002 — Lab Sample ID: 160-6423-1

Date Collected: 04/24/14 13:46
Date Received: 04/29/14 09:35
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.3	J	2.5	0.58	ug/L		05/01/14 12:16	05/02/14 22:22	1

Client Sample ID: LF008-30002 — Lab Sample ID: 160-6423-2

Date Collected: 04/24/14 13:46
Date Received: 04/29/14 09:35
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.4	J	2.5	0.58	ug/L		05/01/14 12:16	05/02/14 22:49	1

Client Sample ID: LF008-30004 — Lab Sample ID: 160-6423-3

Date Collected: 04/23/14 15:51
Date Received: 04/29/14 09:35
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.5		2.5	0.58	ug/L		05/01/14 12:16	05/02/14 22:56	1

Client Sample ID: LF008-30004 — Lab Sample ID: 160-6423-4

Date Collected: 04/23/14 15:51
Date Received: 04/29/14 09:35
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.4	J	2.5	0.58	ug/L		05/01/14 12:16	05/02/14 23:02	1

Default Detection Limits

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6423-1

Method: 6020A - Metals (ICP/MS)

Analyte	LOQ	DL	Units	Method
Uranium	1.0	0.23	ug/L	6020A

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	LOQ	DL	Units	Method
Uranium	1.0	0.23	ug/L	6020A

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-119630/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 120164 — **Prep Batch: 119630**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	0.69	U	1.0	0.23	ug/L		05/01/14 12:16	05/02/14 22:09	1

Lab Sample ID: LCS 160-119630/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 120164 — **Prep Batch: 119630**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	1000	950		ug/L		95	80 - 120

Lab Sample ID: 160-6423-1 MS — **Client Sample ID: LF008-30002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 120164 — **Prep Batch: 119630**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	2.3	J	2500	2610		ug/L		104	75 - 125

Lab Sample ID: 160-6423-1 MSD — **Client Sample ID: LF008-30002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 120164 — **Prep Batch: 119630**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Uranium	2.3	J	2500	2460		ug/L		98	75 - 125	6	20

Lab Sample ID: LRC 160-120164/13 — **Client Sample ID: Lab Control Sample**
Matrix: Water
Analysis Batch: 120164

Analyte	Spike Added	LRC Result	LRC Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	2000	1990		ug/L		100	90 - 110

QC Association Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6423-1

Metals

Prep Batch: 119630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6423-1	LF008-30002	Total/NA	Water	3010A	
160-6423-1 MS	LF008-30002	Total/NA	Water	3010A	
160-6423-1 MSD	LF008-30002	Total/NA	Water	3010A	
160-6423-1 SD	LF008-30002	Total/NA	Water	3010A	
160-6423-2	LF008-30002	Dissolved	Water	3010A	
160-6423-3	LF008-30004	Total/NA	Water	3010A	
160-6423-4	LF008-30004	Dissolved	Water	3010A	
LCS 160-119630/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 160-119630/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 120164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6423-1	LF008-30002	Total/NA	Water	6020A	119630
160-6423-1 MS	LF008-30002	Total/NA	Water	6020A	119630
160-6423-1 MSD	LF008-30002	Total/NA	Water	6020A	119630
160-6423-1 SD	LF008-30002	Total/NA	Water	6020A	119630
160-6423-2	LF008-30002	Dissolved	Water	6020A	119630
160-6423-3	LF008-30004	Total/NA	Water	6020A	119630
160-6423-4	LF008-30004	Dissolved	Water	6020A	119630
CRI 160-120164/33	DL		Water	6020A	
ICSA 160-120164/27	ICS		Water	6020A	
ICSAB 160-120164/28	ICS		Water	6020A	
LCS 160-119630/2-A	Lab Control Sample	Total/NA	Water	6020A	119630
LRC 160-120164/13	Lab Control Sample		Water	6020A	
MB 160-119630/1-A	Method Blank	Total/NA	Water	6020A	119630

Lab Chronicle

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6423-1

Client Sample ID: LF008-30002 — Lab Sample ID: 160-6423-1

Date Collected: 04/24/14 13:46
Matrix: Water
Date Received: 04/29/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			119630	05/01/14 12:16	LJT	TAL SL
Total/NA	Analysis	6020A		1	120164	05/02/14 22:22	CCB	TAL SL

Client Sample ID: LF008-30002 — Lab Sample ID: 160-6423-2

Date Collected: 04/24/14 13:46
Matrix: Water
Date Received: 04/29/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			119630	05/01/14 12:16	LJT	TAL SL
Dissolved	Analysis	6020A		1	120164	05/02/14 22:49	CCB	TAL SL

Client Sample ID: LF008-30004 — Lab Sample ID: 160-6423-3

Date Collected: 04/23/14 15:51
Matrix: Water
Date Received: 04/29/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			119630	05/01/14 12:16	LJT	TAL SL
Total/NA	Analysis	6020A		1	120164	05/02/14 22:56	CCB	TAL SL

Client Sample ID: LF008-30004 — Lab Sample ID: 160-6423-4

Date Collected: 04/23/14 15:51
Matrix: Water
Date Received: 04/29/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			119630	05/01/14 12:16	LJT	TAL SL
Dissolved	Analysis	6020A		1	120164	05/02/14 23:02	CCB	TAL SL

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6423-1

Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-14
California	NELAP	9	09266CA	03-31-14 *
Connecticut	State Program	1	PH-0241	03-31-15
Florida	NELAP	4	E87689	06-30-14
Illinois	NELAP	5	200023	11-30-14
Iowa	State Program	7	373	12-01-14
Kansas	NELAP	7	E-10236	10-31-14
Kentucky (DW)	State Program	4	90125	12-31-14
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA140007	12-31-14
Maryland	State Program	3	310	09-30-14
Missouri	State Program	7	780	06-30-14
Nevada	State Program	9	MO000542013-1	07-31-14
New Jersey	NELAP	2	MO002	06-30-14 *
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-15
North Dakota	State Program	8	R207	06-30-14
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	2013-049	08-31-14
Pennsylvania	NELAP	3	68-00540	02-28-15
South Carolina	State Program	4	85002001	06-30-14 *
Texas	NELAP	6	T104704193-13-6	07-31-14
USDA	Federal		P330-07-00122	01-09-17
USEPA Reg V SDWA	Federal	1	WG-15J	08-30-14
Utah	NELAP	8	MO000542013-5	07-31-14
Virginia	NELAP	3	2236	06-14-14 *
Washington	State Program	10	C592	08-30-14
West Virginia DEP	State Program	3	381	08-30-14

* Expired certification is currently pending renewal and is considered valid.

Method Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6423-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL SL

Protocol References:

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

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6423-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-6423-1	LF008-30002	Water	04/24/14 13:46	04/29/14 09:35
160-6423-2	LF008-30002	Water	04/24/14 13:46	04/29/14 09:35
160-6423-3	LF008-30004	Water	04/23/14 15:51	04/29/14 09:35
160-6423-4	LF008-30004	Water	04/23/14 15:51	04/29/14 09:35

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
MS A CAL1 LLC_00112	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	500 mL	MS CAL1_00005	0.5 mL	Uranium	1 ug/L
.MS CAL1_00005	12/23/14	Environmental Expres, Lot 1335201			(Purchased Reagent)		Uranium	1 ug/mL
MS A CAL2 CCV_00108	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	500 mL	MS CAL3 A_00004	0.25 mL	Uranium	100 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A CAL3_00108	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	250 mL	MS CAL3 A_00004	0.25 mL	Uranium	200 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A ICSA_00108	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	250 mL	MS ICSA_00012	25 mL	Al	100 mg/L
.MS ICSA_00012	12/19/14	Inorganic Ventures, Lot G2-MEB476152			(Purchased Reagent)		Al	1000 ug/mL
MS A ICSAB_00109	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	250 mL	MS CAL3 A_00004	0.125 mL	Uranium	100 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A ICV_00108	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	250 mL	MS ICV 2_00003	0.125 mL	Uranium	100 ug/L
.MS ICV 2_00003	12/19/14	SPEX, Lot 5-29NY			(Purchased Reagent)		Uranium	200 ug/mL
MS LDR 2PPM_00108	05/08/14	05/01/14	2% HCL 2% HN03, Lot 355914	100 mL	MS CAL3 A_00004	1 mL	Uranium	2 ug/mL
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
PREP 1 and 2_00002	01/30/15	AccuScience, Lot 1055262			(Purchased Reagent)		Ag	40 mg/L
							Al	2000 mg/L
							As	200 mg/L
							B	400 mg/L
							Ba	200 mg/L
							Be	200 mg/L
							Bi	200 mg/L
							Ca	2000 mg/L
							Cd	200 mg/L
							Co	200 mg/L
							Cr	200 mg/L
							Cu	200 mg/L
							Fe	2000 mg/L
							K	2000 mg/L
							Li	200 mg/L
							Mg	2000 mg/L
							Mn	200 mg/L
							Mo	100 mg/L
							Na	2000 mg/L
							Nb	100 mg/L
							Ni	200 mg/L
							P	200 mg/L
							Pb	200 mg/L
							Sb	100 mg/L
							Se	100 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Sm	200 mg/L
							Sn	200 mg/L
							Sr	200 mg/L
							Sulfur	2000 mg/L
							Th	200 mg/L
							Ti	200 mg/L
							Tl	40 mg/L
							Uranium	200 mg/L
							V	200 mg/L
							W	200 mg/L
							Zn	200 mg/L
							Zr	200 mg/L

METALS

COVER PAGE
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6423-1

SDG No.:

Project: Kirtland

Client Sample ID	Lab Sample ID
LF008-30002	160-6423-1
LF008-30002	160-6423-2
LF008-30004	160-6423-3
LF008-30004	160-6423-4

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: LF008-30002

Lab Sample ID: 160-6423-1

Lab Name: TestAmerica St. Louis

Job No.: 160-6423-1

SDG ID.:

Matrix: Water

Date Sampled: 04/24/2014 13:46

Reporting Basis: WET

Date Received: 04/29/2014 09:35

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.3	2.5	1.7	0.58	ug/L	J		1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - DISSOLVED

Client Sample ID: LF008-30002
Lab Sample ID: 160-6423-2
Lab Name: TestAmerica St. Louis
Job No.: 160-6423-1
SDG ID.:
Matrix: Water
Date Sampled: 04/24/2014 13:46
Reporting Basis: WET
Date Received: 04/29/2014 09:35

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.4	2.5	1.7	0.58	ug/L	J		1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: LF008-30004

Lab Sample ID: 160-6423-3

Lab Name: TestAmerica St. Louis

Job No.: 160-6423-1

SDG ID.:

Matrix: Water

Date Sampled: 04/23/2014 15:51

Reporting Basis: WET

Date Received: 04/29/2014 09:35

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.5	2.5	1.7	0.58	ug/L			1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - DISSOLVED

Client Sample ID: LF008-30004
Lab Sample ID: 160-6423-4
Lab Name: TestAmerica St. Louis
Job No.: 160-6423-1
SDG ID.:
Matrix: Water
Date Sampled: 04/23/2014 15:51
Reporting Basis: WET
Date Received: 04/29/2014 09:35

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.4	2.5	1.7	0.58	ug/L	J		1	6020A

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

ICV Source: MS A ICV_00108 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00108

Analyte	ICV 160-120164/24 05/02/2014 16:28				CCV 160-120164/36 05/02/2014 21:49				CCV 160-120164/47 05/02/2014 23:09			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Uranium	102		100	102	100		100	100	100		100	100

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

Method: 6020A Instrument ID: ICPMS7500

Lab Sample ID: CRI 160-120164/33 Concentration Units: ug/L

CRQL Check Standard Source: MS A CAL1 LLC_00112

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Uranium	1.00	1.02		102	70-130

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

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 160-120164/25 05/02/2014 16:35		CCB 160-120164/37 05/02/2014 21:56		CCB 160-120164/48 05/02/2014 23:16			
		Found	C	Found	C	Found	C	Found	C
Uranium	1.0	0.69	U	0.69	U	0.69	U		

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

Concentration Units: ug/L Lab Sample ID: MB 160-119630/1-A

Instrument Code: ICPMS7500 Batch No.: 120164

CAS No.	Analyte	Concentration	C	Q	Method
7440-61-1	Uranium	0.69	U		6020A

FORM III-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

Lab Sample ID: ICSA 160-120164/27 Instrument ID: ICPMS7500

Lab File ID: 032ICSA.D ICS Source: MS A ICSA_00108

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Uranium		**0.0070**	
Aluminum	*100000*	*94717*	*95*

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

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

Lab Sample ID: ICSAB 160-120164/28 Instrument ID: ICPMS7500

Lab File ID: 033ICSB.D ICS Source: MS A ICSAB_00109

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Uranium	**100**	**111**	**111**

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

FORM IVA-IN

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS

Client ID: LF008-30002 MS

Lab ID: 160-6423-1 MS

Lab Name: TestAmerica St. Louis

Job No.: 160-6423-1

SDG No.:

Matrix: Water

Concentration Units: ug/L

% Solids:

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Uranium	2610		2.3	J	2500	104	75-125		6020A

SSR = Spiked Sample Result

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

FORM VA - IN

5A-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
METALS

Client ID: LF008-30002 MSD

Lab ID: 160-6423-1 MSD

Lab Name: TestAmerica St. Louis

Job No.: 160-6423-1

SDG No.:

Matrix: Water

Concentration Units: ug/L

% Solids:

Analyte	(SDR)	C	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Uranium	2460		2500	98	75-125	6	20		6020A

SDR = Sample Duplicate Result

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

FORM VD - IN

LINEAR RANGE CHECK STANDARD
METALS -

Lab ID: LRC 160-120164/13

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

Sample Matrix: Water LCS Source: MS LDR 2PPM_00108

Analyte	Water(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Uranium	2000	1990		100	90	110		6020A

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

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 160-119630/2-A

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

Sample Matrix: Water LCS Source: PREP 1 and 2_00002

Analyte	Water(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Uranium	1000	950		95	80	120		6020A

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

FORM VIIA - IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 160-6423-1

SDG No:

Lab Name: TestAmerica St. Louis Job No: 160-6423-1

Matrix: Water Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Uranium	2.3	J	8.6	U	NC		6020A

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

FORM VIII-IN

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6423-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A DL Date: 04/19/2013 16:43

Prep Method: 3010A

Analyte	Wavelength/ Mass	LOQ (ug/L)	DL (ug/L)
Uranium	238	1	0.231

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6423-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A XMDL Date: 04/19/2013 16:42

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Uranium	238	1	0.231

9-IN
DETECTION LIMITS
METALS - DISSOLVED

Lab Name: TestAmerica St. Louis Job Number: 160-6423-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A DL Date: 04/19/2013 16:43

Prep Method: 3010A

Analyte	Wavelength/ Mass	LOQ (ug/L)	DL (ug/L)
Uranium	238	1	0.231

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS - DISSOLVED

Lab Name: TestAmerica St. Louis Job Number: 160-6423-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7500

Method: 6020A XMDL Date: 04/19/2013 16:42

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Uranium	238	1	0.231

11-IN
LINEAR RANGES
METALS

Lab Name: TestAmerica St. Louis Job No: 160-6423-1

SDG No.:

Instrument ID: ICPMS7500 Date: 02/14/2012 11:08

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Uranium		2000	6020A

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

Prep Method: 3010A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 160-119630/1-A	05/01/2014 12:16	119630		50	50
LCS 160-119630/2-A	05/01/2014 12:16	119630		50	50
160-6423-1	05/01/2014 12:16	119630		20	50
160-6423-1 MS	05/01/2014 12:16	119630		20	50
160-6423-1 MSD	05/01/2014 12:16	119630		20	50
160-6423-2	05/01/2014 12:16	119630		20	50
160-6423-3	05/01/2014 12:16	119630		20	50
160-6423-4	05/01/2014 12:16	119630		20	50

FORM XII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

Instrument ID: ICPMS7500 Analysis Method: 6020A

Start Date: 05/02/2014 13:33 End Date: 05/02/2014 23:16

Lab Sample Id	D/F	Type	Time	Analytes																							
				U																							
ICIS 160-120164/1			13:33	X																							
IC 160-120164/2			13:40	X																							
IC 160-120164/3			13:47	X																							
IC 160-120164/4			13:54	X																							
ICV 160-120164/5			14:00																								
ICB 160-120164/6			14:07																								
CRI 160-120164/7			14:14																								
ICSA 160-120164/8			14:21																								
ICSAB 160-120164/9			14:27																								
CCV 160-120164/10			14:34																								
CCB 160-120164/11			14:41																								
ZZZZZZ			14:47																								
LRC 160-120164/13	1		14:54	X																							
ZZZZZZ			15:01																								
ZZZZZZ			15:07																								
ZZZZZZ			15:14																								
ZZZZZZ			15:21																								
CCV 160-120164/18			15:27																								
CCB 160-120164/19			15:34																								
ICIS 160-120164/20			16:01	X																							
IC 160-120164/21	1		16:08	X																							
IC 160-120164/22	1		16:15	X																							
IC 160-120164/23	1		16:21	X																							
ICV 160-120164/24	1		16:28	X																							
ICB 160-120164/25	1		16:35	X																							
CRI 160-120164/26			16:42																								
ICSA 160-120164/27	1		16:48	X																							
ICSAB 160-120164/28	1		16:55	X																							
CCV 160-120164/29			17:02																								
CCB 160-120164/30			17:08																								
CCV 160-120164/31			19:15																								
CCB 160-120164/32			19:22																								
CRI 160-120164/33	1		20:22	X																							
CCV 160-120164/34			20:29																								
CCB 160-120164/35			20:36																								
CCV 160-120164/36	1		21:49	X																							
CCB 160-120164/37	1		21:56	X																							
MB 160-119630/1-A	1	T	22:09	X																							
LCS 160-119630/2-A	1	T	22:16	X																							
160-6423-1	1	T	22:22	X																							
160-6423-1 SD	5	T	22:29	X																							
160-6423-1 MS	1	T	22:36	X																							

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

Instrument ID: ICPMS7500 Analysis Method: 6020A

Start Date: 05/02/2014 13:33 End Date: 05/02/2014 23:16

Lab Sample Id	D/F	Type	Time	Analytes																							
				U																							
160-6423-1 MSD	1	T	22:42	X																							
160-6423-2	1	D	22:49	X																							
160-6423-3	1	T	22:56	X																							
160-6423-4	1	D	23:02	X																							
CCV 160-120164/47	1		23:09	X																							
CCB 160-120164/48	1		23:16	X																							

Prep Types:
D = Dissolved
T = Total/NA

FORM XIII-IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

ICP-MS Instrument ID: ICPMS7500 Start Date: 05/02/2014 End Date: 05/02/2014

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc/2	Q	Element Sc/3	Q	Element Ge/2	Q	Element Ge/3	Q
LRC 160-120164/13	14:54	84		100		100		104		101	
IC 160-120164/21	16:08	97		99		99		101		102	
IC 160-120164/22	16:15	97		99		100		103		102	
IC 160-120164/23	16:21	96		100		99		105		102	
ICV 160-120164/24	16:28	99		101		100		104		102	
ICB 160-120164/25	16:35	101		100		101		100		101	
ICSA 160-120164/27	16:48	96		102		100		101		100	
ICSAB 160-120164/28	16:55	93		104		98		105		101	
CRI 160-120164/33	20:22	110		117		114		123		119	
CCV 160-120164/36	21:49	106		109		112		117		115	
CCB 160-120164/37	21:56	108		111		111		114		112	
MB 160-119630/1-A	22:09	107		107		108		116		116	
LCS 160-119630/2-A	22:16	96		106		106		110		109	
160-6423-1	22:22	105		106		107		115		115	
160-6423-1 SD	22:29	107		109		109		116		114	
160-6423-1 MS	22:36	90		103		96		112		105	
160-6423-1 MSD	22:42	93		105		103		112		109	
160-6423-2	22:49	102		106		105		115		113	
160-6423-3	22:56	105		106		105		115		114	
160-6423-4	23:02	101		104		103		112		110	
CCV 160-120164/47	23:09	103		106		105		114		110	
CCB 160-120164/48	23:16	106		107		106		110		108	

FORM XV - IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

ICP-MS Instrument ID: ICPMS7500 Start Date: 05/02/2014 End Date: 05/02/2014

Lab Sample ID	Time	Internal Standards %RI For:									
		Element In	Q	Element Ho/2	Q	Element Ho/3	Q	Element Ir/2	Q	Element Ir/3	Q
LRC 160-120164/13	14:54	100		98		101		95		98	
IC 160-120164/21	16:08	101		98		99		100		101	
IC 160-120164/22	16:15	101		100		101		100		100	
IC 160-120164/23	16:21	99		100		99		99		98	
ICV 160-120164/24	16:28	102		100		101		101		101	
ICB 160-120164/25	16:35	101		100		99		100		99	
ICSA 160-120164/27	16:48	96		99		98		93		94	
ICSAB 160-120164/28	16:55	95		101		98		95		91	
CRI 160-120164/33	20:22	116		110		108		108		108	
CCV 160-120164/36	21:49	114		110		112		108		111	
CCB 160-120164/37	21:56	114		110		109		110		110	
MB 160-119630/1-A	22:09	112		108		110		106		108	
LCS 160-119630/2-A	22:16	108		106		107		104		104	
160-6423-1	22:22	110		108		109		105		105	
160-6423-1 SD	22:29	112		109		108		106		106	
160-6423-1 MS	22:36	98		106		99		104		97	
160-6423-1 MSD	22:42	106		106		106		102		104	
160-6423-2	22:49	110		108		108		105		105	
160-6423-3	22:56	111		110		109		106		105	
160-6423-4	23:02	107		105		105		102		103	
CCV 160-120164/47	23:09	109		108		107		104		104	
CCB 160-120164/48	23:16	109		107		106		106		107	

FORM XV - IN

METALS BATCH WORKSHEET

Lab Name: TestAmerica St. Louis Job No.: 160-6423-1

SDG No.:

Batch Number: 119630 Batch Start Date: 05/01/14 12:16 Batch Analyst: Taddeo, Louis J

Batch Method: 3010A Batch End Date: 05/02/14 09:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	PREP 1 and 2 00002			
MB 160-119630/1		3010A, 6020A		50 mL	50 mL				
LCS 160-119630/2		3010A, 6020A		50 mL	50 mL	0.25 mL			
160-6423-B-1	LF008-30002	3010A, 6020A	T	20 mL	50 mL				
160-6423-B-1 MS	LF008-30002	3010A, 6020A	T	20 mL	50 mL	0.25 mL			
160-6423-B-1 MSD	LF008-30002	3010A, 6020A	T	20 mL	50 mL	0.25 mL			
160-6423-A-2	LF008-30002	3010A, 6020A	D	20 mL	50 mL				
160-6423-A-3	LF008-30004	3010A, 6020A	T	20 mL	50 mL				
160-6423-A-4	LF008-30004	3010A, 6020A	D	20 mL	50 mL				

Batch Notes	
Balance ID	27150548
Batch Comment	(HOT BLOCK 1)
Lot # of hydrochloric acid	353918
Lot # of Nitric Acid	327704
Oven, Bath or Block Temperature 1	93.1 Degrees C
Pipette ID	M-PREP-2
ID number of the thermometer	111815886
Digestion Tube/Cup Lot #	175919

Basis	Basis Description
T	Total/NA
D	Dissolved

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Shipping and Receiving Documents

SUBCONTRACT ORDER

Empirical Laboratories, LLC

1404168

PO# 14-0397

SENDING LABORATORY:

Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Phone: 615.345.1115
Fax: 866.417.0548
Project Manager: Marianne J. Walker

RECEIVING LABORATORY:

Test America St.Louis
13715 Rider Trail North
Earth City, MO 63045-1205
Phone :(314) 298-8566
Fax: (314) 298-8757

160-6423 Chain of Custody

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: LF008-30002				
Reference No: 1404168-01	Water	Sampled:04/24/2014 13:46		
SUB_SPECIALTY	05/13/2014 14:00	10/21/2014 14:46		Uranium by 6020
Containers Supplied:				
Sample ID: LF008-30002				
Reference No: 1404168-02	Water	Sampled:04/24/2014 13:46		Filtered
SUB_SPECIALTY	05/13/2014 14:00	10/21/2014 14:46		Dissolved Uranium by 6020
Containers Supplied:				
Sample ID: LF008-30004				
Reference No: 1404168-03	Water	Sampled:04/23/2014 15:51		
SUB_SPECIALTY	05/13/2014 14:00	10/20/2014 16:51		Uranium by 6020
Containers Supplied:				
Sample ID: LF008-30004				
Reference No: 1404168-04	Water	Sampled:04/23/2014 15:51		Filtered
SUB_SPECIALTY	05/13/2014 14:00	10/20/2014 16:51		Dissolved Uranium by 6020
Containers Supplied:				

Ref:
Dep:

Date: 28Apr14
Wgt: 20.30 LBS
DV: 0.00

SHIPPING: 26.93
SPECIAL: 2.59
HANDLING: 0.00
TOTAL: 28.52

Svcs: PRIORITY OVERNIGHT
TRCK: 6040 4019 2271

Released By	Date	Received By	Date
J Gross	4/28/14	Jim Clark	4-29-14 0935

Page 1 of 1

Login Sample Receipt Checklist

Client: Empirical Laboratories, LLC

Job Number: 160-6423-1

Login Number: 6423

List Source: TestAmerica St. Louis

List Number: 1

Creator: Clarke, Jill C

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.	N/A	
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?	N/A	
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	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Job Number: 160-6605-1

Job Description: Kirtland

For:
Empirical Laboratories, LLC
621 Mainstream Drive
Suite 270
Nashville, TN 37228

Attention: Marianne Walker

Approved for release.
Erika K Gish
Project Manager II
5/16/2014 1:47 PM

Erika K Gish, Project Manager II
13715 Rider Trail North, Earth City, MO, 63045
(314)298-8566
erika.gish@testamericainc.com
05/16/2014

The test results in this report meet NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted. Results pertain only to samples listed in this report. Pursuant to NELAP, this report shall not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager.

Louisiana Lab Certification ID (Non-Potable, Solid/Haz. Material): 106151
Florida Lab Certification ID (Drinking Water): E87689.

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Qualifiers

Metals

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
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

CASE NARRATIVE

Client: Empirical Laboratories, LLC

Project: Kirtland

Report Number: 160-6605-1

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.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

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.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT
The samples were received on 5/9/2014 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3º C.

METALS (ICP/MS)
Sample LF008-30008 (160-6605-2) was analyzed for Metals (ICP/MS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 05/13/2014 and analyzed on 05/14/2014.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP). An LCSD was prepared: LF008-30008 (160-6605-2).

No difficulties were encountered during the Metals (ICP/MS) analysis.

All quality control parameters were within the acceptance limits.

METALS (ICPMS)

Sample LF008-30008 (160-6605-1) was analyzed for Metals (ICPMS) in accordance with EPA SW-846 Methods 6020A. The samples were prepared on 05/13/2014 and analyzed on 05/14/2014.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP). An LCSD was prepared:LF008-30008 (160-6605-1).

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

Detection Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6605-1

Client Sample ID: LF008-30008 — Lab Sample ID: 160-6605-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	2.3	J	2.5	0.58	ug/L	1		6020A	Total/NA

Client Sample ID: LF008-30008 — Lab Sample ID: 160-6605-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Uranium	1.9	J	2.5	0.58	ug/L	1		6020A	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6605-1

Client Sample ID: LF008-30008

Lab Sample ID: 160-6605-1

Date Collected: 04/28/14 12:17

Matrix: Water

Date Received: 05/09/14 09:40

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.3	J	2.5	0.58	ug/L		05/13/14 12:38	05/14/14 18:52	1

Client Sample ID: LF008-30008

Lab Sample ID: 160-6605-2

Date Collected: 04/28/14 12:17

Matrix: Water

Date Received: 05/09/14 09:40

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	1.9	J	2.5	0.58	ug/L		05/13/14 12:38	05/14/14 19:05	1

Default Detection Limits

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6605-1

Method: 6020A - Metals (ICP/MS)

Analyte	LOQ	DL	Units	Method
Uranium	1.0	0.23	ug/L	6020A

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	LOQ	DL	Units	Method
Uranium	1.0	0.23	ug/L	6020A

QC Sample Results

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6605-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-121772/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 122189 — **Prep Batch: 121772**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	0.69	U	1.0	0.23	ug/L		05/13/14 12:38	05/14/14 18:32	1

Lab Sample ID: LCS 160-121772/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 122189 — **Prep Batch: 121772**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Uranium			1000	1020		ug/L		102	80 - 120		

Lab Sample ID: LCSD 160-121772/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 122189 — **Prep Batch: 121772**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Uranium			1000	1050		ug/L		105	80 - 120	3	20

Lab Sample ID: LRC 160-122189/13 — **Client Sample ID: Lab Control Sample**
Matrix: Water
Analysis Batch: 122189

Analyte			Spike Added	LRC Result	LRC Qualifier	Unit	D	%Rec	%Rec. Limits		
Uranium			2000	1920		ug/L		96	90 - 110		

QC Association Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6605-1

Metals

Prep Batch: 121772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6605-1	LF008-30008	Total/NA	Water	3010A	
160-6605-1 SD	LF008-30008	Total/NA	Water	3010A	
160-6605-2	LF008-30008	Dissolved	Water	3010A	
LCS 160-121772/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 160-121772/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
MB 160-121772/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 122189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6605-1	LF008-30008	Total/NA	Water	6020A	121772
160-6605-1 SD	LF008-30008	Total/NA	Water	6020A	121772
160-6605-2	LF008-30008	Dissolved	Water	6020A	121772
CRI 160-122189/27	DL		Water	6020A	
ICSA 160-122189/28	ICS		Water	6020A	
ICSAB 160-122189/29	ICS		Water	6020A	
LCS 160-121772/2-A	Lab Control Sample	Total/NA	Water	6020A	121772
LCSD 160-121772/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	121772
LRC 160-122189/13	Lab Control Sample		Water	6020A	
MB 160-121772/1-A	Method Blank	Total/NA	Water	6020A	121772

Lab Chronicle

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6605-1

Client Sample ID: LF008-30008

Lab Sample ID: 160-6605-1

Date Collected: 04/28/14 12:17

Matrix: Water

Date Received: 05/09/14 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			121772	05/13/14 12:38	LJT	TAL SL
Total/NA	Analysis	6020A		1	122189	05/14/14 18:52	CCB	TAL SL

Client Sample ID: LF008-30008

Lab Sample ID: 160-6605-2

Date Collected: 04/28/14 12:17

Matrix: Water

Date Received: 05/09/14 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			121772	05/13/14 12:38	LJT	TAL SL
Dissolved	Analysis	6020A		1	122189	05/14/14 19:05	CCB	TAL SL

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6605-1

Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-14
California	NELAP	9	09266CA	03-31-14 *
Connecticut	State Program	1	PH-0241	03-31-15
Florida	NELAP	4	E87689	06-30-14
Illinois	NELAP	5	200023	11-30-14
Iowa	State Program	7	373	12-01-14
Kansas	NELAP	7	E-10236	10-31-14
Kentucky (DW)	State Program	4	90125	12-31-14
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA140007	12-31-14
Maryland	State Program	3	310	09-30-14
Missouri	State Program	7	780	06-30-14
Nevada	State Program	9	MO000542013-1	07-31-14
New Jersey	NELAP	2	MO002	06-30-14 *
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-15
North Dakota	State Program	8	R207	06-30-14
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	2013-049	08-31-14
Pennsylvania	NELAP	3	68-00540	02-28-15
South Carolina	State Program	4	85002001	06-30-14 *
Texas	NELAP	6	T104704193-13-6	07-31-14
USDA	Federal		P330-07-00122	01-09-17
USEPA Reg V SDWA	Federal	1	WG-15J	08-30-14
Utah	NELAP	8	MO000542013-5	07-31-14
Virginia	NELAP	3	2236	06-14-14 *
Washington	State Program	10	C592	08-30-14
West Virginia DEP	State Program	3	381	08-30-14

* Expired certification is currently pending renewal and is considered valid.

Method Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6605-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL SL

Protocol References:

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

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6605-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-6605-1	LF008-30008	Water	04/28/14 12:17	05/09/14 09:40
160-6605-2	LF008-30008	Water	04/28/14 12:17	05/09/14 09:40

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
MS A CAL1 LLC_00113	05/15/14	05/08/14	2% HCL 2% HN03, Lot 355914	500 mL	MS CAL1_00005	0.5 mL	Uranium	1 ug/L
.MS CAL1_00005	12/23/14	Environmental Expres, Lot 1335201			(Purchased Reagent)		Uranium	1 ug/mL
MS A CAL2 CCV_00109	05/15/14	05/08/14	2% HCL 2% HN03, Lot 355914	500 mL	MS CAL3 A_00004	0.25 mL	Uranium	100 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A CAL3_00109	05/15/14	05/08/14	2% HCL 2% HN03, Lot 355914	250 mL	MS CAL3 A_00004	0.25 mL	Uranium	200 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A ICSA_00109	05/15/14	05/08/14	2% HCL 2% HN03, Lot 355914	250 mL	MS ICSA_00013	25 mL	Al	100 mg/L
.MS ICSA_00013	04/03/15	Inorganic Ventures, Lot G2-MEB476152MCA			(Purchased Reagent)		Al	1000 ug/mL
MS A ICSAB_00110	05/15/14	05/08/14	2% HCL 2% HN03, Lot 355914	250 mL	MS CAL3 A_00004	0.125 mL	Uranium	100 ug/L
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
MS A ICV_00109	05/15/14	05/08/14	2% HCL 2% HN03, Lot 355914	250 mL	MS ICV 2_00003	0.125 mL	Uranium	100 ug/L
.MS ICV 2_00003	12/19/14	SPEX, Lot 5-29NY			(Purchased Reagent)		Uranium	200 ug/mL
MS LDR 2PPM_00109	05/15/14	05/08/14	2% HCL 2% HN03, Lot 355914	100 mL	MS CAL3 A_00004	1 mL	Uranium	2 ug/mL
.MS CAL3 A_00004	07/18/14	Environmental Express, Lot 1319722			(Purchased Reagent)		Uranium	200 ug/mL
PREP 1 and 2_00002	01/30/15	AccuScience, Lot 1055262			(Purchased Reagent)		Ag	40 mg/L
							Al	2000 mg/L
							As	200 mg/L
							B	400 mg/L
							Ba	200 mg/L
							Be	200 mg/L
							Bi	200 mg/L
							Ca	2000 mg/L
							Cd	200 mg/L
							Co	200 mg/L
							Cr	200 mg/L
							Cu	200 mg/L
							Fe	2000 mg/L
							K	2000 mg/L
							Li	200 mg/L
							Mg	2000 mg/L
							Mn	200 mg/L
							Mo	100 mg/L
							Na	2000 mg/L
							Nb	100 mg/L
							Ni	200 mg/L
							P	200 mg/L
							Pb	200 mg/L
							Sb	100 mg/L
							Se	100 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Sm	200 mg/L
							Sn	200 mg/L
							Sr	200 mg/L
							Sulfur	2000 mg/L
							Th	200 mg/L
							Ti	200 mg/L
							Tl	40 mg/L
							Uranium	200 mg/L
							V	200 mg/L
							W	200 mg/L
							Zn	200 mg/L
							Zr	200 mg/L

METALS

COVER PAGE
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6605-1

SDG No.:

Project: Kirtland

Client Sample ID	Lab Sample ID
LF008-30008	160-6605-1
LF008-30008	160-6605-2

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: LF008-30008

Lab Sample ID: 160-6605-1

Lab Name: TestAmerica St. Louis

Job No.: 160-6605-1

SDG ID.:

Matrix: Water

Date Sampled: 04/28/2014 12:17

Reporting Basis: WET

Date Received: 05/09/2014 09:40

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	2.3	2.5	1.7	0.58	ug/L	J		1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - DISSOLVED

Client Sample ID: LF008-30008
Lab Sample ID: 160-6605-2
Lab Name: TestAmerica St. Louis
Job No.: 160-6605-1
SDG ID.:
Matrix: Water
Date Sampled: 04/28/2014 12:17
Reporting Basis: WET
Date Received: 05/09/2014 09:40

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Uranium	1.9	2.5	1.7	0.58	ug/L	J		1	6020A

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

ICV Source: MS A ICV_00109 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00109

Analyte	ICV 160-122189/25 05/14/2014 17:44				CCV 160-122189/30 05/14/2014 18:18				CCV 160-122189/38 05/14/2014 19:12			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Uranium	104		100	104	104		100	104	104		100	104

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

Method: 6020A Instrument ID: ICPMS7700

Lab Sample ID: CRI 160-122189/27 Concentration Units: ug/L

CRQL Check Standard Source: MS A CAL1 LLC_00113

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Uranium	1.00	1.01		101	70-130

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

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 160-122189/26 05/14/2014 17:51		CCB 160-122189/31 05/14/2014 18:25		CCB 160-122189/39 05/14/2014 19:19			
		Found	C	Found	C	Found	C	Found	C
Uranium	1.0	0.69	U	0.69	U	0.69	U		

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

Concentration Units: ug/L Lab Sample ID: MB 160-121772/1-A

Instrument Code: ICPMS7700 Batch No.: 122189

CAS No.	Analyte	Concentration	C	Q	Method
7440-61-1	Uranium	0.69	U		6020A

FORM III-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

Lab Sample ID: ICSA 160-122189/28 Instrument ID: ICPMS7700

Lab File ID: 033ICSA.D ICS Source: MS A ICSA_00109

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Uranium		**0.0000**	
Aluminum	*100000*	*97779*	*98*

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

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

Lab Sample ID: ICSAB 160-122189/29 Instrument ID: ICPMS7700

Lab File ID: 034ICSB.D ICS Source: MS A ICSAB_00110

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Uranium	**100**	**107**	**107**

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

FORM IVA-IN

LINEAR RANGE CHECK STANDARD
METALS -

Lab ID: LRC 160-122189/13

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

Sample Matrix: Water LCS Source: MS LDR 2PPM_00109

Analyte	Water(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Uranium	2000	1920		96	90	110		6020A

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

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 160-121772/2-A

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

Sample Matrix: Water LCS Source: PREP 1 and 2_00002

Analyte	Water(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Uranium	1000	1020		102	80	120		6020A

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

FORM VIIA - IN

7D-IN
LAB CONTROL SAMPLE DUPLICATE
METALS

Lab ID: LCSD 160-121772/3-A

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

Sample Matrix: Water LCS Source: PREP 1 and 2_00002

Analyte	(SDR)	C	Spike Added	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Uranium	1050		1000	105	80-120	3	20		6020A

SDR = Spike Duplicate Results
Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIID - IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 160-6605-1

SDG No:

Lab Name: TestAmerica St. Louis Job No: 160-6605-1

Matrix: Water Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Uranium	2.3	J	8.6	U	NC		6020A

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

FORM VIII-IN

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6605-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7700

Method: 6020A DL Date: 04/19/2013 16:43

Prep Method: 3010A

Analyte	Wavelength/ Mass	LOQ (ug/L)	DL (ug/L)
Uranium	238	1	0.231

FORM IX - IN

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica St. Louis Job Number: 160-6605-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7700

Method: 6020A XMDL Date: 04/19/2013 16:42

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Uranium	238	1	0.231

9-IN
DETECTION LIMITS
METALS - DISSOLVED

Lab Name: TestAmerica St. Louis Job Number: 160-6605-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7700

Method: 6020A DL Date: 04/19/2013 16:43

Prep Method: 3010A

Analyte	Wavelength/ Mass	LOQ (ug/L)	DL (ug/L)
Uranium	238	1	0.231

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS - DISSOLVED

Lab Name: TestAmerica St. Louis Job Number: 160-6605-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7700

Method: 6020A XMDL Date: 04/19/2013 16:42

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Uranium	238	1	0.231

11-IN
LINEAR RANGES
METALS

Lab Name: TestAmerica St. Louis Job No: 160-6605-1

SDG No.:

Instrument ID: ICPMS7700 Date: 10/15/2013 14:56

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Uranium		2000	6020A

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

Prep Method: 3010A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 160-121772/1-A	05/13/2014 12:38	121772		50	50
LCS 160-121772/2-A	05/13/2014 12:38	121772		50	50
LCSD 160-121772/3-A	05/13/2014 12:38	121772		50	50
160-6605-1	05/13/2014 12:38	121772		20	50
160-6605-2	05/13/2014 12:38	121772		20	50

FORM XII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020A

Start Date: 05/14/2014 14:43 End Date: 05/14/2014 19:19

Lab Sample Id	D/F	Type	Time	Analytes																							
				U																							
ICIS 160-122189/1			14:43	X																							
IC 160-122189/2			14:49	X																							
IC 160-122189/3			14:56	X																							
IC 160-122189/4			15:03	X																							
ICV 160-122189/5			15:10																								
ICB 160-122189/6			15:16																								
CRI 160-122189/7			15:23																								
ICSA 160-122189/8			15:30																								
ICSAB 160-122189/9			15:37																								
CCV 160-122189/10			15:43																								
CCB 160-122189/11			15:50																								
ZZZZZZ			15:57																								
LRC 160-122189/13	1		16:04	X																							
ZZZZZZ			16:10																								
ZZZZZZ			16:17																								
ZZZZZZ			16:24																								
ZZZZZZ			16:30																								
ZZZZZZ			16:37																								
CCV 160-122189/19			16:44																								
CCB 160-122189/20			16:50																								
ICIS 160-122189/21			17:17	X																							
IC 160-122189/22	1		17:24	X																							
IC 160-122189/23	1		17:31	X																							
IC 160-122189/24	1		17:38	X																							
ICV 160-122189/25	1		17:44	X																							
ICB 160-122189/26	1		17:51	X																							
CRI 160-122189/27	1		17:58	X																							
ICSA 160-122189/28	1		18:05	X																							
ICSAB 160-122189/29	1		18:11	X																							
CCV 160-122189/30	1		18:18	X																							
CCB 160-122189/31	1		18:25	X																							
MB 160-121772/1-A	1	T	18:32	X																							
LCS 160-121772/2-A	1	T	18:38	X																							
LCSD 160-121772/3-A	1	T	18:45	X																							
160-6605-1	1	T	18:52	X																							
160-6605-1 SD	5	T	18:58	X																							
160-6605-2	1	D	19:05	X																							
CCV 160-122189/38	1		19:12	X																							
CCB 160-122189/39	1		19:19	X																							

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020A

Start Date: 05/14/2014 14:43 End Date: 05/14/2014 19:19

Lab Sample Id	D/F	Type	Time	Analytes																							
				U																							

Prep Types:
D = Dissolved
T = Total/NA

FORM XIII-IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 05/14/2014 End Date: 05/14/2014

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc/2	Q	Element Sc/3	Q	Element Ge/2	Q	Element Ge/3	Q
LRC 160-122189/13	16:04	81		96		94		96		97	
IC 160-122189/22	17:24	97		99		98		101		100	
IC 160-122189/23	17:31	94		97		94		99		98	
IC 160-122189/24	17:38	88		94		90		99		94	
ICV 160-122189/25	17:44	94		96		93		96		96	
ICB 160-122189/26	17:51	97		95		96		96		96	
CRI 160-122189/27	17:58	96		94		94		95		94	
ICSA 160-122189/28	18:05	87		94		93		95		95	
ICSAB 160-122189/29	18:11	84		93		89		97		94	
CCV 160-122189/30	18:18	91		98		94		103		98	
CCB 160-122189/31	18:25	91		93		93		96		94	
MB 160-121772/1-A	18:32	89		92		91		94		94	
LCS 160-121772/2-A	18:38	82		88		88		90		90	
LCSD 160-121772/3-A	18:45	83		91		91		94		92	
160-6605-1	18:52	98		96		100		101		99	
160-6605-1 SD	18:58	94		96		97		99		97	
160-6605-2	19:05	88		88		91		92		92	
CCV 160-122189/38	19:12	86		92		89		97		94	
CCB 160-122189/39	19:19	93		93		94		95		96	

FORM XV - IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 05/14/2014 End Date: 05/14/2014

Lab Sample ID	Time	Internal Standards %RI For:									
		Element In	Q	Element Ho/2	Q	Element Ho/3	Q	Element Ir/2	Q	Element Ir/3	Q
LRC 160-122189/13	16:04	102		99		101		98		100	
IC 160-122189/22	17:24	99		98		99		100		100	
IC 160-122189/23	17:31	97		97		97		97		96	
IC 160-122189/24	17:38	97		95		98		94		96	
ICV 160-122189/25	17:44	99		95		98		98		98	
ICB 160-122189/26	17:51	95		97		97		97		97	
CRI 160-122189/27	17:58	95		94		96		97		96	
ICSA 160-122189/28	18:05	91		91		93		91		91	
ICSAB 160-122189/29	18:11	93		93		95		92		93	
CCV 160-122189/30	18:18	102		103		102		102		101	
CCB 160-122189/31	18:25	97		98		98		101		98	
MB 160-121772/1-A	18:32	95		97		98		101		100	
LCS 160-121772/2-A	18:38	97		92		99		94		96	
LCSD 160-121772/3-A	18:45	98		94		102		94		97	
160-6605-1	18:52	102		101		106		101		104	
160-6605-1 SD	18:58	99		101		102		100		101	
160-6605-2	19:05	94		96		98		97		97	
CCV 160-122189/38	19:12	99		98		99		99		98	
CCB 160-122189/39	19:19	98		98		100		100		100	

FORM XV - IN

METALS BATCH WORKSHEET

Lab Name: TestAmerica St. Louis Job No.: 160-6605-1

SDG No.:

Batch Number: 121772 Batch Start Date: 05/13/14 12:38 Batch Analyst: Taddeo, Louis J

Batch Method: 3010A Batch End Date: 05/14/14 09:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	PREP 1 and 2 00002			
MB 160-121772/1		3010A, 6020A		50 mL	50 mL				
LCS 160-121772/2		3010A, 6020A		50 mL	50 mL	0.25 mL			
LCSD 160-121772/3		3010A, 6020A		50 mL	50 mL	0.25 mL			
160-6605-A-1	LF008-30008	3010A, 6020A	T	20 mL	50 mL				
160-6605-A-2	LF008-30008	3010A, 6020A	D	20 mL	50 mL				

Batch Notes	
Balance ID	27150548
Batch Comment	(HOT BLOCK 2)
Lot # of hydrochloric acid	353918
Lot # of Nitric Acid	327704
Oven, Bath or Block Temperature 1	91.8 Degrees C
Pipette ID	M-PREP-2
ID number of the thermometer	111815886
Digestion Tube/Cup Lot #	175919

Basis	Basis Description
T	Total/NA
D	Dissolved

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Shipping and Receiving Documents

SUBCONTRACT ORDER

Empirical Laboratories, LLC

1404203

PO#: 14-0410

SENDING LABORATORY:

Empirical Laboratories, LLC
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Phone: 615.345.1115
Fax: 866.417.0548
Project Manager: Marianne J. Walker

RECEIVING LABORATORY:

Test America St.Louis
13715 Rider Trail North
Earth City, MO 63045-1205
Phone :(314) 298-8566
Fax: (314) 298-8757

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: LF008-30008				
Reference No: 1404203-01	**Water**	**Sampled:04/28/2014 12:17**		
SUB_SPECIALTY	05/16/2014 14:00	10/25/2014 13:17		Uranium by 6020
Containers Supplied:				
Sample ID: LF008-30008				
Reference No: 1404203-02	**Water**	**Sampled:04/28/2014 12:17**		**Filtered**
SUB_SPECIALTY	05/16/2014 14:00	10/25/2014 13:17		Dissolved Uranium by 6020
Containers Supplied:				

160-6605 Chain of Custody

Released By	Date	Received By	Date
	5/8/14	Jill Clark	5.9.14 0940

Login Sample Receipt Checklist

Client: Empirical Laboratories, LLC

Job Number: 160-6605-1

Login Number: 6605

List Source: TestAmerica St. Louis

List Number: 1

Creator: Clarke, Jill C

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.	N/A	
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?	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL DATA PACKAGE
SDG # KIRTLANDECOS_014

PROJECT NAME: KIRTLAND AFB (ECOS)
PROJECT LOCATION: ALBUQUERQUE, NEW MEXICO

SUBMITTAL TO:
Susan Huang
SHAW E&I, Inc.
4005 Port Chicago Highway
Concord, CA 94520

SUBMITTAL BY:
Empirical Laboratories, LLC (EL)
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Tel (615)345-1115
Fax (866)417-0548

LABORATORY CONTACT PERSON:
Project Manager: Marianne Walker
Tel (615)345-1115
Fax (866)417-0548
Email: mwalker@empirlabs.com

Original Report Date: May 27, 2014
Report Revision #: N/A
Revision Date: N/A
Total # of Pages: 245

THIS DOCUMENT MEETS DoD QSM 4.2 STANDARDS

The results relate to only the samples associated with the referenced SDG and the submitted data has been produced in accordance with laboratory procedures. The Laboratory's Technical Lab Director, Mr. Rick Davis, is responsible for the final data produced and reported. His signature is listed at the end of the Case Narrative within the Analytical Data Package. If applicable to this report package, details on report revisions and the information on subcontracted analysis are listed in the package Case Narrative. This report shall not be reproduced, except in full, without the written approval of Empirical Laboratories, LLC.

L-A-B Accredited - Certificate Number L2226 - Testing

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Sample Delivery Group Case Narrative

Receipt Information:
The samples were received within the preservation guidelines for the associated methods. The information associated with sample receipt and the Sample Delivery Group (SDG) are included within section 4 of this package, which also provides information on the link between the client sample ID listed on the COC and laboratory's assigned unique sample ID or WorkOrder #. The sample is tracked through the laboratory for all analysis via the assigned WorkOrder #.

All samples that were received were analyzed and none of the samples were placed on hold without analyses. No samples in this SDG were subcontracted.

The following issues were discovered with the COC and/or samples upon log-in:

1. The client requested filtering for sample ST105-3029 5/1/14 @ 1315, the container received was preserved with H2SO4.

Changes to the Revision:
This is an original submittal of the final report package.

Analytical Information:
All samples were prepped (where applicable) and analyzed within the standard allowed holding times, unless noted within the exceptions listed below. The laboratory analyzed all samples within the program and method guidelines. Sample preparation and dilution information is provided within the final results report and at the beginning of each form set. The following information is provided specific to individual methods:

SW6010C:
No anomalies or deviations are noted.

Wet Chemistry:
The following compounds are qualified with an M to indicate that the DL, LOD, and LOQ were raised:
TKN for 1404205-01, 1405013-01, -03, -05, -07, and -09; note - the TKN results are suppressed with negative concentrations more negative than the LOQ. A matrix spike/matrix spike duplicate recovered at 39.5 and 33.0% which also indicates a negative bias. The detection limits have been increased due to this negative bias.

The following matrix spikes exceeded criteria:
4E08007-MS1/MSD1 (1405013-09RE1) with a negative bias for TKN

The following batch spikes exceeded criteria:
4E08007-BSD1 with a positive bias for TKN; note – the associated batch spike is within criteria

No additional anomalies or deviations are noted and the proper data qualifiers have been applied.

Data Qualifiers:

As applicable and where required, the following general qualifiers are associated with the sample results. Additional qualifiers will be specified within the reporting sections of the data package or within the body of the Case Narrative.

Analytical Report Terms and Qualifiers

DL: The detection limit (DL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The DL is supported by the method detection limit (MDL) which is determined from analysis of a sample containing the analyte in a given matrix.

LOD: The Limit of Detection is an estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. This definition is further clarified in the DoD QSM 4.2 revisions as the smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.

LOQ: The Limit of Quantitation is the minimum level, concentration, or quantity of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. This term is further clarified within the DoD QSM 4.2 as the lowest concentration that produces a quantitative result within specified limits of precision and bias.

*****: Exceeding quality control criteria are associated with the reported result.

B: The presence of a "B" to the right of an analytical value indicates that this compound was also detected in the method blank and the data should be interpreted with caution. One should consider the possibility that the correct sample result might be less than the reported result and, perhaps, zero.

D: When a sample (or sample extract) is rerun diluted because one of the compound concentrations exceeded the highest concentration range for the standard curve, all of the values obtained in the dilution run will be flagged with a "D".

E: The concentration for any compound found which exceeds the highest concentration level on the standard curve for that compound will be flagged with an "E". Usually the sample will be rerun at a dilution to quantitate the flagged compound. For Metals, the qualifier indicates that the serial dilution was outside of the control limits and the compound should be considered estimated due to the presence of interference.

H1: The result was analyzed outside of the EPA recommended holding time.

H2: The result was extracted outside of the EPA recommended holding time.

H3: The sample for this analyte was received outside of the EPA recommended holding time.

J: The presence of a "J" to the right of an analytical result indicates that the reported result is estimated. The mass spectral data pass the identification criteria showing that the compound is present, but the calculated result is less than the LOQ. One should feel confident that the result is greater than zero and less than the LOQ.

M: Indicates that the sample matrix interfered with the quantitation of the analyte. In dual column analysis the result is reported from the column with the lower concentration. In inorganics, it indicates that the parameters DL/LOD/LOQ have been raised.

N: The MS/MSD accuracy and/or precision are outside criteria. The predigested spike recovery is not within control limits for the associated parameter.

P: The associated numerical value is an estimated quantity. There is greater than a 40% difference between the two GC columns for the detected concentrations. The higher of the two values is reported unless matrix interference is obvious or for HPLC analysis where the primary column is reported.

Q: The relative percent difference (RPD) and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

S: The associated internal standard exceeded criteria.

U: The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.

X: The parameter shows a potential positive bias on a reported concentration due to an ICV or CCV exceeding the upper control limit on the high side.

Y: The parameter shows a potential negative bias on a reported concentration due to an ICV or CCV exceeding the lower control limit on the low side.

Z: The parameter shows lack of confirmation/detection, which may be due to a negative bias in the ICV or CCV which exceeds the lower control limit.

Chromatographic Flags for Manual Integration:

The following letters are used to denote manual integrations on the laboratory's raw data in association with chromatographic integrations:

A: The peak was manually integrated as it was not integrated in the original chromatogram.

B: The peak was manually integrated due to resolution or coelution issues in the original chromatogram.

C: The peak was manually integrated to correct the baseline from the original chromatogram.

D: The peak was manually integrated to identify the correct peak as the wrong peak was identified in the original chromatogram.

E: The peak was manually integrated to include the entire peak as the original chromatogram only integrated part of the peak.

LIMS Definitions / Naming Conventions:

The following are general naming conventions that are used throughout the laboratory; however, on a method by method basis, there are additional QAQC items that are named in a consistent format.

BLK: LIMS assigns a unique identifier to the Method Blank by naming it as the letters BLK appended to the Batch ID. A Method Blank is an analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The Method Blank is used to assess for possible contamination during preparation and/or analysis steps. Method Blanks within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally.

BS: LIMS assigns a unique identifier to the Blank Spike by naming it as the letters BS appended to the Batch ID. The Blank Spike or Lab Control Sample is a controlled analyte-free matrix, which is spiked with known and verified concentrations of target analytes. Spiking concentrations can be referenced in the method SOP. The BS is used to evaluate the viability of analytes taken through the entire prep (when applicable) and analytical process. Blank Spikes within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally. A duplicate Blank Spike will be designated as a BSD.

MS: The LIMS assigns each Client sample with a unique identifier. The Matrix Spike is designated with a MS at the end of the sample's unique identifier. The Matrix Spike sample is used to assess the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. A duplicate Matrix Spike will be designated as a MSD.

IDs: The LIMS assigns each Client sample with a unique identifier. The letter "RE" may potentially be appended to the end of the LIMS Sample ID. And "**RE"** implies that the sample was either re-prepped, re-analyzed straight, or re-analyzed at a dilution. Subsequent re-analysis for the sample will be appended with a numerical value beginning with 1 that will increase incrementally. Eg: RE1, RE2, RE3, etc.

Statement of Data Authenticity:

I certify that, based upon my inquiry of those individuals immediately responsible for obtaining the information and to the best of my knowledge, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in this Case Narrative, as verified by my signature below. During absences, the Data Quality Manager, Technical Directors or Project Managers are authorized to sign this Statement of Data Authenticity.

Mr. Rick D. Davis
Laboratory Technical Director / VP Operations

Empirical Laboratories, LLC
Certifications/Approvals
(Revised 05/13/2014)

DoD ELAP, Certificate Number L2226
- Aqueous
- Non-aqueous
- Expires: 11/30/2015

State of Florida, Department of Health – NELAP, Lab ID: E87646
- Clean Water Act
- RCRA/CERCLA
- Expires: 06/30/2014

State of Georgia, Environmental Protection Agency – NELAP
- Expires: 06/30/2014

State of Illinois, Environmental Protection Agency – NELAP, Certificate No.: 003300
- Groundwater
- Solid and Hazardous Waste
- Expires: 09/13/2014

State of Kentucky Department of Environmental Protection – NELAP, Certificate No.: 77
- Aqueous
- Non-aqueous
- Expires: 06/30/2014

State of Nevada, Department of Conservation and Natural Resources – NELAP, Certificate No.: TN000042013-1
- Aqueous
- Non-aqueous
- Expires: 07/31/2014

State of New Jersey Department of Environmental Protection – NELAP, Lab ID: TN473
- Water Pollution
- Solid and Hazardous Waste
- Expires: 06/30/2014

State of North Carolina, Department of Environment and Natural Resources - Certificate No.: 643
- Aqueous
- Non-aqueous
- Expires: 12/31/2014

State of North Dakota, Department of Health – NELAP, Certificate No.: R-204
- Aqueous
- Non-aqueous
- Expires: 06/30/2014

State of Texas, Commission on Environmental Quality – NELAP, Certificate No.: T104704307-14-10
- Aqueous
- Non-aqueous
- Expires: 12/31/2014

State of Utah, Department of Health – NELAP, Certificate No.: TN0042013-5
- Aqueous
- Non-aqueous
- Expires: 07/31/2014

Commonwealth of Virginia, Department of General Services – VELAP, Certificate No.: 2633 – Lab ID: 460243
- Aqueous
- Non-aqueous
- Expires: 12/14/2014

State of Washington, Department of Ecology – NELAP, Lab ID: C934-14
- Groundwater
- Solid and Hazardous Waste
- Expires: 03/18/2015

Sample Receipt Information

~~140402~~ 1404205

JTG

Shaw® Shaw E & I

FS003.1_0

Ref. Document # 150577-TSA2

Page 1 of 1

Form 3. Shaw E & I Chain of Custody Form

Project Number: 150577

Project Name / Location: ECOS

Purchase Order #: PO 1101623

Shipment Date: 4/29/14

Waybill/Airbill Number: 5651 19371301

Lab Destination: Empirical Lab Inc.

Lab Contact Name / ph. #: ~~PO 1101623~~ TN Marianna Walker

Susan Huang

Project Contact: 925 288 2099 (Name & phone #)

Send Report To: Susan Huang

Phone/Fax Number:

Address: 4005 Port Chicago Highway

City: Concord CA 94520

Sampler's Name(s): Tim Nager

Sample ID Number	Sample Description	Collection Information Date	Time	G/C	Matrix	# of containers	Container type	Preservative HCL	NaOH	HNO_3	H_2SO_4	Ice		Analyses Requested: Bromide, chloride, fluoride, sulfate by EPA 300	Alkalinity by SM2320B	TDS by SM2540C	CA Hg LVL, Fe, Hg by SW846 6010B	TKN by EPA 351.2, Nitrate + Nitrite by EPA 353.2	Ammonia by SM4500 NH3	Total Organic Carbon by SM5310C	Dissolved Organic Carbon by SM5310C		Turn Around Time Requested
01 ST105-30047	~~KATB~~ TSA-2-GW-ST105-30047-REG	4/28/14	1529	C	GW	1	HDPE					X		X			X						
"	"	"	"	"	"	1	"			X							X						
"	"	"	"	"	"	1	"				X							X					
"	"	"	"	"	"	1	"				X									X			
02 "	"	"	"	"	"	1	"				X										X		

Special Instructions:

QC/Data Package Level Required: I II III IV/Project Specific:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
TN Nager/Shaw	4/29/14	1600	[signature]	4/30/14	0850
			[signature]	4/30/14	0850

G/C Codes

C = Composite G = Grab

Matrix Codes

DW = Drinking Water SO = Soil

GW = Ground Water SL = Sludge

WW = Waste Water CP = Chip Samples

SW = Surface Water WP = Wipe Samples

LIQ = Other Liquid SOL = Other Solid

AS = Air Sample SED = Sediment

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

Cooler Received/Opened On: 04/30/14 0850 Workorder# 1404205

1. Tracking # 1301 (last 4 digits, FedEx)

   Courier: FedEx

2. Temperature of rep. sample or temp blank when opened: 1.0 °C + *correction factor (+0.1)* = 1.1 °C

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

   If yes, how many and where: 2, front + back

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (initial) JTG

7. Were custody seals on containers: YES NO and Intact YES NO NA

   Were these signed and dated correctly? YES NO NA

8. Packing material used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13. a. Were VOA vials received? YES NO NA

    b. Was there any observable headspace present in any VOA vial? YES NO NA

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence #

I certify that I unloaded the cooler and answered questions 7-14 (initial) TH

15. a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

    b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) TH

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) TH

I certify that I attached a label with the unique LIMS number to each container (initial) TH

I certify that I have performed a second check of the LIMS information against the COC to confirm accuracy (initial) JTG

21. Were there Non-Conformance issues at login? YES NO Was a NCR generated? YES NO #

Additional Details:

ST105 1405013

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-622

Project Number: 150577
Project Name: Kirtland AFB
Sample Coordinator: David Aubrey
Turnaround Time:

Samples Shipment Date: 01 MAY 2014
Lab Destination: Empirical Laboratories, Inc.
Lab Contact: ~~Jennifer Chandler~~ Marianne Walker
Project Contact: Susan Huang
Carrier/Waybill No.: Fed Ex/565119371389

Bill To:

Report To: CB&I Concord - Susan Huang
4005 Port Chicago Highway
Concord CA 94520

Special Instructions:

Possible Hazard Indentification:

Non-hazard ✓ Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:

Return to Client Disposal by Lab ✓ Archive (mos.)

1. Relinquished By (Signature/Affiliation) Shaw Date: 5/1/14 Time: 1600
2. Relinquished By (Signature/Affiliation) Date: Time:
3. Relinquished By (Signature/Affiliation) Date: Time:

1. Received By (Signature/Affiliation) Date: Time:
2. Received By (Signature/Affiliation) Date: Time:
3. Received By (Signature/Affiliation) Date: 5/2/14 Time: 0840

Comments:

	Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
01	ST105-30029	GCMP-GW-ST105-30029-REG	01 MAY 2014	13:15	250 mL HDPE	1	H2SO4<pH 2	TKN by EPA 351.2, Nitrate plus Nitrite by EPA 353.2, Ammonia by SM4500 NH3BG			N		
	ST105-30029	GCMP-GW-ST105-30029-REG	01 MAY 2014	13:15	250 mL HDPE	1	None except cool to 4 C	Bromide, chloride, fluoride, and sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		
	ST105-30029	GCMP-GW-ST105-30029-REG	01 MAY 2014	13:15	250 mL HDPE	1	H2SO4<pH 2	Total Organic Carbon by SM 5310C			N		
	ST105-30029	GCMP-GW-ST105-30029-REG	01 MAY 2014	13:15	250 mL HDPE	1	HNO3<pH 2	Ca, Mg, K, Na, Fe, and Mn by SW846 6010B			N		
02	ST105-30029	GCMP-GW-ST105-30029-REG	01 MAY 2014	13:15	250 mL HDPE	1	H2SO4<pH 2	Dissolved Organic Carbon by SM 5310C *Filter in Lab			N		

KirtlandECOS_014

12

1405013

Shaw™
Shaw E & I, Inc.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 150577-622

	Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Sample Vol	Units	Fil	CID	Condition On Receipt
04	ST105-30043	KAFB0622-GW-ST105-30043-REG	01 MAY 2014	10:51	250 mL HDPE	1	H2SO4<pH 2	Dissolved Organic Carbon by SM 5310C			N		
03	ST105-30043	KAFB0622-GW-ST105-30043-REG	01 MAY 2014	10:51	250 mL HDPE	1	None except cool to 4 C	Bromide, chloride, fluoride, and sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		
	ST105-30043	KAFB0622-GW-ST105-30043-REG	01 MAY 2014	10:51	250 mL HDPE	1	HNO3<pH 2	Ca, Mg, K, Na, Fe, and Mn by SW846 6010B			N		
	ST105-30043	KAFB0622-GW-ST105-30043-REG	01 MAY 2014	10:51	250 mL HDPE	1	H2SO4<pH 2	Total Organic Carbon by SM 5310C			N		
	ST105-30043	KAFB0622-GW-ST105-30043-REG	01 MAY 2014	10:51	250 mL HDPE	1	H2SO4<pH 2	TKN by EPA 351.2, Nitrate plus Nitrite by EPA 353.2, Ammonia by SM4500 NH3BG			N		
05	ST105-30048	TJA-4-GW-ST105-30048-REG	30 APR 2014	12:18	250 mL HDPE	1	H2SO4<pH 2	TKN by EPA 351.2, Nitrate plus Nitrite by EPA 353.2, Ammonia by SM4500 NH3BG			N		
	~~ST105-30048~~	~~TJA-4-GW-ST105-30048-REG~~	~~30 APR 2014~~	~~12:18~~	~~250 mL HDPE~~	~~1~~	~~None except cool to 4 C~~	~~Bromide, chloride, fluoride, and sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C~~			~~N~~		
	ST105-30048	TJA-4-GW-ST105-30048-REG	30 APR 2014	12:18	250 mL HDPE	1	HNO3<pH 2	Ca, Mg, K, Na, Fe, and Mn by SW846 6010B			N		
	ST105-30048	TJA-4-GW-ST105-30048-REG	30 APR 2014	12:18	250 mL HDPE	1	H2SO4<pH 2	Total Organic Carbon by SM 5310C			N		
06	ST105-30048	TJA-4-GW-ST105-30048-REG	30 APR 2014	12:18	250 mL HDPE	1	H2SO4<pH 2	Dissolved Organic Carbon by SM 5310C			N		
07	ST105-30049	TJA-4-GW-ST105-30049-FD	30 APR 2014	12:18	250 mL HDPE	1	H2SO4<pH 2	TKN by EPA 351.2, Nitrate plus Nitrite by EPA 353.2, Ammonia by SM4500 NH3BG			N		
	~~ST105-30049~~	~~TJA-4-GW-ST105-30049-FD~~	~~30 APR 2014~~	~~12:18~~	~~250 mL HDPE~~	~~1~~	~~None except cool to 4 C~~	~~Bromide, chloride, fluoride, and sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C~~			~~N~~		
08	ST105-30049	TJA-4-GW-ST105-30049-FD	30 APR 2014	12:18	250 mL HDPE	1	H2SO4<pH 2	Dissolved Organic Carbon by SM 5310C			N		
07	ST105-30049	TJA-4-GW-ST105-30049-FD	30 APR 2014	12:18	250 mL HDPE	1	H2SO4<pH 2	Total Organic Carbon by SM 5310C			N		
	ST105-30049	TJA-4-GW-ST105-30049-FD	30 APR 2014	12:18	250 mL HDPE	1	HNO3<pH 2	Ca, Mg, K, Na, Fe, and Mn by SW846 6010B			N		
09	ST105-30050	TJA-5-GW-ST105-30050-REG	30 APR 2014	15:11	250 mL HDPE	1	H2SO4<pH 2	TKN by EPA 351.2, Nitrate plus Nitrite by EPA 353.2, Ammonia by SM4500 NH3BG			N		
	ST105-30050	TJA-5-GW-ST105-30050-REG	30 APR 2014	15:11	250 mL HDPE	1	None except cool to 4 C	Bromide, chloride, fluoride, and sulfate by EPA 300, Alkalinity by SM2320B, TDS by SM 2540C			N		
	ST105-30050	TJA-5-GW-ST105-30050-REG	30 APR 2014	15:11	250 mL HDPE	1	HNO3<pH 2	Ca, Mg, K, Na, Fe, and Mn by SW846 6010B			N		
	~~ST105-30050~~	~~TJA-5-GW-ST105-30050-REG~~	~~30 APR 2014~~	~~15:11~~	~~250 mL HDPE~~	~~1~~	~~H2SO4<pH 2~~	~~Total Organic Carbon by SM 5310C~~			~~N~~		
10	ST105-30050	TJA-5-GW-ST105-30050-REG	30 APR 2014	15:11	250 mL HDPE	1	H2SO4<pH 2	Dissolved Organic Carbon by SM 5310C			N		

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

Cooler Received/Opened On: 05/02/14 0840 Workorder# 1405013

1. Tracking # 1389 (last 4 digits, FedEx)

   Courier: FedEx

2. Temperature of rep. sample or temp blank when opened: 1.8 °C + *correction factor (+0.1)* = 1.9 °C

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

   If yes, how many and where: 2. front + back

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (initial) JTG

7. Were custody seals on containers: YES NO and Intact YES NO NA

   Were these signed and dated correctly? YES NO NA

8. Packing material used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13. a. Were VOA vials received? YES NO NA

    b. Was there any observable headspace present in any VOA vial? YES NO NA

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence # —

I certify that I unloaded the cooler and answered questions 7-14 (initial) JTG

15. a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

    b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) JTG

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) JTG

I certify that I attached a label with the unique LIMS number to each container (initial) JTG

I certify that I have performed a second check of the LIMS information against the COC to confirm accuracy (initial) _____

21. Were there Non-Conformance issues at login? YES NO Was a NCR generated? YES NO # _____

Additional Details:

WORK ORDER

Printed: 5/5/2014 7:14:44PM

1404205

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland_ECOS

Report To:
Shaw Environmental, Inc.
Susan Huang
4005 Port Chicago Highway
Concord, CA 94520
Phone: (925) 288-2099
Fax: (925) 288-0888

Invoice To:
Shaw Environmental, Inc.
Accounts Payable
PO Box 98519
Baton Rouge, LA 70884
Phone :(225) 932-2500
Fax: (225) 932-2661

Due to Client: 05/21/2014 16:00 *This is the projected due date to the client, at the time of receipt, and is for report delivery via upload, and/or email, and/or shipment to meet TAT as setup by project*

Received By: Tiana L. Hutchings
Date Received: 04/30/2014 08:50
Logged In By: Tiana L. Hutchings
Date Logged In: 04/30/2014 11:31

Samples Received at: **1.1°C**
Custody Seals Yes Received On Ice Yes
Containers Intact Yes
COC/Labels Agree Yes
Preservation Confirme Yes

Method	Test Code	Due	TAT	Expires	Comments
1404205-01 ST105-30047 [Water] Sampled 04/28/2014 15:29 Mountain 'Client Sample'					
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/16/2014 14:00	15	05/05/2014 16:29	
SW9060A	WC_TOC_9060A_QUAD	05/16/2014 14:00	15	05/26/2014 16:29	
E351.2	WC_TKN_351.2	05/16/2014 14:00	15	05/26/2014 16:29	Outside DoD cert
E353.2	WC_NO3NO2_N_353.2	05/16/2014 14:00	15	05/26/2014 16:29	
SW9056A	WC_ANIONS_9056A (Regular)	05/16/2014 14:00	15	05/26/2014 16:29	see versions
SM4500NH3BG	WC_AMMONIA_PHENATE_4500NH3BG	05/16/2014 14:00	15	05/26/2014 16:29	
SM2320B	WC_ALKALINITY_2320B	05/16/2014 14:00	15	05/12/2014 16:29	
SW6010C	MET_ICP_LOW6010C_FULL	05/16/2014 14:00	15	10/25/2014 16:29	see versions
1404205-02 ST105-30047 [Water] Sampled 04/28/2014 15:29 Mountain 'Client Sample'					**Filtered**
SW9060A	WC_TOC_DISS_9060A_QUAD	05/16/2014 14:00	15	05/26/2014 16:29	Filtered

Reviewed By

Date

WORK ORDER

Printed: 5/5/2014 7:15:56PM

1405013

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland

Report To:
Shaw Environmental, Inc.
Susan Huang
4005 Port Chicago Highway
Concord, CA 94520
Phone: (925) 288-2099
Fax: (925) 288-0888

Invoice To:
Shaw Environmental, Inc.
Accounts Payable
PO Box 98519
Baton Rouge, LA 70884
Phone :(225) 932-2500
Fax: (225) 932-2661

Due to Client: 05/26/2014 16:00 *This is the projected due date to the client, at the time of receipt, and is for report delivery via upload, and/or email, and/or shipment to meet TAT as setup by project*

Received By: Joshua T. Gross
Date Received: 05/02/2014 08:40
Logged In By: Joshua T. Gross
Date Logged In: 05/02/2014 14:56

Samples Received at: **1.9°C**

Custody Seals	Yes	Received On Ice	Yes
Containers Intact	Yes		
COC/Labels Agree	Yes		
Preservation Confirme	Yes		

Method	Test Code	Due	TAT	Expires	Comments
1405013-01 ST105-30029 [Water] Sampled 05/01/2014 13:15 Mountain 'Client Sample'					
SM2320B	WC_ALKALINITY_2320B	05/20/2014 14:00	15	05/15/2014 14:15	
SM4500NH3BG	WC_AMMONIA_PHENATE_4500NH3BG	05/20/2014 14:00	15	05/29/2014 14:15	
SW9056A	WC_ANIONS_9056A (Regular)	05/20/2014 14:00	15	05/29/2014 14:15	see versions
E353.2	WC_NO3NO2_N_353.2	05/20/2014 14:00	15	05/29/2014 14:15	
E351.2	WC_TKN_351.2	05/20/2014 14:00	15	05/29/2014 14:15	Outside DoD cert
SW9060A	WC_TOC_9060A_QUAD	05/20/2014 14:00	15	05/29/2014 14:15	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/20/2014 14:00	15	05/08/2014 14:15	
SW6010C	MET_ICP_LOW6010C_FULL	05/20/2014 14:00	15	10/28/2014 14:15	see versions
1405013-02 ST105-30029 [Water] Sampled 05/01/2014 13:15 Mountain 'Client Sample'					**Filter in Lab**
SW9060A	WC_TOC_DISS_9060A_QUAD	05/20/2014 14:00	15	05/29/2014 14:15	Filter in lab using unpreserved container from -01. Do not filter prese

1405013

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland

Method	Test Code	Due	TAT	Expires	Comments
1405013-03 ST105-30043 [Water] Sampled 05/01/2014 10:51 Mountain 'Client Sample'					
SM2320B	WC_ALKALINITY_2320B	05/20/2014 14:00	15	05/15/2014 11:51	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/20/2014 14:00	15	05/08/2014 11:51	
SW9060A	WC_TOC_9060A_QUAD	05/20/2014 14:00	15	05/29/2014 11:51	
E351.2	WC_TKN_351.2	05/20/2014 14:00	15	05/29/2014 11:51	Outside DoD cert
E353.2	WC_NO3NO2_N_353.2	05/20/2014 14:00	15	05/29/2014 11:51	
SM4500NH3BG	WC_AMMONIA_PHENATE_4500NH3BG	05/20/2014 14:00	15	05/29/2014 11:51	
SW6010C	MET_ICP_LOW6010C_FULL	05/20/2014 14:00	15	10/28/2014 11:51	see versions
SW9056A	WC_ANIONS_9056A (Regular)	05/20/2014 14:00	15	05/29/2014 11:51	see versions
1405013-04 ST105-30043 [Water] Sampled 05/01/2014 13:15 Mountain 'Client Sample'					**Filter in Lab**
SW9060A	WC_TOC_DISS_9060A_QUAD	05/20/2014 14:00	15	05/29/2014 14:15	
1405013-05 ST105-30048 [Water] Sampled 04/30/2014 12:18 Mountain 'Client Sample'					
E351.2	WC_TKN_351.2	05/20/2014 14:00	15	05/28/2014 13:18	Outside DoD cert
SW6010C	MET_ICP_LOW6010C_FULL	05/20/2014 14:00	15	10/27/2014 13:18	see versions
SM2320B	WC_ALKALINITY_2320B	05/20/2014 14:00	15	05/14/2014 13:18	
SM4500NH3BG	WC_AMMONIA_PHENATE_4500NH3BG	05/20/2014 14:00	15	05/28/2014 13:18	
SW9056A	WC_ANIONS_9056A (Regular)	05/20/2014 14:00	15	05/28/2014 13:18	see versions
SW9060A	WC_TOC_9060A_QUAD	05/20/2014 14:00	15	05/28/2014 13:18	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/20/2014 14:00	15	05/07/2014 13:18	
E353.2	WC_NO3NO2_N_353.2	05/20/2014 14:00	15	05/28/2014 13:18	
1405013-06 ST105-30048 [Water] Sampled 05/01/2014 12:18 Mountain 'Client Sample'					**Filter in Lab**
SW9060A	WC_TOC_DISS_9060A_QUAD	05/20/2014 14:00	15	05/29/2014 13:18	
1405013-07 ST105-30049 [Water] Sampled 04/30/2014 12:18 Mountain 'Field Duplicate'					
E351.2	WC_TKN_351.2	05/20/2014 14:00	15	05/28/2014 13:18	Outside DoD cert
SW9060A	WC_TOC_9060A_QUAD	05/20/2014 14:00	15	05/28/2014 13:18	
E353.2	WC_NO3NO2_N_353.2	05/20/2014 14:00	15	05/28/2014 13:18	
SW9056A	WC_ANIONS_9056A (Regular)	05/20/2014 14:00	15	05/28/2014 13:18	see versions
SM4500NH3BG	WC_AMMONIA_PHENATE_4500NH3BG	05/20/2014 14:00	15	05/28/2014 13:18	
SM2320B	WC_ALKALINITY_2320B	05/20/2014 14:00	15	05/14/2014 13:18	
SW6010C	MET_ICP_LOW6010C_FULL	05/20/2014 14:00	15	10/27/2014 13:18	see versions
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/20/2014 14:00	15	05/07/2014 13:18	

1405013

Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Project Manager: Marianne J. Walker
Project Number: SHW_Kirtland

Method	Test Code	Due	TAT	Expires	Comments
1405013-08 ST105-30049 [Water] Sampled 05/01/2014 12:18 Mountain 'Client Sample'					**Filter in Lab**
SW9060A	WC_TOC_DISS_9060A_QUAD	05/20/2014 14:00	15	05/29/2014 13:18	
1405013-09 ST105-30050 [Water] Sampled 04/30/2014 15:11 Mountain 'Client Sample'					
E353.2	WC_NO3NO2_N_353.2	05/20/2014 14:00	15	05/28/2014 16:11	
E351.2	WC_TKN_351.2	05/20/2014 14:00	15	05/28/2014 16:11	Outside DoD cert
SW9060A	WC_TOC_9060A_QUAD	05/20/2014 14:00	15	05/28/2014 16:11	
SM2540C	WC_TOTAL_DISS_SOLIDS_2540C	05/20/2014 14:00	15	05/07/2014 16:11	
SW6010C	MET_ICP_LOW6010C_FULL	05/20/2014 14:00	15	10/27/2014 16:11	see versions
SM2320B	WC_ALKALINITY_2320B	05/20/2014 14:00	15	05/14/2014 16:11	
SM4500NH3BG	WC_AMMONIA_PHENATE_4500NH3BG	05/20/2014 14:00	15	05/28/2014 16:11	
SW9056A	WC_ANIONS_9056A (Regular)	05/20/2014 14:00	15	05/28/2014 16:11	see versions
1405013-10 ST105-30050 [Water] Sampled 04/30/2014 15:11 Mountain 'Client Sample'					**Filter in Lab**
SW9060A	WC_TOC_DISS_9060A_QUAD	05/20/2014 14:00	15	05/28/2014 16:11	

Reviewed By

Date

Sample Delivery Group Assignment Form

CLIENT: Shaw Environmental, Inc.
PROJECT NAME: Kirtland AFB (ECOS)
SDG #: KirtlandECOS_014

QC LEVEL: Level III
Report Due: 5/21/2014 - 5/23/2014
Client Sample Count: 11

Lab ID	Client ID	Sampled	Received	Matrix	E 351.2	E 353.2	SM 2320B	SM 2540C	SM 4500 NH3BG	SW 6010C	SW 9056A	SW 9060A
1404205-01	ST105-30047	4/28/2014	4/30/2014	Water	X	X	X	X	X	X	X	X
1404205-02	ST105-30047	4/28/2014	4/30/2014	Water								DISS
1405013-01	ST105-30029	5/1/2014	5/2/2014	Water	X	X	X	X	X	X	X	X
1405013-02	ST105-30029	5/1/2014	5/2/2014	Water								DISS
1405013-03	ST105-30043	5/1/2014	5/2/2014	Water	X	X	X	X	X	X	X	X
1405013-04	ST105-30043	5/1/2014	5/2/2014	Water								DISS
1405013-05	ST105-30048	4/30/2014	5/2/2014	Water	X	X	X	X	X	X	X	X
1405013-06	ST105-30048	5/1/2014	5/2/2014	Water								DISS
1405013-07	ST105-30049	4/30/2014	5/2/2014	Water	X	X	X	X	X	X	X	X
1405013-08	ST105-30049	5/1/2014	5/2/2014	Water								DISS
1405013-09	ST105-30050	4/30/2014	5/2/2014	Water	X	X	X	X	X	X	X	X
1405013-10	ST105-30050	4/30/2014	5/2/2014	Water								DISS

Data for SW6010C Forms

Sample Extraction Data

Prep Method: MET_3005A_LOW-SW6010C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404205-01 [ST105-30047]	4E06002	100.00/25.00	100	25.0	1.00			05/06/14

Sample Extraction Data

Prep Method: MET_3005A_LOW-SW6010C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1405013-01 [ST105-30029]	4E14023	100.00/25.00	100	25.0	1.00			05/15/14
1405013-03 [ST105-30043]	4E14023	100.00/25.00	100	25.0	1.00			05/15/14
1405013-05 [ST105-30048]	4E14023	100.00/25.00	100	25.0	1.00			05/15/14
1405013-07 [ST105-30049]	4E14023	100.00/25.00	100	25.0	1.00			05/15/14
1405013-09 [ST105-30050]	4E14023	100.00/25.00	100	25.0	1.00			05/15/14

ANALYSIS DATA SHEET

ST105-30047

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404205-01
Sampled:	04/28/14 15:29	Received:	04/30/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**75300**	**250**	500	1250	1		SW6010C	4E06002	05/07/14 15:51
7439-89-6	Iron		7.50	15.0	25.0	1	U	SW6010C	4E06002	05/07/14 15:51
7439-95-4	Magnesium	**11700**	**250**	750	1250	1		SW6010C	4E06002	05/07/14 15:51
7439-96-5	Manganese		0.750	1.50	3.75	1	U	SW6010C	4E06002	05/07/14 15:51
7440-09-7	Potassium	**1820**	**250**	750	1250	1		SW6010C	4E06002	05/07/14 15:51
7440-23-5	Sodium	**22400**	**250**	750	1250	1		SW6010C	4E06002	05/07/14 15:51

ANALYSIS DATA SHEET

ST105-30029

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-01
Sampled:	05/01/14 13:15	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**34200**	**250**	500	1250	1		SW6010C	4E14023	05/20/14 14:13
7439-89-6	Iron	**23.3**	**7.50**	15.0	25.0	1	J	SW6010C	4E14023	05/20/14 14:13
7439-95-4	Magnesium	**6120**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:13
7439-96-5	Manganese	**3.00**	**0.750**	1.50	3.75	1	J	SW6010C	4E14023	05/20/14 14:13
7440-09-7	Potassium	**1970**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:13
7440-23-5	Sodium	**21400**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:13

ANALYSIS DATA SHEET

ST105-30043

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-03
Sampled:	05/01/14 10:51	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**43600**	**250**	500	1250	1		SW6010C	4E14023	05/20/14 14:17
7439-89-6	Iron	**164**	**7.50**	15.0	25.0	1		SW6010C	4E14023	05/20/14 14:17
7439-95-4	Magnesium	**9480**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:17
7439-96-5	Manganese	**5.53**	**0.750**	1.50	3.75	1		SW6010C	4E14023	05/20/14 14:17
7440-09-7	Potassium	**2290**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:17
7440-23-5	Sodium	**32800**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:17

ANALYSIS DATA SHEET

ST105-30048

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-05
Sampled:	04/30/14 12:18	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**64300**	**250**	500	1250	1		SW6010C	4E14023	05/20/14 14:22
7439-89-6	Iron		7.50	15.0	25.0	1	U	SW6010C	4E14023	05/20/14 14:22
7439-95-4	Magnesium	**12800**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:22
7439-96-5	Manganese		0.750	1.50	3.75	1	U	SW6010C	4E14023	05/20/14 14:22
7440-09-7	Potassium	**3150**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:22
7440-23-5	Sodium	**24500**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:22

ANALYSIS DATA SHEET

ST105-30049

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-07
Sampled:	04/30/14 12:18	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**65800**	**250**	500	1250	1		SW6010C	4E14023	05/20/14 14:26
7439-89-6	Iron		7.50	15.0	25.0	1	U	SW6010C	4E14023	05/20/14 14:26
7439-95-4	Magnesium	**13000**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:26
7439-96-5	Manganese		0.750	1.50	3.75	1	U	SW6010C	4E14023	05/20/14 14:26
7440-09-7	Potassium	**3220**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:26
7440-23-5	Sodium	**25000**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:26

ANALYSIS DATA SHEET

ST105-30050

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-09
Sampled:	04/30/14 15:11	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**79300**	**250**	500	1250	1		SW6010C	4E14023	05/20/14 14:31
7439-89-6	Iron	**46.0**	**7.50**	15.0	25.0	1		SW6010C	4E14023	05/20/14 14:31
7439-95-4	Magnesium	**14400**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:31
7439-96-5	Manganese	**1.72**	**0.750**	1.50	3.75	1	J	SW6010C	4E14023	05/20/14 14:31
7440-09-7	Potassium	**2000**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:31
7440-23-5	Sodium	**23100**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:31

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4E06002-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	ND	250	500	1250	1	U	SW6010C	4E06002	05/07/14 13:51
7439-89-6	Iron	ND	7.50	15.0	25.0	1	U	SW6010C	4E06002	05/07/14 13:51
7439-95-4	Magnesium	ND	250	750	1250	1	U	SW6010C	4E06002	05/07/14 13:51
7439-96-5	Manganese	ND	0.750	1.50	3.75	1	U	SW6010C	4E06002	05/07/14 13:51
7440-09-7	Potassium	ND	250	750	1250	1	U	SW6010C	4E06002	05/07/14 13:51
7440-23-5	Sodium	ND	250	750	1250	1	U	SW6010C	4E06002	05/07/14 13:51

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E06002-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**560.7**	**250**	500	1250	1	J	SW6010C	4E06002	05/07/14 13:55
7439-89-6	Iron	**19.53**	**7.50**	15.0	25.0	1	J	SW6010C	4E06002	05/07/14 13:55
7439-95-4	Magnesium	**594.8**	**250**	750	1250	1	J	SW6010C	4E06002	05/07/14 13:55
7439-96-5	Manganese	**10.17**	**0.750**	1.50	3.75	1		SW6010C	4E06002	05/07/14 13:55
7440-09-7	Potassium	**538.4**	**250**	750	1250	1	J	SW6010C	4E06002	05/07/14 13:55
7440-23-5	Sodium	**563.3**	**250**	750	1250	1	J	SW6010C	4E06002	05/07/14 13:55

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4E14023-BLK1
% Solids:

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	ND	250	500	1250	1	U	SW6010C	4E14023	05/20/14 14:03
7439-89-6	Iron	ND	7.50	15.0	25.0	1	U	SW6010C	4E14023	05/20/14 14:03
7439-95-4	Magnesium	ND	250	750	1250	1	U	SW6010C	4E14023	05/20/14 14:03
7439-96-5	Manganese	ND	0.750	1.50	3.75	1	U	SW6010C	4E14023	05/20/14 14:03
7440-09-7	Potassium	ND	250	750	1250	1	U	SW6010C	4E14023	05/20/14 14:03
7440-23-5	Sodium	ND	250	750	1250	1	U	SW6010C	4E14023	05/20/14 14:03

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E14023-BS1

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**542.4**	**250**	500	1250	1	J	SW6010C	4E14023	05/20/14 14:07
7439-89-6	Iron	**19.94**	**7.50**	15.0	25.0	1	J	SW6010C	4E14023	05/20/14 14:07
7439-95-4	Magnesium	**561.5**	**250**	750	1250	1	J	SW6010C	4E14023	05/20/14 14:07
7439-96-5	Manganese	**9.756**	**0.750**	1.50	3.75	1		SW6010C	4E14023	05/20/14 14:07
7440-09-7	Potassium	**525.5**	**250**	750	1250	1	J	SW6010C	4E14023	05/20/14 14:07
7440-23-5	Sodium	**545.1**	**250**	750	1250	1	J	SW6010C	4E14023	05/20/14 14:07

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12803-ICV1	Calcium	50000	50400	101	ug/L	+/- 10.00%
	Iron	10000	10260	103	ug/L	+/- 10.00%
	Magnesium	50000	50790	102	ug/L	+/- 10.00%
	Manganese	1000	1052	105	ug/L	+/- 10.00%
	Potassium	10000	9998	100	ug/L	+/- 10.00%
	Sodium	50000	50330	101	ug/L	+/- 10.00%
4E12803-CCV1	Calcium	50000	50790	102	ug/L	+/- 10.00%
	Iron	10000	10450	104	ug/L	+/- 10.00%
	Magnesium	50000	51320	103	ug/L	+/- 10.00%
	Manganese	1000	1040	104	ug/L	+/- 10.00%
	Potassium	10000	9954	99.5	ug/L	+/- 10.00%
	Sodium	50000	50760	102	ug/L	+/- 10.00%
4E12803-CCV3	Calcium	50000	50550	101	ug/L	+/- 10.00%
	Iron	10000	10600	106	ug/L	+/- 10.00%
	Magnesium	50000	51920	104	ug/L	+/- 10.00%
	Manganese	1000	1065	106	ug/L	+/- 10.00%
	Potassium	10000	9895	99.0	ug/L	+/- 10.00%
	Sodium	50000	50700	101	ug/L	+/- 10.00%
4E12803-CCV4	Calcium	50000	50370	101	ug/L	+/- 10.00%
	Iron	10000	10720	107	ug/L	+/- 10.00%
	Magnesium	50000	52190	104	ug/L	+/- 10.00%
	Manganese	1000	1076	108	ug/L	+/- 10.00%
	Potassium	10000	9864	98.6	ug/L	+/- 10.00%
	Sodium	50000	50680	101	ug/L	+/- 10.00%
4E12803-CCV5	Calcium	50000	49660	99.3	ug/L	+/- 10.00%
	Iron	10000	10690	107	ug/L	+/- 10.00%
	Magnesium	50000	51650	103	ug/L	+/- 10.00%
	Manganese	1000	1067	107	ug/L	+/- 10.00%
	Potassium	10000	9800	98.0	ug/L	+/- 10.00%
	Sodium	50000	50400	101	ug/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW6010C

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4140002
Sequence: 4E14039

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E14039-ICV1	Calcium	50000	49940	99.9	ug/L	+/- 10.00%
	Iron	10000	10750	108	ug/L	+/- 10.00%
	Magnesium	50000	49840	99.7	ug/L	+/- 10.00%
	Manganese	1000	1069	107	ug/L	+/- 10.00%
	Potassium	10000	10060	101	ug/L	+/- 10.00%
	Sodium	50000	50630	101	ug/L	+/- 10.00%
4E14039-CCV1	Calcium	50000	50050	100	ug/L	+/- 10.00%
	Iron	10000	10480	105	ug/L	+/- 10.00%
	Magnesium	50000	49680	99.4	ug/L	+/- 10.00%
	Manganese	1000	1060	106	ug/L	+/- 10.00%
	Potassium	10000	10060	101	ug/L	+/- 10.00%
	Sodium	50000	50620	101	ug/L	+/- 10.00%
4E14039-CCV3	Calcium	50000	49260	98.5	ug/L	+/- 10.00%
	Iron	10000	10410	104	ug/L	+/- 10.00%
	Magnesium	50000	49080	98.2	ug/L	+/- 10.00%
	Manganese	1000	1055	105	ug/L	+/- 10.00%
	Potassium	10000	9966	99.7	ug/L	+/- 10.00%
	Sodium	50000	50210	100	ug/L	+/- 10.00%
4E14039-CCV4	Calcium	50000	49900	99.8	ug/L	+/- 10.00%
	Iron	10000	10340	103	ug/L	+/- 10.00%
	Magnesium	50000	49460	98.9	ug/L	+/- 10.00%
	Manganese	1000	1046	105	ug/L	+/- 10.00%
	Potassium	10000	9973	99.7	ug/L	+/- 10.00%
	Sodium	50000	50180	100	ug/L	+/- 10.00%

CRDL STANDARD

SW6010C

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: ME-ICP

Calibration: 4128001

Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4E12803-CRL1	Calcium	2000	1959	98.0	ug/L	80 - 120
	Iron	60.00	65.39	109	ug/L	80 - 120
	Magnesium	3000	3042	101	ug/L	80 - 120
	Manganese	6.000	6.136	102	ug/L	80 - 120
	Potassium	3000	2816	93.9	ug/L	80 - 120
	Sodium	3000	2937	97.9	ug/L	80 - 120

CRDL STANDARD

SW6010C

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: ME-ICP

Calibration: 4140002

Sequence: 4E14039

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4E14039-CRL1	Calcium	2000	1955	97.7	ug/L	80 - 120
	Iron	60.00	59.86	99.8	ug/L	80 - 120
	Magnesium	3000	2966	98.9	ug/L	80 - 120
	Manganese	6.000	6.086	101	ug/L	80 - 120
	Potassium	3000	2773	92.4	ug/L	80 - 120
	Sodium	3000	2897	96.6	ug/L	80 - 120

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12803
Calibration: 4128001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12803-ICB1	Calcium	-1.860	1000	5000	ug/L	U	SW6010C
	Iron	8.534	30.0	100	ug/L	U	SW6010C
	Magnesium	7.760	1000	5000	ug/L	U	SW6010C
	Manganese	0.002780	3.00	15.0	ug/L	U	SW6010C
	Potassium	2.640	1000	5000	ug/L	U	SW6010C
	Sodium	10.13	1000	5000	ug/L	U	SW6010C
4E12803-CCB1	Calcium	0.110	1000	5000	ug/L	U	SW6010C
	Iron	7.54	30.0	100	ug/L	U	SW6010C
	Magnesium	3.61	1000	5000	ug/L	U	SW6010C
	Manganese	0.000600	3.00	15.0	ug/L	U	SW6010C
	Potassium	14.4	1000	5000	ug/L	U	SW6010C
	Sodium	2.86	1000	5000	ug/L	U	SW6010C
4E12803-CCB3	Calcium	-1.18	1000	5000	ug/L	U	SW6010C
	Iron	1.25	30.0	100	ug/L	U	SW6010C
	Magnesium	2.61	1000	5000	ug/L	U	SW6010C
	Manganese	0.0225	3.00	15.0	ug/L	U	SW6010C
	Potassium	15.2	1000	5000	ug/L	U	SW6010C
	Sodium	7.60	1000	5000	ug/L	U	SW6010C
4E06002-BLK1	Calcium	0.860	250	1250	ug/L	U	SW6010C
	Iron	0.225	7.50	25.0	ug/L	U	SW6010C
	Magnesium	1.16	250	1250	ug/L	U	SW6010C
	Manganese	0.0504	0.750	3.75	ug/L	U	SW6010C
	Potassium	8.08	250	1250	ug/L	U	SW6010C
	Sodium	5.84	250	1250	ug/L	U	SW6010C
4E12803-CCB4	Calcium	-1.29	1000	5000	ug/L	U	SW6010C
	Iron	1.32	30.0	100	ug/L	U	SW6010C
	Magnesium	2.63	1000	5000	ug/L	U	SW6010C
	Manganese	0.0275	3.00	15.0	ug/L	U	SW6010C
	Potassium	10.3	1000	5000	ug/L	U	SW6010C
	Sodium	5.47	1000	5000	ug/L	U	SW6010C
4E12803-CCB5	Calcium	8.52	1000	5000	ug/L	U	SW6010C
	Iron	3.20	30.0	100	ug/L	U	SW6010C
	Magnesium	3.94	1000	5000	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E12803
Calibration: 4128001

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12803-CCB5	Manganese	0.0868	3.00	15.0	ug/L	U	SW6010C
	Potassium	25.5	1000	5000	ug/L	U	SW6010C
	Sodium	19.8	1000	5000	ug/L	U	SW6010C

BLANKS
SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Instrument ID: ME-ICP
Project: Kirtland AFB (ECOS)
Sequence: 4E14039
Calibration: 4140002

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E14039-ICB1	Calcium	-1.680	1000	5000	ug/L	U	SW6010C
	Iron	4.650	30.0	100	ug/L	U	SW6010C
	Magnesium	3.050	1000	5000	ug/L	U	SW6010C
	Manganese	0.006620	3.00	15.0	ug/L	U	SW6010C
	Potassium	-15.96	1000	5000	ug/L	U	SW6010C
	Sodium	-19.74	1000	5000	ug/L	U	SW6010C
4E14039-CCB1	Calcium	-1.90	1000	5000	ug/L	U	SW6010C
	Iron	5.52	30.0	100	ug/L	U	SW6010C
	Magnesium	11.3	1000	5000	ug/L	U	SW6010C
	Manganese	0.00815	3.00	15.0	ug/L	U	SW6010C
	Potassium	-17.2	1000	5000	ug/L	U	SW6010C
	Sodium	-19.9	1000	5000	ug/L	U	SW6010C
4E14039-CCB3	Calcium	1.18	1000	5000	ug/L	U	SW6010C
	Iron	2.71	30.0	100	ug/L	U	SW6010C
	Magnesium	5.18	1000	5000	ug/L	U	SW6010C
	Manganese	0.0747	3.00	15.0	ug/L	U	SW6010C
	Potassium	-1.24	1000	5000	ug/L	U	SW6010C
	Sodium	-26.8	1000	5000	ug/L	U	SW6010C
4E14023-BLK1	Calcium	0.435	250	1250	ug/L	U	SW6010C
	Iron	-0.0413	7.50	25.0	ug/L	U	SW6010C
	Magnesium	2.47	250	1250	ug/L	U	SW6010C
	Manganese	0.0383	0.750	3.75	ug/L	U	SW6010C
	Potassium	2.56	250	1250	ug/L	U	SW6010C
	Sodium	-3.08	250	1250	ug/L	U	SW6010C
4E14039-CCB4	Calcium	2.76	1000	5000	ug/L	U	SW6010C
	Iron	-1.64	30.0	100	ug/L	U	SW6010C
	Magnesium	5.24	1000	5000	ug/L	U	SW6010C
	Manganese	0.0416	3.00	15.0	ug/L	U	SW6010C
	Potassium	-9.19	1000	5000	ug/L	U	SW6010C
	Sodium	-16.3	1000	5000	ug/L	U	SW6010C

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4128001
Sequence: 4E12803

Lab Sample ID	Analyte	True	Found	%R	Units
4E12803-IFA1	Calcium	500000	467,940.00	93.6	ug/L
	Iron	200000	197,040.00	98.5	ug/L
	Magnesium	500000	491,300.00	98.3	ug/L
	Manganese		-0.96		ug/L
	Potassium		-60.41		ug/L
	Sodium		38.53		ug/L
4E12803-IFB1	Calcium	500000	464,280.00	92.9	ug/L
	Iron	200000	198,380.00	99.2	ug/L
	Magnesium	500000	486,590.00	97.3	ug/L
	Manganese	500.0	509.30	102	ug/L
	Potassium		-56.13		ug/L
	Sodium		83.35		ug/L

ICP INTERFERENCE CHECK SAMPLE

SW6010C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Instrument ID: ME-ICP
Calibration: 4140002
Sequence: 4E14039

Lab Sample ID	Analyte	True	Found	%R	Units
4E14039-IFA1	Calcium	500000	463,400.00	92.7	ug/L
	Iron	200000	202,910.00	101	ug/L
	Magnesium	500000	473,980.00	94.8	ug/L
	Manganese		-1.26		ug/L
	Potassium		-79.16		ug/L
	Sodium		27.01		ug/L
4E14039-IFB1	Calcium	500000	453,510.00	90.7	ug/L
	Iron	200000	205,040.00	103	ug/L
	Magnesium	500000	476,420.00	95.3	ug/L
	Manganese	500.0	520.29	104	ug/L
	Potassium		-96.36		ug/L
	Sodium		32.63		ug/L

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E06002	Laboratory ID:	4E06002-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Calcium	600.0	560.7	93.4	80 - 120
Iron	20.00	19.53	97.6	80 - 120
Magnesium	600.0	594.8	99.1	80 - 120
Manganese	10.00	10.17	102	80 - 120
Potassium	600.0	538.4	89.7	80 - 120
Sodium	600.0	563.3	93.9	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E14023	Laboratory ID:	4E14023-BS1
Preparation:	MET_3005A_LOW	Initial/Final:	100 mL / 25 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Calcium	600.0	542.4	90.4	80 - 120
Iron	20.00	19.94	99.7	80 - 120
Magnesium	600.0	561.5	93.6	80 - 120
Manganese	10.00	9.756	97.6	80 - 120
Potassium	600.0	525.5	87.6	80 - 120
Sodium	600.0	545.1	90.8	80 - 120

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_014

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Al	Ca	Fe	Mg	Ag
Calcium	317.933	0.000000	0.000000	0.000000	0.000000	0.000000
Calcium	317.933	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Magnesium	279.079	0.000000	0.000000	-0.000001	0.000000	0.000000
Magnesium	279.079	0.000000	0.000000	-0.000001	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000025	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000025	0.000000	0.000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	589.592	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	589.592	0.000000	0.000000	0.000000	0.000000	0.000000

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_014

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: As	B	Ba	Be	Cd
Calcium	317.933	0.000000	0.000000	0.000000	0.000000	0.000000
Calcium	317.933	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	589.592	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	589.592	0.000000	0.000000	0.000000	0.000000	0.000000

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_014

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Co	Cr	Cu	K	Mn
Calcium	317.933	0.000000	0.000000	0.000000	0.000000	0.000000
Calcium	317.933	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	-0.000701	0.000000	0.000000	-0.000794
Iron	261.187	0.000000	-0.000701	0.000000	0.000000	-0.000794
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	589.592	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	589.592	0.000000	0.000000	0.000000	0.000000	0.000000

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_014

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Mo	Na	Ni	Pb	Sb
Calcium	317.933	0.000000	0.000000	0.000000	0.000000	0.000000
Calcium	317.933	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Magnesium	279.079	-0.000013	0.000000	0.000000	0.000000	0.000000
Magnesium	279.079	-0.000013	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	589.592	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	589.592	0.000000	0.000000	0.000000	0.000000	0.000000

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_014

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Se	Sn	Ti	Tl	V
Calcium	317.933	0.000000	0.000000	0.000000	0.000000	0.000000
Calcium	317.933	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Iron	261.187	0.000000	0.000000	0.000000	0.000000	0.000000
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.61	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	766.49	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	589.592	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	589.592	0.000000	0.000000	0.000000	0.000000	0.000000

Comments:

FORM XA-IN

USEPA - CLP

10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Empirical Laboratories, LLC Contract: Shaw Environmental, Inc.

SDG No.: KirtlandECOS_014

ICP-AES Instrument ID: Thermo Jarrell Ashe ICAP Date: 12/27/2013

Analyte	Wave-length (nm)	Interelement Correction Factors for: Zn				
Calcium	317.933	0.000000				
Calcium	317.933	0.000000				
Iron	261.187	0.000000				
Iron	261.187	0.000000				
Magnesium	279.079	0.000000				
Magnesium	279.079	0.000000				
Manganese	257.61	0.000000				
Manganese	257.61	0.000000				
Potassium	766.49	0.000000				
Potassium	766.49	0.000000				
Sodium	589.592	0.000000				
Sodium	589.592	0.000000				

Comments:

FORM XA-IN

ICP-AES AND ICP-MS LINEAR RANGES

Lab Name: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc. SDG: KirtlandECOS_014

Project: Kirtland AFB (ECOS)

ICP Instrument ID: ME-ICP Date: 12/27/2013

Analyte	Integ. Time (Sec.)	Concentration ug/L	M
Calcium	15	500000	P
Calcium	15	500000	P
Iron	15	500000	P
Iron	15	500000	P
Magnesium	15	500000	P
Magnesium	15	500000	P
Manganese	15	15000	P
Manganese	15	15000	P
Potassium	15	100000	P
Potassium	15	100000	P
Sodium	15	500000	P
Sodium	15	500000	P

PREPARATION BATCH SUMMARY

SW6010C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E06002 Batch Matrix: Water Preparation: MET_3005A_LOW

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30047	1404205-01	05/06/14 08:06	100.00	25.00
Blank	4E06002-BLK1	05/06/14 08:06	100.00	25.00
LCS	4E06002-BS1	05/06/14 08:06	100.00	25.00

PREPARATION BATCH SUMMARY

SW6010C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E14023 Batch Matrix: Water Preparation: MET_3005A_LOW

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30029	1405013-01	05/15/14 13:00	100.00	25.00
ST105-30043	1405013-03	05/15/14 13:00	100.00	25.00
ST105-30048	1405013-05	05/15/14 13:00	100.00	25.00
ST105-30049	1405013-07	05/15/14 13:00	100.00	25.00
ST105-30050	1405013-09	05/15/14 13:00	100.00	25.00
Blank	4E14023-BLK1	05/14/14 13:00	100.00	25.00
LCS	4E14023-BS1	05/14/14 13:00	100.00	25.00

ANALYSIS SEQUENCE SUMMARY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12803	Instrument:	ME-ICP
Calibration:	4128001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E12803-CAL1	5-07-14A-001	05/07/14 09:23
Cal Standard	4E12803-CAL2	5-07-14A-002	05/07/14 09:27
Cal Standard	4E12803-CAL3	5-07-14A-003	05/07/14 09:30
Cal Standard	4E12803-CAL4	5-07-14A-004	05/07/14 09:35
Cal Standard	4E12803-CAL5	5-07-14A-005	05/07/14 09:39
Cal Standard	4E12803-CAL6	5-07-14A-006	05/07/14 09:44
Cal Standard	4E12803-CAL7	5-07-14A-007	05/07/14 09:49
Cal Standard	4E12803-CAL8	5-07-14A-008	05/07/14 09:53
Initial Cal Check	4E12803-ICV1	5-07-14B-001	05/07/14 10:22
Initial Cal Blank	4E12803-ICB1	5-07-14B-002	05/07/14 10:30
Instrument RL Check	4E12803-CRL1	5-07-14B-004	05/07/14 10:41
Interference Check A	4E12803-IFA1	5-07-14B-006	05/07/14 10:50
Interference Check B	4E12803-IFB1	5-07-14B-007	05/07/14 10:55
Calibration Check	4E12803-CCV1	5-07-14B-009	05/07/14 11:04
Calibration Blank	4E12803-CCB1	5-07-14B-010	05/07/14 11:11
Calibration Check	4E12803-CCV3	5-07-14B-043	05/07/14 13:39
Calibration Blank	4E12803-CCB3	5-07-14B-044	05/07/14 13:46
Blank	4E06002-BLK1	5-07-14B-045	05/07/14 13:51
LCS	4E06002-BS1	5-07-14B-046	05/07/14 13:55
Calibration Check	4E12803-CCV4	5-07-14B-061	05/07/14 15:02
Calibration Blank	4E12803-CCB4	5-07-14B-062	05/07/14 15:09
ST105-30047	1404205-01	5-07-14C-009	05/07/14 15:51
Calibration Check	4E12803-CCV5	5-07-14C-010	05/07/14 15:56
Calibration Blank	4E12803-CCB5	5-07-14C-011	05/07/14 16:04

ANALYSIS SEQUENCE SUMMARY

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E14039	Instrument:	ME-ICP
Calibration:	4140002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E14039-CAL1	5-20-14A-001	05/20/14 09:07
Cal Standard	4E14039-CAL2	5-20-14A-002	05/20/14 09:11
Cal Standard	4E14039-CAL3	5-20-14A-003	05/20/14 09:16
Cal Standard	4E14039-CAL4	5-20-14A-004	05/20/14 09:20
Cal Standard	4E14039-CAL5	5-20-14A-005	05/20/14 09:24
Cal Standard	4E14039-CAL6	5-20-14A-006	05/20/14 09:29
Cal Standard	4E14039-CAL7	5-20-14A-007	05/20/14 09:34
Cal Standard	4E14039-CAL8	5-20-14A-008	05/20/14 09:39
Initial Cal Check	4E14039-ICV1	5-20-14B-001	05/20/14 10:28
Initial Cal Blank	4E14039-ICB1	5-20-14B-002	05/20/14 10:36
Instrument RL Check	4E14039-CRL1	5-20-14B-004	05/20/14 10:47
Interference Check A	4E14039-IFA1	5-20-14B-006	05/20/14 10:56
Interference Check B	4E14039-IFB1	5-20-14B-007	05/20/14 11:02
Calibration Check	4E14039-CCV1	5-20-14B-009	05/20/14 11:11
Calibration Blank	4E14039-CCB1	5-20-14B-010	05/20/14 11:19
Calibration Check	4E14039-CCV3	5-20-14C-015	05/20/14 13:51
Calibration Blank	4E14039-CCB3	5-20-14C-016	05/20/14 13:59
Blank	4E14023-BLK1	5-20-14C-017	05/20/14 14:03
LCS	4E14023-BS1	5-20-14C-018	05/20/14 14:07
ST105-30029	1405013-01	5-20-14C-019	05/20/14 14:13
ST105-30043	1405013-03	5-20-14C-020	05/20/14 14:17
ST105-30048	1405013-05	5-20-14C-021	05/20/14 14:22
ST105-30049	1405013-07	5-20-14C-022	05/20/14 14:26
ST105-30050	1405013-09	5-20-14C-023	05/20/14 14:31
Calibration Check	4E14039-CCV4	5-20-14C-032	05/20/14 15:12
Calibration Blank	4E14039-CCB4	5-20-14C-033	05/20/14 15:20

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum	0	0	5000	2.1074E-05	10000	2.1332E-05			500000	2.1096E-05		
Antimony	0	0	100	0.0003776	1000	5.5108E-04					10000	5.6365E-04
Arsenic	0	0	100	0.0002756	1000	3.1564E-04					10000	3.0724E-04
Barium	0	0	50	0.0090234	1000	0.0087075	5000	8.780001E-03				
Beryllium	0	0	100	0.0024482	1000	0.0024698					10000	0.0024048
Boron	0	0	50	0.0000154	1000	1.437E-05					5000	1.4884E-05
Cadmium	0	0	100	0.015803	1000	0.015448					10000	0.015329
Calcium	0	0	1100	7.271818E-05	50000	6.2052E-05					10000	
Chromium	0	0	100	0.0000518	1000	5.031E-05					10000	5.1006E-05
Cobalt	0	0	100	0.0042696	1000	0.0042343					10000	0.0043962
Copper	0	0	100	0.0000771	1000	7.199E-05					10000	7.433999E-05
Iron	0	0	5100	1.667843E-05	10000	1.629E-05			500000	1.61694E-05	10000	
Lead	0	0	100	0.0010095	1000	0.0010308					10000	0.0010825
Magnesium	0	0	5100		50000	2.6516E-06			500000	2.6454E-06	10000	
Manganese	0	0	100	0.0003009	1000	2.8321E-04	10000	2.8201E-04			10000	
Molybdenum	0	0	100	0.0030431	1000	0.003248					10000	0.0032082
Nickel	0	0	100	0.0028371	1000	0.0028679					10000	0.0029433
Potassium	0	0	1000	1.014E-05	10000	1.3936E-05						
Selenium	0	0	100	0.0004169	1000	4.0877E-04					10000	3.9325E-04
Silver	0	0	20	0.000062	500	5.354E-05	2000	5.5595E-05				
Sodium	0	0	1000		50000	5.058E-05						
Thallium	0	0	100	0.0005846	1000	5.8617E-04					10000	6.0885E-04
Tin	0	0	50	0.0012888	1000	0.0013353					5000	1.37078E-03
Titanium	0	0	100	0.0001882	1000	1.8362E-04					10000	1.8579E-04
Vanadium	0	0	100	0.0000526	1000	0.0000511					10000	5.2254E-05
Zinc	0	0	100	0.0060674	1000	0.0063326					10000	0.0061699
Strontium	0	0	100	0.001249	1000	0.001284					10000	0.001292
Lithium (outside certification)	0	0	100	0.0000109	1000	1.103E-05					10000	1.0527E-05

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum												
Antimony												
Arsenic												
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	6.1126E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.6119E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.4337E-05										
Selenium												
Silver												
Sodium	100000	5.0209E-05	500000	4.9758E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4128001	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/7/14 9:23 5/7/14 9:53

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Aluminum	1.58755E-05	66.67073	5.341285	171.1342	0.9999999		0.998	
Antimony	3.730825E-04	70.44333	1.049328	84.74972	0.9999995		0.998	
Arsenic	2.2462E-04	67.10701	2.510175	147.4915	0.9999874		0.998	
Barium	6.627725E-03	66.69783	1.751388	160.0947	0.9999964		0.998	
Beryllium	0.0018307	66.68301	3.045325	151.0269	0.9999931		0.998	
Boron	1.11635E-05	66.77299	2.528898	154.3611	0.9999435		0.998	
Cadmium	0.011645	66.68908	1.751595	156.8435	0.9999996		0.998	
Calcium	4.897405E-05	67.52627	4.154097	162.7174	0.9999981		0.998	
Chromium	3.8279E-05	66.68563	25.97471	196.6664	0.9999979		0.998	
Cobalt	3.225025E-03	66.7015	2.919932	174.8662	0.9999869		0.998	
Copper	5.58575E-05	66.77142	1.786297	146.846	0.9999884		0.998	
Iron	1.228446E-05	66.69009	1.65327	152.726	0.9999999		0.998	
Lead	0.0007807	66.78218	38.16132	197.4058	0.9999799		0.998	
Magnesium	1.977225E-06	66.6725	58.33184	198.9059	0.999992		0.998	
Manganese	2.1653E-04	66.78586	32.40826	194.6078	0.9999997		0.998	
Molybdenum	2.374825E-03	66.77123	22.90258	196.2993	0.9999976		0.998	
Nickel	2.162075E-03	66.69859	37.18229	198.049	0.9999942		0.998	
Potassium	9.60325E-06	69.51415	1.508205	133.2365	1		0.998	
Selenium	3.0473E-04	66.74436	2.057898	158.6735	0.9999882		0.998	
Silver	4.278375E-05	67.19639	3.19233	163.1227	0.9998872		0.998	
Sodium	3.763675E-05	66.67265	1.563753	133.564	0.9999956		0.998	
Thallium	4.44905E-04	66.71317	4.100762	168.192	0.9999881		0.998	
Tin	9.987199E-04	66.75135	1.392455	132.4883	0.9999745		0.998	
Titanium	1.394025E-04	66.68017	5.638302	188.4323	0.999998		0.998	
Vanadium	3.89885E-05	66.68696	1.113378	77.08849	0.9999946		0.998	
Zinc	4.642475E-03	66.70815	303.8636	199.6371	0.9999926		0.998	
Strontium	9.5625E-04	66.69526	1.01255	148.1771	0.9999998		0.998	
Lithium (outside certification)	8.11425E-06	66.71842	11.61073	184.3816	0.9999801		0.998	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW6010C

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Calibration:	4140002		Instrument:	ME-ICP	
Matrix:	Water		Calibration Dates:	5/20/14 9:07	5/20/14 9:39

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum	0	0	5000	2.2094E-05	10000	2.2066E-05			500000	2.1608E-05		
Antimony	0	0	100	0.0004209	1000	5.7229E-04					10000	5.6849E-04
Arsenic	0	0	100	0.0002846	1000	3.0763E-04					10000	3.0368E-04
Barium	0	0	50	0.0095238	1000	0.0091023	5000	0.0090782				
Beryllium	0	0	100	0.0025401	1000	0.0025157					10000	0.0024324
Boron	0	0	50	0.0000152	1000	1.412E-05					5000	1.4378E-05
Cadmium	0	0	100	0.016292	1000	0.014983					10000	0.014985
Calcium	0	0	1100	6.795454E-05	50000	5.9688E-05					10000	
Chromium	0	0	100	0.0000529	1000	5.094E-05					10000	5.0169E-05
Cobalt	0	0	100	0.0045274	1000	0.0044905					10000	0.0045353
Copper	0	0	100	0.0000815	1000	7.563E-05					10000	7.7257E-05
Iron	0	0	5100	7.337255E-06	10000	6.791E-06			500000	6.6718E-06	10000	
Lead	0	0	100	0.0010655	1000	0.0010613					10000	0.0010905
Magnesium	0	0	5100		50000	2.6294E-06			500000	2.654E-06	10000	
Manganese	0	0	100	0.0002966	1000	2.7983E-04	10000	2.7177E-04			10000	
Molybdenum	0	0	100	0.0033406	1000	0.0035272					10000	0.0034202
Nickel	0	0	100	0.0015295	1000	0.0014868					10000	0.0014936
Potassium	0	0	1000	1.137E-05	10000	1.3718E-05						
Selenium	0	0	100	0.0004254	1000	4.0757E-04					10000	3.9413E-04
Silver	0	0	20	0.000062	500	5.382E-05	2000	5.546E-05				
Sodium	0	0	1000		50000	5.0014E-05						
Thallium	0	0	100	0.0006058	1000	0.000586					10000	6.0312E-04
Tin	0	0	50	0.0013816	1000	0.0014063					5000	1.41366E-03
Titanium	0	0	100	0.0002037	1000	1.9655E-04					10000	1.9583E-04
Vanadium	0	0	100	0.0000518	1000	5.028E-05					10000	5.1134E-05
Zinc	0	0	100	0.0060263	1000	0.00606					10000	0.005817
Strontium	0	0	100	0.001406	1000	0.001392					10000	0.001369
Lithium (outside certification)	0	0	100	0.0000116	1000	1.163E-05					10000	1.0858E-05

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Calibration:	4140002	Instrument:	ME-ICP
Matrix:	Water	Calibration Dates:	5/20/14 9:07 5/20/14 9:39

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Aluminum												
Antimony												
Arsenic												
Barium												
Beryllium												
Boron												
Cadmium												
Calcium	100000		500000	5.9314E-05								
Chromium												
Cobalt												
Copper												
Iron												
Lead												
Magnesium			100000	2.6493E-06								
Manganese												
Molybdenum												
Nickel												
Potassium	100000	1.3813E-05										
Selenium												
Silver												
Sodium	100000	4.9239E-05	500000	4.8628E-05								
Thallium												
Tin												
Titanium												
Vanadium												
Zinc												
Strontium												
Lithium (outside certification)												

INITIAL CALIBRATION DATA (Continued)

SW6010C

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Calibration:	4140002		Instrument:	ME-ICP	
Matrix:	Water		Calibration Dates:	5/20/14 9:07	5/20/14 9:39

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Aluminum	1.6442E-05	66.68044	3.932528	188.5367	0.9999998		0.998	
Antimony	3.9042E-04	69.06808	0.652895	64.87862	0.9999904		0.998	
Arsenic	2.239775E-04	66.81766	2.744043	174.3583	0.9999966		0.998	
Barium	6.926075E-03	66.73209	1.7755	161.5242	0.9999998		0.998	
Beryllium	1.87205E-03	66.71215	2.66128	138.6032	0.9999894		0.998	
Boron	1.09245E-05	66.79981	4.038822	133.7193	0.9999822		0.998	
Cadmium	0.011565	66.87952	1.712675	158.7161	0.9999993		0.998	
Calcium	4.673914E-05	67.21045	2.69755	116.9931	0.9999997		0.998	
Chromium	3.850225E-05	66.73349	41.81169	194.4898	0.9999981		0.998	
Cobalt	0.0033883	66.66916	1.660895	158.7462	0.999999		0.998	
Copper	5.859675E-05	66.80028	2.178367	92.61323	0.9999939		0.998	
Iron	5.200014E-06	66.89907	19.47847	191.7011	0.9999993		0.998	
Lead	8.04325E-04	66.68593	29.29576	197.4445	0.9999934		0.998	
Magnesium	1.983175E-06	66.66883	46.71067	197.9846	0.9999993		0.998	
Manganese	2.1205E-04	66.84485	49.49535	193.6551	0.9999928		0.998	
Molybdenum	0.002572	66.7329	19.61844	196.787	0.9999895		0.998	
Nickel	1.127475E-03	66.68736	11.21794	195.5843	0.9999996		0.998	
Potassium	9.72525E-06	67.6715	3.341342	158.008	0.9999992		0.998	
Selenium	3.06775E-04	66.79726	2.55282	173.7613	0.9999921		0.998	
Silver	4.282E-05	67.17545	3.561367	143.0522	0.9999258		0.998	
Sodium	3.697025E-05	66.68431	71.97434	198.04	0.9999907		0.998	
Thallium	4.4873E-04	66.69531	8.204937	189.8052	0.9999922		0.998	
Tin	1.05039E-03	66.67945	3.594012	180.0311	0.9999992		0.998	
Titanium	1.4902E-04	66.70928	3.144858	180.2321	1		0.998	
Vanadium	3.83035E-05	66.68645	4.749225	148.494	0.9999968		0.998	
Zinc	4.475825E-03	66.70991	3.087215	164.4915	0.9999838		0.998	
Strontium	1.04175E-03	66.68274	1.990025	147.0046	0.9999973		0.998	
Lithium (outside certification)	8.522E-06	66.7982	13.31515	177.1947	0.9999555		0.998	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

PREPARATION BENCH SHEET

4E06002

Empirical Laboratories, LLC

Printed: 5/9/2014 12:25:41PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404127-04	A	MET_ICP_LOW6010C_FULL_I	05/06/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404127-05	D	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	May need to sub - Do not use for batch QC.
1404149-03	F	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
1404149-05	F	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
1404182-01	A	MET_ICP_LOW6010C_FULL_I	05/06/2014	100	25					NA	Added for BatchQC in: 4E06002
1404182-01	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	MS/MSD
1404182-03	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-05	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-07	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-09	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-11	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-12	B	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-15	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-17	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-19	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-21	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404182-23	A	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	
1404203-01	G	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
1404203-02	A	MET_ICP_LOW6010C_FULL_I	05/06/2014	100	25					NA	see versions
1404205-01	D	MET_ICP_LOW6010C_FULL	05/06/2014	100	25					NA	see versions
4E06002-BLK1		QC	05/06/2014	100	25					NA	
4E06002-BS1		QC	05/06/2014	100	25	14D0673		2000		NA	

PREPARATION BENCH SHEET

4E06002

Empirical Laboratories, LLC

Printed: 5/9/2014 12:25:41PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E06002-DUP1		QC	05/06/2014	100	25		1404182-01			NA	
4E06002-MS1		QC	05/06/2014	100	25	14D0674	1404182-01	25		NA	
4E06002-MSD1		QC	05/06/2014	100	25	14D0674	1404182-01	25		NA	
4E06002-PS1		QC	05/06/2014	100	25	14D0674	1404182-01	25		NA	

Reagents Used:

Standard	Description
14A0613	Nitric acid
14A0614	Hydrochloric Acid
14E0086	Metals 50mL Digestion Vessel- DigiTUBE

PREPARATION BENCH SHEET

4E14023

Empirical Laboratories, LLC

Printed: 5/27/2014 3:41:21PM

Instrument:

Matrix: Water **Prepared using: METALS - MET_3005A_LOW** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1405013-01	D	MET_ICP_LOW6010C_FULL	05/15/2014	100	25					NA	see versions
1405013-03	D	MET_ICP_LOW6010C_FULL	05/15/2014	100	25					NA	see versions
1405013-05	D	MET_ICP_LOW6010C_FULL	05/15/2014	100	25					NA	see versions
1405013-07	D	MET_ICP_LOW6010C_FULL	05/15/2014	100	25					NA	see versions
1405013-09	D	MET_ICP_LOW6010C_FULL	05/15/2014	100	25					NA	see versions
1405065-01	D	MET_ICP_LOW6010C_FULL	05/15/2014	100	25					NA	see versions
1405065-03	L	MET_ICP_LOW6010C_FULL	05/15/2014	100	25					NA	MS/MSD
1405065-05	D	MET_ICP_LOW6010C_FULL	05/15/2014	100	25					NA	see versions
1405065-07	D	MET_ICP_LOW6010C_FULL	05/15/2014	100	25					NA	see versions
4E14023-BLK1		QC	05/14/2014	100	25					NA	
4E14023-BS1		QC	05/14/2014	100	25	14E0168		2000		NA	
4E14023-DUP1		QC	05/14/2014	100	25		1405065-03			NA	
4E14023-MS1		QC	05/14/2014	100	25	14E0170	1405065-03	25		NA	
4E14023-MSD1		QC	05/14/2014	100	25	14E0170	1405065-03	25		NA	
4E14023-PS1		QC	05/14/2014	100	25	14E0170	1405065-03	25		NA	

Reagents Used:

Standard	Description
14E0086	Metals 50mL Digestion Vessel- DigiTUBE
14E0321	Nitric acid
14E0322	Hydrochloric Acid

Data for Wet Chemistry Forms

Sample Extraction Data

Prep Method: pNone-SM2540C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404205-01 [ST105-30047]	4D30008	100.00/100.00	100	100	1.00			04/30/14

Sample Extraction Data

Prep Method: pNone-SW9060A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404205-01 [ST105-30047]	4E01024	40.00/40.00	40.0	40.0	1.00			05/01/14
1404205-02 [ST105-30047]	4E01024	40.00/40.00	40.0	40.0	1.00			05/01/14

Sample Extraction Data

Prep Method: pNone-SM2540C

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1405013-01 [ST105-30029]	4E07008	100.00/100.00	100	100	1.00			05/07/14
1405013-03 [ST105-30043]	4E07008	100.00/100.00	100	100	1.00			05/07/14
1405013-05 [ST105-30048]	4E07008	100.00/100.00	100	100	1.00			05/07/14
1405013-07 [ST105-30049]	4E07008	100.00/100.00	100	100	1.00			05/07/14
1405013-09 [ST105-30050]	4E07008	100.00/100.00	100	100	1.00			05/07/14

Sample Extraction Data

Prep Method: pNone-E351.2

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404205-01 [ST105-30047]	4E08007	20.00/20.00	20.0	20.0	1.00			05/08/14
1405013-01 [ST105-30029]	4E08007	20.00/20.00	20.0	20.0	1.00			05/08/14
1405013-03 [ST105-30043]	4E08007	20.00/20.00	20.0	20.0	1.00			05/08/14
1405013-05 [ST105-30048]	4E08007	20.00/20.00	20.0	20.0	1.00			05/08/14
1405013-07 [ST105-30049]	4E08007	20.00/20.00	20.0	20.0	1.00			05/08/14
1405013-09RE1 [ST105-30050]	4E08007	20.00/20.00	20.0	20.0	1.00			05/08/14

Sample Extraction Data

Prep Method: pNone-SM2320B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404205-01 [ST105-30047]	4E08017	25.00/25.00	25.0	25.0	1.00			05/08/14

Sample Extraction Data

Prep Method: pNone-SM2320B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1405013-05 [ST105-30048]	4E12929	25.00/25.00	25.0	25.0	1.00			05/12/14
1405013-07 [ST105-30049]	4E12929	25.00/25.00	25.0	25.0	1.00			05/12/14
1405013-09 [ST105-30050]	4E12929	25.00/25.00	25.0	25.0	1.00			05/12/14

Sample Extraction Data

Prep Method: WC_PREP_ANIONS_W-SW9056A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404205-01 [ST105-30047]	4E13320	5.00/5.00	5.00	5.00	1.00			05/13/14

Sample Extraction Data

Prep Method: WC_PREP_ANIONS_W-SW9056A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1405013-01 [ST105-30029]	4E13321	5.00/5.00	5.00	5.00	1.00			05/13/14
1405013-03 [ST105-30043]	4E13321	5.00/5.00	5.00	5.00	1.00			05/13/14
1405013-05 [ST105-30048]	4E13321	5.00/5.00	5.00	5.00	1.00			05/13/14
1405013-07 [ST105-30049]	4E13321	5.00/5.00	5.00	5.00	1.00			05/13/14
1405013-09 [ST105-30050]	4E13321	5.00/5.00	5.00	5.00	1.00			05/13/14

Sample Extraction Data

Prep Method: pNone-SM2320B

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1405013-01 [ST105-30029]	4E14026	25.00/25.00	25.0	25.0	1.00			05/15/14
1405013-03 [ST105-30043]	4E14026	25.00/25.00	25.0	25.0	1.00			05/15/14

Sample Extraction Data

Prep Method: pNone-E353.2

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404205-01RE1 [ST105-30047]	4E15013	20.00/20.00	4.00	20.0	2.00			05/15/14

Sample Extraction Data

Prep Method: pNone-SW9060A

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1405013-01 [ST105-30029]	4E16007	40.00/40.00	40.0	40.0	1.00			05/16/14
1405013-02 [ST105-30029]	4E16007	40.00/40.00	40.0	40.0	1.00			05/16/14
1405013-03 [ST105-30043]	4E16007	40.00/40.00	40.0	40.0	1.00			05/16/14
1405013-04 [ST105-30043]	4E16007	40.00/40.00	40.0	40.0	1.00			05/16/14
1405013-05 [ST105-30048]	4E16007	40.00/40.00	40.0	40.0	1.00			05/16/14
1405013-06 [ST105-30048]	4E16007	40.00/40.00	40.0	40.0	1.00			05/16/14
1405013-07 [ST105-30049]	4E16007	40.00/40.00	40.0	40.0	1.00			05/16/14
1405013-08 [ST105-30049]	4E16007	40.00/40.00	40.0	40.0	1.00			05/16/14
1405013-09 [ST105-30050]	4E16007	40.00/40.00	40.0	40.0	1.00			05/16/14
1405013-10 [ST105-30050]	4E16007	40.00/40.00	40.0	40.0	1.00			05/16/14

Sample Extraction Data

Prep Method: pNone-E353.2

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1405013-01 [ST105-30029]	4E16013	20.00/20.00	4.00	20.0	1.00			05/16/14
1405013-03 [ST105-30043]	4E16013	20.00/20.00	4.00	20.0	1.00			05/16/14
1405013-05RE1 [ST105-30048]	4E16013	20.00/20.00	4.00	20.0	5.00			05/16/14
1405013-07RE1 [ST105-30049]	4E16013	20.00/20.00	4.00	20.0	5.00			05/16/14
1405013-09RE1 [ST105-30050]	4E16013	20.00/20.00	4.00	20.0	5.00			05/16/14

Sample Extraction Data

Prep Method: pNone-SM4500NH3BG

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1404205-01 [ST105-30047]	4E20006	100.00/100.00	100	100	1.00			05/20/14
1405013-01 [ST105-30029]	4E20006	100.00/100.00	100	100	1.00			05/20/14

Sample Extraction Data

Prep Method: pNone-SM4500NH3BG

Lab Number [Field ID]	Batch	Nominal Initial/Final	Initial [mL]	Final [mL]	Dilution	% Solids	Notes	Date
1405013-03 [ST105-30043]	4E20012	100.00/100.00	100	100	1.00			05/20/14
1405013-05 [ST105-30048]	4E20012	100.00/100.00	100	100	1.00			05/20/14
1405013-07 [ST105-30049]	4E20012	100.00/100.00	100	100	1.00			05/20/14
1405013-09 [ST105-30050]	4E20012	100.00/100.00	100	100	1.00			05/20/14

ANALYSIS DATA SHEET

ST105-30047

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404205-01
Sampled:	04/28/14 15:29	Received:	04/30/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N		0.100	0.150	0.300	1	U	SM4500NH3BG	4E20006	05/20/14 18:05
24959-67-9	Bromide	**0.665**	**0.0420**	0.125	0.250	1		SW9056A	4E13320	05/13/14 22:37
TDS	Total Dissolved Solids	**368**	**20.0**	20.0	20.0	1		SM2540C	4D30008	04/30/14 17:20
NA	Total Kjeldahl Nitrogen		4.00	4.00	4.00	1	MUQ N	E351.2	4E08007	05/09/14 09:40
7440-44-0	Total Organic Carbon		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 18:42
16887-00-6	Chloride	**65.6**	**0.170**	0.330	0.500	1		SW9056A	4E13320	05/13/14 22:37
NA	Nitrate/Nitrite as N	**11.4**	**0.500**	1.50	3.00	2	D	E353.2	4E15013	05/15/14 15:14
16984-48-8	Fluoride	**0.298**	**0.0330**	0.100	0.250	1		SW9056A	4E13320	05/13/14 22:37
471-34-1	Alkalinity, Total (as CACO3)	**106**	**1.00**	1.00	1.00	1		SM2320B	4E08017	05/08/14 16:54
14808-79-8	Sulfate as SO4	**53.1**	**0.330**	1.00	2.50	1		SW9056A	4E13320	05/13/14 22:37
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 18:42
7440-44-0	TOC-MAX		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 18:42

ANALYSIS DATA SHEET

ST105-30047

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404205-02
Sampled:	04/28/14 15:29	Received:	04/30/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 19:05
7440-44-0	TOC-MAX (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 19:05
7440-44-0	TOC-MIN (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 19:05

ANALYSIS DATA SHEET

ST105-30029

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-01
Sampled:	05/01/14 13:15	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N		0.100	0.150	0.300	1	U	SM4500NH3BG	4E20006	05/20/14 18:21
24959-67-9	Bromide	**0.0740**	**0.0420**	0.125	0.250	1	J	SW9056A	4E13321	05/14/14 04:08
TDS	Total Dissolved Solids	**186**	**20.0**	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14
NA	Total Kjeldahl Nitrogen		2.00	2.00	2.00	1	MUQ N	E351.2	4E08007	05/09/14 09:42
7440-44-0	Total Organic Carbon	**1.39**	**1.25**	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 16:58
16887-00-6	Chloride	**9.98**	**0.170**	0.330	0.500	1		SW9056A	4E13321	05/14/14 04:08
NA	Nitrate/Nitrite as N	**3.61**	**0.250**	0.750	1.50	1		E353.2	4E16013	05/16/14 13:24
16984-48-8	Fluoride	**0.427**	**0.0330**	0.100	0.250	1		SW9056A	4E13321	05/14/14 04:08
471-34-1	Alkalinity, Total (as CACO3)	**126**	**1.00**	1.00	1.00	1		SM2320B	4E14026	05/15/14 08:42
14808-79-8	Sulfate as SO4	**27.0**	**0.330**	1.00	2.50	1		SW9056A	4E13321	05/14/14 04:08
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 16:58
7440-44-0	TOC-MAX	**1.85**	**1.25**	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 16:58

ANALYSIS DATA SHEET

ST105-30029

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-02
Sampled:	05/01/14 13:15	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved)	**1.75**	**1.25**	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 17:21
7440-44-0	TOC-MAX (dissolved)	**2.11**	**1.25**	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 17:21
7440-44-0	TOC-MIN (dissolved)	**1.57**	**1.25**	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 17:21

ANALYSIS DATA SHEET

ST105-30043

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-03
Sampled:	05/01/14 10:51	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N		0.100	0.150	0.300	1	U	SM4500NH3BG	4E20012	05/20/14 18:24
24959-67-9	Bromide	**0.248**	**0.0420**	0.125	0.250	1	J	SW9056A	4E13321	05/14/14 04:26
TDS	Total Dissolved Solids	**264**	**20.0**	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14
NA	Total Kjeldahl Nitrogen		3.00	3.00	3.00	1	MUQ N	E351.2	4E08007	05/09/14 09:43
7440-44-0	Total Organic Carbon		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 17:44
16887-00-6	Chloride	**23.6**	**0.170**	0.330	0.500	1		SW9056A	4E13321	05/14/14 04:26
NA	Nitrate/Nitrite as N	**7.51**	**0.250**	0.750	1.50	1		E353.2	4E16013	05/16/14 13:25
16984-48-8	Fluoride	**0.632**	**0.0330**	0.100	0.250	1		SW9056A	4E13321	05/14/14 04:26
471-34-1	Alkalinity, Total (as CACO3)	**132**	**1.00**	1.00	1.00	1		SM2320B	4E14026	05/15/14 08:54
14808-79-8	Sulfate as SO4	**35.5**	**0.330**	1.00	2.50	1		SW9056A	4E13321	05/14/14 04:26
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 17:44
7440-44-0	TOC-MAX		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 17:44

ANALYSIS DATA SHEET

ST105-30043

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-04
Sampled:	05/01/14 13:15	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 18:06
7440-44-0	TOC-MAX (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 18:06
7440-44-0	TOC-MIN (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 18:06

ANALYSIS DATA SHEET

ST105-30048

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-05
Sampled:	04/30/14 12:18	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N		0.100	0.150	0.300	1	U	SM4500NH3BG	4E20012	05/20/14 18:25
24959-67-9	Bromide	**0.239**	**0.0420**	0.125	0.250	1	J	SW9056A	4E13321	05/14/14 04:43
TDS	Total Dissolved Solids	**344**	**20.0**	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14
NA	Total Kjeldahl Nitrogen		4.00	4.00	4.00	1	MUQ N	E351.2	4E08007	05/09/14 09:45
7440-44-0	Total Organic Carbon		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:25
16887-00-6	Chloride	**21.7**	**0.170**	0.330	0.500	1		SW9056A	4E13321	05/14/14 04:43
NA	Nitrate/Nitrite as N	**30.8**	**1.25**	3.75	7.50	5	D	E353.2	4E16013	05/16/14 14:02
16984-48-8	Fluoride	**0.340**	**0.0330**	0.100	0.250	1		SW9056A	4E13321	05/14/14 04:43
471-34-1	Alkalinity, Total (as CACO3)	**124**	**1.00**	1.00	1.00	1		SM2320B	4E12929	05/12/14 15:08
14808-79-8	Sulfate as SO4	**16.6**	**0.330**	1.00	2.50	1		SW9056A	4E13321	05/14/14 04:43
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:25
7440-44-0	TOC-MAX		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:25

ANALYSIS DATA SHEET

ST105-30048

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-06
Sampled:	05/01/14 12:18	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:48
7440-44-0	TOC-MAX (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:48
7440-44-0	TOC-MIN (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:48

ANALYSIS DATA SHEET

ST105-30049

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-07
Sampled:	04/30/14 12:18	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N	**0.252**	**0.100**	0.150	0.300	1	J	SM4500NH3BG	4E20012	05/20/14 18:26
24959-67-9	Bromide	**0.245**	**0.0420**	0.125	0.250	1	J	SW9056A	4E13321	05/14/14 05:01
TDS	Total Dissolved Solids	**369**	**20.0**	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14
NA	Total Kjeldahl Nitrogen		4.00	4.00	4.00	1	MUQ N	E351.2	4E08007	05/09/14 09:46
7440-44-0	Total Organic Carbon		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:11
16887-00-6	Chloride	**22.1**	**0.170**	0.330	0.500	1		SW9056A	4E13321	05/14/14 05:01
NA	Nitrate/Nitrite as N	**30.6**	**1.25**	3.75	7.50	5	D	E353.2	4E16013	05/16/14 14:03
16984-48-8	Fluoride	**0.346**	**0.0330**	0.100	0.250	1		SW9056A	4E13321	05/14/14 05:01
471-34-1	Alkalinity, Total (as CACO3)	**133**	**1.00**	1.00	1.00	1		SM2320B	4E12929	05/12/14 15:16
14808-79-8	Sulfate as SO4	**16.9**	**0.330**	1.00	2.50	1		SW9056A	4E13321	05/14/14 05:01
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:11
7440-44-0	TOC-MAX	**1.34**	**1.25**	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 20:11

ANALYSIS DATA SHEET

ST105-30049

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-08
Sampled:	05/01/14 12:18	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:34
7440-44-0	TOC-MAX (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:34
7440-44-0	TOC-MIN (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:34

ANALYSIS DATA SHEET

ST105-30050

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-09
Sampled:	04/30/14 15:11	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N		0.100	0.150	0.300	1	U	SM4500NH3BG	4E20012	05/20/14 18:27
24959-67-9	Bromide	**0.318**	**0.0420**	0.125	0.250	1		SW9056A	4E13321	05/14/14 05:18
TDS	Total Dissolved Solids	**392**	**20.0**	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14
NA	Total Kjeldahl Nitrogen		2.00	2.00	2.00	1	MUQ N	E351.2	4E08007	05/14/14 13:23
7440-44-0	Total Organic Carbon		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:57
16887-00-6	Chloride	**29.1**	**0.170**	0.330	0.500	1		SW9056A	4E13321	05/14/14 05:18
NA	Nitrate/Nitrite as N	**28.2**	**1.25**	3.75	7.50	5	D	E353.2	4E16013	05/16/14 14:04
16984-48-8	Fluoride	**0.302**	**0.0330**	0.100	0.250	1		SW9056A	4E13321	05/14/14 05:18
471-34-1	Alkalinity, Total (as CACO3)	**110**	**1.00**	1.00	1.00	1		SM2320B	4E12929	05/12/14 15:28
14808-79-8	Sulfate as SO4	**70.1**	**0.330**	1.00	2.50	1		SW9056A	4E13321	05/14/14 05:18
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:57
7440-44-0	TOC-MAX		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:57

ANALYSIS DATA SHEET

ST105-30050

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-10
Sampled:	04/30/14 15:11	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 21:21
7440-44-0	TOC-MAX (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 21:21
7440-44-0	TOC-MIN (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 21:21

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D30008-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	ND	20.0	20.0	20.0	1	U	SM2540C	4D30008	04/30/14 17:20

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4D30008-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**975.0**	**20.0**	20.0	20.0	1		SM2540C	4D30008	04/30/14 17:20

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E01024-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon	ND	1.25	2.50	3.00	1	U	SW9060A	4E01024	05/01/14 17:08
7440-44-0	Total Organic Carbon (dissolved)	ND	1.25	2.50	3.00	1	U	SW9060A	4E01024	05/01/14 17:08

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E01024-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon	**22.90**	**1.25**	2.50	3.00	1		SW9060A	4E01024	05/01/14 17:35
7440-44-0	Total Organic Carbon (dissolved)	**22.90**	**1.25**	2.50	3.00	1		SW9060A	4E01024	05/01/14 17:35

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E07008-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	ND	20.0	20.0	20.0	1	U	SM2540C	4E07008	05/07/14 13:14

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E07008-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**990.0**	**20.0**	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14

ANALYSIS DATA SHEET

LCS Dup

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_014

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E07008-BSD1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**835.0**	**20.0**	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E08007-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Total Kjeldahl Nitrogen	ND	0.500	1.00	1.50	1	UQ	E351.2	4E08007	05/09/14 09:37

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_014

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E08007-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Total Kjeldahl Nitrogen	**3.839**	**0.500**	1.00	1.50	1		E351.2	4E08007	05/09/14 09:38

ANALYSIS DATA SHEET

LCS Dup

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_014

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E08007-BSD1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Total Kjeldahl Nitrogen	**4.395**	**0.500**	1.00	1.50	1		E351.2	4E08007	05/09/14 09:39

ANALYSIS DATA SHEET

Matrix Spike

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_014

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E08007-MS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Total Kjeldahl Nitrogen	**2.192**	**0.556**	1.11	1.67	1	Q	E351.2	4E08007	05/14/14 13:24

ANALYSIS DATA SHEET

Matrix Spike Dup

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids: 0.00

SDG: KirtlandECOS_014

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E08007-MSD1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Total Kjeldahl Nitrogen	**1.831**	**0.556**	1.11	1.67	1	Q	E351.2	4E08007	05/14/14 13:25

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E08017-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	ND	1.00	1.00	1.00	1	U	SM2320B	4E08017	05/08/14 14:20

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_014

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E08017-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	**1047**	**5.00**	5.00	5.00	1		SM2320B	4E08017	05/08/14 14:22

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E12929-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	ND	1.00	1.00	1.00	1	U	SM2320B	4E12929	05/12/14 10:52

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_014

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E12929-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	**1030**	**5.00**	5.00	5.00	1		SM2320B	4E12929	05/12/14 10:55

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E13320-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
24959-67-9	Bromide	ND	0.0420	0.125	0.250	1	U	SW9056A	4E13320	05/13/14 14:13
16887-00-6	Chloride	ND	0.170	0.330	0.500	1	U	SW9056A	4E13320	05/13/14 14:13
16984-48-8	Fluoride	ND	0.0330	0.100	0.250	1	U	SW9056A	4E13320	05/13/14 14:13
14808-79-8	Sulfate as SO4	ND	0.330	1.00	2.50	1	U	SW9056A	4E13320	05/13/14 14:13

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_014

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E13320-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
24959-67-9	Bromide	**13.44**	**0.0420**	0.125	0.250	1		SW9056A	4E13320	05/13/14 14:30
16887-00-6	Chloride	**4.114**	**0.170**	0.330	0.500	1		SW9056A	4E13320	05/13/14 14:30
16984-48-8	Fluoride	**2.645**	**0.0330**	0.100	0.250	1		SW9056A	4E13320	05/13/14 14:30
14808-79-8	Sulfate as SO4	**20.69**	**0.330**	1.00	2.50	1		SW9056A	4E13320	05/13/14 14:30

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 4E13321-BLK1
% Solids:

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
24959-67-9	Bromide	ND	0.0420	0.125	0.250	1	U	SW9056A	4E13321	05/13/14 23:30
16887-00-6	Chloride	ND	0.170	0.330	0.500	1	U	SW9056A	4E13321	05/13/14 23:30
16984-48-8	Fluoride	ND	0.0330	0.100	0.250	1	U	SW9056A	4E13321	05/13/14 23:30
14808-79-8	Sulfate as SO4	ND	0.330	1.00	2.50	1	U	SW9056A	4E13321	05/13/14 23:30

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_014

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E13321-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
24959-67-9	Bromide	**13.29**	**0.0420**	0.125	0.250	1		SW9056A	4E13321	05/13/14 23:47
16887-00-6	Chloride	**4.049**	**0.170**	0.330	0.500	1		SW9056A	4E13321	05/13/14 23:47
16984-48-8	Fluoride	**2.654**	**0.0330**	0.100	0.250	1		SW9056A	4E13321	05/13/14 23:47
14808-79-8	Sulfate as SO4	**20.44**	**0.330**	1.00	2.50	1		SW9056A	4E13321	05/13/14 23:47

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E14026-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	ND	1.00	1.00	1.00	1	U	SM2320B	4E14026	05/14/14 16:12

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E14026-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
471-34-1	Alkalinity, Total (as CACO3)	**1021**	**5.00**	5.00	5.00	1		SM2320B	4E14026	05/14/14 16:05

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E15013-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	ND	0.0500	0.150	0.300	1	U	E353.2	4E15013	05/15/14 14:34

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E15013-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	**15.41**	**0.500**	1.50	3.00	1		E353.2	4E15013	05/15/14 14:35

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E16007-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon	ND	1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 12:53
7440-44-0	Total Organic Carbon (dissolved)	ND	1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 12:53

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E16007-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon	**24.62**	**1.25**	2.50	3.00	1		SW9060A	4E16007	05/16/14 13:21
7440-44-0	Total Organic Carbon (dissolved)	**24.62**	**1.25**	2.50	3.00	1		SW9060A	4E16007	05/16/14 13:21

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E16013-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	ND	0.0500	0.150	0.300	1	U	E353.2	4E16013	05/16/14 13:21

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E16013-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
NA	Nitrate/Nitrite as N	**15.62**	**0.500**	1.50	3.00	1		E353.2	4E16013	05/16/14 13:22

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E20006-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N	ND	0.100	0.150	0.300	1	U	SM4500NH3BG	4E20006	05/20/14 18:01

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC

Client: Shaw Environmental, Inc.

Matrix: Water

% Solids:

SDG: KirtlandECOS_014

Project: Kirtland AFB (ECOS)

Laboratory ID: 4E20006-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N	**3.741**	**0.100**	0.150	0.300	1		SM4500NH3BG	4E20006	05/20/14 18:03

ANALYSIS DATA SHEET

Blank

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E20012-BLK1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N	ND	0.100	0.150	0.300	1	U	SM4500NH3BG	4E20012	05/20/14 18:02

ANALYSIS DATA SHEET

LCS

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
% Solids:

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 4E20012-BS1

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N	**4.201**	**0.100**	0.150	0.300	1		SM4500NH3BG	4E20012	05/20/14 18:04

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4121001
Sequence: 4E12102

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12102-ICV1	Bromide	14.00	13.62	97.3	mg/L	+/- 10.00%
	Chloride	4.200	4.347	104	mg/L	+/- 10.00%
	Fluoride	2.800	2.686	95.9	mg/L	+/- 10.00%
	Sulfate as SO4	21.00	20.93	99.6	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW9060A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-TOC1

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4119004
Sequence: 4E12211

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12211-CCV1	Total Organic Carbon	25.00	22.93	91.7	mg/L	+/- 20.00%
	Total Organic Carbon (dissolved)	25.00	22.93	91.7	mg/L	+/- 20.00%
4E12211-CCV2	Total Organic Carbon	50.00	46.48	93.0	mg/L	+/- 20.00%
	Total Organic Carbon (dissolved)	50.00	46.48	93.0	mg/L	+/- 20.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW9060A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-TOC1

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4119004
Sequence: 4E12513

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12513-CCV1	Total Organic Carbon	25.00	23.05	92.2	mg/L	+/- 20.00%
	Total Organic Carbon (dissolved)	25.00	23.05	92.2	mg/L	+/- 20.00%
4E12513-CCV2	Total Organic Carbon	50.00	46.05	92.1	mg/L	+/- 20.00%
	Total Organic Carbon (dissolved)	50.00	46.05	92.1	mg/L	+/- 20.00%

INITIAL AND CONTINUING CALIBRATION CHECK

E351.2

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-Lachat

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4129001
Sequence: 4E12905

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E12905-ICV1	Total Kjeldahl Nitrogen	10.00	9.695	97.0	mg/L	+/- 10.00%
4E12905-CCV1	Total Kjeldahl Nitrogen	10.00	10.86	109	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

E351.2

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-Lachat

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4134003
Sequence: 4E13410

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E13410-ICV1	Total Kjeldahl Nitrogen	10.00	10.44	104	mg/L	+/- 10.00%
4E13410-CCV1	Total Kjeldahl Nitrogen	10.00	10.76	108	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

E353.2

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-Lachat

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4141001
Sequence: 4E13512

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E13512-ICV1	Nitrate/Nitrite as N	1.200	1.300	108	mg/L	+/- 10.00%
4E13512-CCV1	Nitrate/Nitrite as N	1.200	1.214	101	mg/L	+/- 10.00%
4E13512-CCV2	Nitrate/Nitrite as N	1.200	1.205	100	mg/L	+/- 10.00%
4E13512-CCV3	Nitrate/Nitrite as N	1.200	1.196	99.7	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

E353.2

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-Lachat

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4136005
Sequence: 4E13612

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E13612-ICV1	Nitrate/Nitrite as N	1.200	1.290	108	mg/L	+/- 10.00%
4E13612-CCV1	Nitrate/Nitrite as N	1.200	1.211	101	mg/L	+/- 10.00%
4E13612-CCV2	Nitrate/Nitrite as N	1.200	1.209	101	mg/L	+/- 10.00%
4E13612-CCV3	Nitrate/Nitrite as N	1.200	1.207	101	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW9060A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-TOC1

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4119004
Sequence: 4E13904

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E13904-CCV1	Total Organic Carbon	25.00	25.35	101	mg/L	+/- 20.00%
	Total Organic Carbon (dissolved)	25.00	25.35	101	mg/L	+/- 20.00%
4E13904-CCV2	Total Organic Carbon	50.00	49.76	99.5	mg/L	+/- 20.00%
	Total Organic Carbon (dissolved)	50.00	49.76	99.5	mg/L	+/- 20.00%
4E13904-CCV3	Total Organic Carbon	25.00	25.33	101	mg/L	+/- 20.00%
	Total Organic Carbon (dissolved)	25.00	25.33	101	mg/L	+/- 20.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SW9056A

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-IC

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4121001
Sequence: 4E14037

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E14037-CCV1	Bromide	6.300	5.980	94.9	mg/L	+/- 10.00%
	Chloride	25.00	25.09	100	mg/L	+/- 10.00%
	Fluoride	2.500	2.421	96.8	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.23	101	mg/L	+/- 10.00%
4E14037-CCV2	Bromide	6.300	5.967	94.7	mg/L	+/- 10.00%
	Chloride	25.00	24.92	99.7	mg/L	+/- 10.00%
	Fluoride	2.500	2.465	98.6	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.04	100	mg/L	+/- 10.00%
4E14037-CCV3	Bromide	6.300	5.879	93.3	mg/L	+/- 10.00%
	Chloride	25.00	25.06	100	mg/L	+/- 10.00%
	Fluoride	2.500	2.443	97.7	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	24.72	98.9	mg/L	+/- 10.00%
4E14037-CCV4	Bromide	6.300	5.950	94.4	mg/L	+/- 10.00%
	Chloride	25.00	25.13	101	mg/L	+/- 10.00%
	Fluoride	2.500	2.430	97.2	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	24.92	99.7	mg/L	+/- 10.00%
4E14037-CCV5	Bromide	6.300	5.995	95.2	mg/L	+/- 10.00%
	Chloride	25.00	25.13	101	mg/L	+/- 10.00%
	Fluoride	2.500	2.440	97.6	mg/L	+/- 10.00%
	Sulfate as SO4	25.00	25.04	100	mg/L	+/- 10.00%

INITIAL AND CONTINUING CALIBRATION CHECK

SM4500NH3BG

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Instrument ID: WC-Lachat

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Calibration: 4140003
Sequence: 4E14047

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
4E14047-ICV1	Ammonia as N	2.000	2.137	107	mg/L	+/- 10.00%
4E14047-CCV1	Ammonia as N	2.000	2.096	105	mg/L	+/- 10.00%
4E14047-CCV2	Ammonia as N	2.000	2.101	105	mg/L	+/- 10.00%
4E14047-CCV3	Ammonia as N	2.000	2.088	104	mg/L	+/- 10.00%

CRDL STANDARD

SW9056A

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Instrument ID: WC-IC

Calibration: 4121001

Sequence: 4E14037

Lab Sample ID	Analyte	True	Found	%R	Units	QC Limts
4E14037-CRL1	Chloride	0.5000	0.5410	108	mg/L	50 - 150
4E14037-CRL2	Bromide	0.2520	0.1620	64.3	mg/L	50 - 150
	Fluoride	0.1000	0.09000	90.0	mg/L	50 - 150
	Sulfate as SO4	1.000	1.100	110	mg/L	50 - 150

METHOD BLANKS
SM2540C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4D30008

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4D30008-BLK1	Total Dissolved Solids	-5.00	20.0	20.0	mg/L	U	SM2540C

METHOD BLANKS
SW9060A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E01024

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E01024-BLK1	Total Organic Carbon	0.502	1.25	3.00	mg/L	U	SW9060A
	Total Organic Carbon (dissolved)	0.502	1.25	3.00	mg/L	U	SW9060A

METHOD BLANKS
SM2540C

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E07008

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E07008-BLK1	Total Dissolved Solids	-4.00	20.0	20.0	mg/L	U	SM2540C

METHOD BLANKS
E351.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E08007

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E08007-BLK1	Total Kjeldahl Nitrogen	-1.18	0.500	1.50	mg/L	J	E351.2

METHOD BLANKS
SM2320B

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E08017

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E08017-BLK1	Alkalinity, Total (as CACO3)	-0.408	1.00	1.00	mg/L	U	SM2320B

METHOD BLANKS
SM2320B

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E12929

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12929-BLK1	Alkalinity, Total (as CACO3)	-0.408	1.00	1.00	mg/L	U	SM2320B

METHOD BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E13320

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E13320-BLK1	Bromide	0.00	0.0420	0.250	mg/L	U	SW9056A
	Chloride	0.0100	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.0290	0.330	2.50	mg/L	U	SW9056A

METHOD BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E13321

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E13321-BLK1	Bromide	0.00	0.0420	0.250	mg/L	U	SW9056A
	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A

METHOD BLANKS
SM2320B

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E14026

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E14026-BLK1	Alkalinity, Total (as CACO3)	0.00	1.00	1.00	mg/L	U	SM2320B

METHOD BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E15013

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E15013-BLK1	Nitrate/Nitrite as N	-0.0191	0.0500	0.300	mg/L	U	E353.2

METHOD BLANKS
SW9060A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E16007

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E16007-BLK1	Total Organic Carbon	0.516	1.25	3.00	mg/L	U	SW9060A
	Total Organic Carbon (dissolved)	0.516	1.25	3.00	mg/L	U	SW9060A

METHOD BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E16013

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E16013-BLK1	Nitrate/Nitrite as N	-0.0174	0.0500	0.300	mg/L	U	E353.2

METHOD BLANKS
SM4500NH3BG

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E20006

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E20006-BLK1	Ammonia as N	0.0528	0.100	0.300	mg/L	U	SM4500NH3BG

METHOD BLANKS
SM4500NH3BG

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Batch: 4E20012

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E20012-BLK1	Ammonia as N	-0.0292	0.100	0.300	mg/L	U	SM4500NH3BG

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E12102
Calibration: 4121001
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12102-ICB1	Bromide	0.000	0.0420	0.250	mg/L	U	SW9056A
	Chloride	0.03000	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.008000	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.02100	0.330	2.50	mg/L	U	SW9056A

BLANKS
SW9060A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E12211
Calibration: 4119004
Instrument ID: WC-TOC1

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12211-CCB1	Total Organic Carbon	0.490	1.25	3.00	mg/L	U	SW9060A
	Total Organic Carbon (dissolved)	0.490	1.25	3.00	mg/L	U	SW9060A
4E12211-CCB2	Total Organic Carbon	0.510	1.25	3.00	mg/L	U	SW9060A
	Total Organic Carbon (dissolved)	0.510	1.25	3.00	mg/L	U	SW9060A

BLANKS
SW9060A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E12513
Calibration: 4119004
Instrument ID: WC-TOC1

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12513-CCB1	Total Organic Carbon	0.444	1.25	3.00	mg/L	U	SW9060A
	Total Organic Carbon (dissolved)	0.444	1.25	3.00	mg/L	U	SW9060A
4E12513-CCB2	Total Organic Carbon	0.488	1.25	3.00	mg/L	U	SW9060A
	Total Organic Carbon (dissolved)	0.488	1.25	3.00	mg/L	U	SW9060A

BLANKS
E351.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E12905
Calibration: 4129001
Instrument ID: WC-Lachat

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E12905-ICB1	Total Kjeldahl Nitrogen	-0.5001	0.500	1.50	mg/L	J	E351.2
4E12905-CCB1	Total Kjeldahl Nitrogen	-3.92	0.500	1.50	mg/L		E351.2

BLANKS
E351.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E13410
Calibration: 4134003
Instrument ID: WC-Lachat

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E13410-ICB1	Total Kjeldahl Nitrogen	-0.2017	0.500	1.50	mg/L	U	E351.2
4E13410-CCB1	Total Kjeldahl Nitrogen	-0.112	0.500	1.50	mg/L	U	E351.2

BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E13512
Calibration: 4141001
Instrument ID: WC-Lachat

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E13512-ICB1	Nitrate/Nitrite as N	-0.03133	0.0500	0.300	mg/L	U	E353.2
4E13512-CCB1	Nitrate/Nitrite as N	-0.0176	0.0500	0.300	mg/L	U	E353.2
4E13512-CCB2	Nitrate/Nitrite as N	-0.0205	0.0500	0.300	mg/L	U	E353.2
4E13512-CCB3	Nitrate/Nitrite as N	-0.0242	0.0500	0.300	mg/L	U	E353.2

BLANKS
E353.2

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E13612
Calibration: 4136005
Instrument ID: WC-Lachat

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E13612-ICB1	Nitrate/Nitrite as N	-0.02161	0.0500	0.300	mg/L	U	E353.2
4E13612-CCB1	Nitrate/Nitrite as N	-0.0241	0.0500	0.300	mg/L	U	E353.2
4E13612-CCB2	Nitrate/Nitrite as N	-0.0151	0.0500	0.300	mg/L	U	E353.2
4E13612-CCB3	Nitrate/Nitrite as N	-0.0161	0.0500	0.300	mg/L	U	E353.2

BLANKS
SW9060A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E13904
Calibration: 4119004
Instrument ID: WC-TOC1

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E13904-CCB1	Total Organic Carbon	0.565	1.25	3.00	mg/L	U	SW9060A
	Total Organic Carbon (dissolved)	0.565	1.25	3.00	mg/L	U	SW9060A
4E13904-CCB2	Total Organic Carbon	0.573	1.25	3.00	mg/L	U	SW9060A
	Total Organic Carbon (dissolved)	0.573	1.25	3.00	mg/L	U	SW9060A
4E13904-CCB3	Total Organic Carbon	0.584	1.25	3.00	mg/L	U	SW9060A
	Total Organic Carbon (dissolved)	0.584	1.25	3.00	mg/L	U	SW9060A

BLANKS
SW9056A

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E14037
Calibration: 4121001
Instrument ID: WC-IC

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E14037-CCB1	Bromide	0.00	0.0420	0.250	mg/L	U	SW9056A
	Chloride	0.0140	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.0320	0.330	2.50	mg/L	U	SW9056A
4E14037-CCB2	Bromide	0.00	0.0420	0.250	mg/L	U	SW9056A
	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A
4E14037-CCB3	Bromide	0.00	0.0420	0.250	mg/L	U	SW9056A
	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A
4E14037-CCB4	Bromide	0.00	0.0420	0.250	mg/L	U	SW9056A
	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A
4E14037-CCB5	Bromide	0.00	0.0420	0.250	mg/L	U	SW9056A
	Chloride	0.00	0.170	0.500	mg/L	U	SW9056A
	Fluoride	0.00	0.0330	0.250	mg/L	U	SW9056A
	Sulfate as SO4	0.00	0.330	2.50	mg/L	U	SW9056A

BLANKS
SM4500NH3BG

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_014
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Sequence: 4E14047
Calibration: 4140003
Instrument ID: WC-Lachat

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C	Method
4E14047-ICB1	Ammonia as N	-0.04444	0.100	0.300	mg/L	U	SM4500NH3BG
4E14047-CCB1	Ammonia as N	-0.0148	0.100	0.300	mg/L	U	SM4500NH3BG
4E14047-CCB2	Ammonia as N	-0.0387	0.100	0.300	mg/L	U	SM4500NH3BG
4E14047-CCB3	Ammonia as N	0.0242	0.100	0.300	mg/L	U	SM4500NH3BG

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

E351.2

ST105-30050

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Matrix: Water

Batch: 4E08007

% Solids:

Source Sample Name: **1405013-09RE1**

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	Q	QC LIMITS REC.
Total Kjeldahl Nitrogen	5.556	ND	2.192	39.5	N	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	Q	QC LIMITS RPD	QC LIMITS REC.
Total Kjeldahl Nitrogen	5.556	1.831	33.0	18.0	N	20	75 - 125

LCS / LCS DUPLICATE RECOVERY

SM2540C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4D30008	Laboratory ID:	4D30008-BS1
Preparation:	pNone	Initial/Final:	20 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Total Dissolved Solids	973.0	975.0	100	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW9060A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E01024	Laboratory ID:	4E01024-BS1
Preparation:	pNone	Initial/Final:	40 mL / 40 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Total Organic Carbon	25.00	22.90	91.6	80 - 120
Total Organic Carbon (dissolved)	25.00	22.90	91.6	80 - 120

LCS / LCS DUPLICATE RECOVERY

SM2540C

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E07008	Laboratory ID:	4E07008-BS1
Preparation:	pNone	Initial/Final:	20 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Total Dissolved Solids	973.0	990.0	102	80 - 120

ANALYTE	SPIKE ADDED (mg/L)	LCSD CONCENTRATION (mg/L)	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Total Dissolved Solids	973.0	835.0	85.8	17.0	20	80 - 120

LCS / LCS DUPLICATE RECOVERY

E351.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E08007	Laboratory ID:	4E08007-BS1
Preparation:	pNone	Initial/Final:	20 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Total Kjeldahl Nitrogen	3.300	3.839	116	80 - 120

ANALYTE	SPIKE ADDED (mg/L)	LCSD CONCENTRATION (mg/L)	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Total Kjeldahl Nitrogen	**3.300**	**4.395**	**133 ***	**13.5**	**20**	**80 - 120**

LCS / LCS DUPLICATE RECOVERY

SM2320B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E08017	Laboratory ID:	4E08017-BS1
Preparation:	pNone	Initial/Final:	5 mL / 25 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Alkalinity, Total (as CACO3)	1000	1047	105	80 - 120

LCS / LCS DUPLICATE RECOVERY

SM2320B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E12929	Laboratory ID:	4E12929-BS1
Preparation:	pNone	Initial/Final:	5 mL / 25 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Alkalinity, Total (as CACO3)	1000	1030	103	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E13320	Laboratory ID:	4E13320-BS1
Preparation:	WC_PREP_ANIONS_W	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Bromide	14.00	13.44	96.0	80 - 120
Chloride	4.200	4.114	98.0	80 - 120
Fluoride	2.800	2.645	94.5	80 - 120
Sulfate as SO4	21.00	20.69	98.5	80 - 120

LCS / LCS DUPLICATE RECOVERY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E13321	Laboratory ID:	4E13321-BS1
Preparation:	WC_PREP_ANIONS_W	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Bromide	14.00	13.29	94.9	80 - 120
Chloride	4.200	4.049	96.4	80 - 120
Fluoride	2.800	2.654	94.8	80 - 120
Sulfate as SO4	21.00	20.44	97.3	80 - 120

LCS / LCS DUPLICATE RECOVERY

SM2320B

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E14026	Laboratory ID:	4E14026-BS1
Preparation:	pNone	Initial/Final:	5 mL / 25 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Alkalinity, Total (as CACO3)	1000	1021	102	80 - 120

LCS / LCS DUPLICATE RECOVERY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E15013	Laboratory ID:	4E15013-BS1
Preparation:	pNone	Initial/Final:	2 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Nitrate/Nitrite as N	14.80	15.41	104	90 - 110

LCS / LCS DUPLICATE RECOVERY

SW9060A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E16007	Laboratory ID:	4E16007-BS1
Preparation:	pNone	Initial/Final:	40 mL / 40 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Total Organic Carbon	25.00	24.62	98.5	80 - 120
Total Organic Carbon (dissolved)	25.00	24.62	98.5	80 - 120

LCS / LCS DUPLICATE RECOVERY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E16013	Laboratory ID:	4E16013-BS1
Preparation:	pNone	Initial/Final:	2 mL / 20 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Nitrate/Nitrite as N	14.80	15.62	106	90 - 110

LCS / LCS DUPLICATE RECOVERY

SM4500NH3BG

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E20006	Laboratory ID:	4E20006-BS1
Preparation:	pNone	Initial/Final:	100 mL / 100 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia as N	4.400	3.741	85.0	80 - 120

LCS / LCS DUPLICATE RECOVERY

SM4500NH3BG

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water		
Batch:	4E20012	Laboratory ID:	4E20012-BS1
Preparation:	pNone	Initial/Final:	100 mL / 100 mL

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia as N	4.400	4.201	95.5	80 - 120

PREPARATION BATCH SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4D30008 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30047	1404205-01	04/30/14 10:01	100.00	100.00
Blank	4D30008-BLK1	04/30/14 10:01	100.00	100.00
LCS	4D30008-BS1	04/30/14 10:01	20.00	20.00

PREPARATION BATCH SUMMARY

SW9060A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E01024 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30047	1404205-01	05/01/14 14:20	40.00	40.00
ST105-30047	1404205-02	05/01/14 14:20	40.00	40.00
Blank	4E01024-BLK1	05/01/14 14:20	40.00	40.00
LCS	4E01024-BS1	05/01/14 14:20	40.00	40.00

PREPARATION BATCH SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E07008 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30029	1405013-01	05/07/14 10:28	100.00	100.00
ST105-30043	1405013-03	05/07/14 10:28	100.00	100.00
ST105-30048	1405013-05	05/07/14 10:28	100.00	100.00
ST105-30049	1405013-07	05/07/14 10:28	100.00	100.00
ST105-30050	1405013-09	05/07/14 10:28	100.00	100.00
Blank	4E07008-BLK1	05/07/14 08:28	100.00	100.00
LCS	4E07008-BS1	05/07/14 08:28	20.00	20.00
LCS Dup	4E07008-BSD1	05/07/14 08:28	20.00	20.00

PREPARATION BATCH SUMMARY

E351.2

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E08007 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30047	1404205-01	05/08/14 09:27	20.00	20.00
ST105-30029	1405013-01	05/08/14 09:27	20.00	20.00
ST105-30043	1405013-03	05/08/14 09:27	20.00	20.00
ST105-30048	1405013-05	05/08/14 09:27	20.00	20.00
ST105-30049	1405013-07	05/08/14 09:27	20.00	20.00
ST105-30050	1405013-09RE1	05/08/14 09:27	20.00	20.00
Blank	4E08007-BLK1	05/08/14 09:27	20.00	20.00
LCS	4E08007-BS1	05/08/14 09:27	20.00	20.00
LCS Dup	4E08007-BSD1	05/08/14 09:27	20.00	20.00
ST105-30050	4E08007-MS1	05/08/14 09:27	18.00	20.00
ST105-30050	4E08007-MSD1	05/08/14 09:27	18.00	20.00

PREPARATION BATCH SUMMARY

SM2320B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E08017 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30047	1404205-01	05/08/14 12:12	25.00	25.00
Blank	4E08017-BLK1	05/08/14 12:12	25.00	25.00
LCS	4E08017-BS1	05/08/14 12:12	5.00	25.00

PREPARATION BATCH SUMMARY

SM2320B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E12929 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30048	1405013-05	05/12/14 08:41	25.00	25.00
ST105-30049	1405013-07	05/12/14 08:41	25.00	25.00
ST105-30050	1405013-09	05/12/14 08:41	25.00	25.00
Blank	4E12929-BLK1	05/12/14 08:41	25.00	25.00
LCS	4E12929-BS1	05/12/14 08:41	5.00	25.00

PREPARATION BATCH SUMMARY

SW9056A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E13320 Batch Matrix: Water Preparation: WC_PREP_ANIONS_W

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30047	1404205-01	05/13/14 11:33	5.00	5.00
Blank	4E13320-BLK1	05/13/14 11:33	5.00	5.00
LCS	4E13320-BS1	05/13/14 11:33	5.00	5.00

PREPARATION BATCH SUMMARY

SW9056A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E13321 Batch Matrix: Water Preparation: WC_PREP_ANIONS_W

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30029	1405013-01	05/13/14 11:37	5.00	5.00
ST105-30043	1405013-03	05/13/14 11:37	5.00	5.00
ST105-30048	1405013-05	05/13/14 11:37	5.00	5.00
ST105-30049	1405013-07	05/13/14 11:37	5.00	5.00
ST105-30050	1405013-09	05/13/14 11:37	5.00	5.00
Blank	4E13321-BLK1	05/13/14 11:37	5.00	5.00
LCS	4E13321-BS1	05/13/14 11:37	5.00	5.00

PREPARATION BATCH SUMMARY

SM2320B

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E14026 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30029	1405013-01	05/15/14 08:00	25.00	25.00
ST105-30043	1405013-03	05/15/14 08:00	25.00	25.00
Blank	4E14026-BLK1	05/14/14 13:10	25.00	25.00
LCS	4E14026-BS1	05/14/14 13:10	5.00	25.00

PREPARATION BATCH SUMMARY

E353.2

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E15013 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30047	1404205-01RE1	05/15/14 13:11	4.00	20.00
Blank	4E15013-BLK1	05/15/14 13:11	20.00	20.00
LCS	4E15013-BS1	05/15/14 13:11	2.00	20.00

PREPARATION BATCH SUMMARY

SW9060A

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E16007 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30029	1405013-01	05/16/14 09:39	40.00	40.00
ST105-30029	1405013-02	05/16/14 09:39	40.00	40.00
ST105-30043	1405013-03	05/16/14 09:39	40.00	40.00
ST105-30043	1405013-04	05/16/14 09:39	40.00	40.00
ST105-30048	1405013-05	05/16/14 09:39	40.00	40.00
ST105-30048	1405013-06	05/16/14 09:39	40.00	40.00
ST105-30049	1405013-07	05/16/14 09:39	40.00	40.00
ST105-30049	1405013-08	05/16/14 09:39	40.00	40.00
ST105-30050	1405013-09	05/16/14 09:39	40.00	40.00
ST105-30050	1405013-10	05/16/14 09:39	40.00	40.00
Blank	4E16007-BLK1	05/16/14 09:39	40.00	40.00
LCS	4E16007-BS1	05/16/14 09:39	40.00	40.00

PREPARATION BATCH SUMMARY

E353.2

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E16013 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30029	1405013-01	05/16/14 11:23	4.00	20.00
ST105-30043	1405013-03	05/16/14 11:23	4.00	20.00
ST105-30048	1405013-05RE1	05/16/14 11:23	4.00	20.00
ST105-30049	1405013-07RE1	05/16/14 11:23	4.00	20.00
ST105-30050	1405013-09RE1	05/16/14 11:23	4.00	20.00
Blank	4E16013-BLK1	05/16/14 11:23	20.00	20.00
LCS	4E16013-BS1	05/16/14 11:23	2.00	20.00

PREPARATION BATCH SUMMARY

SM4500NH3BG

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E20006 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30047	1404205-01	05/20/14 08:37	100.00	100.00
ST105-30029	1405013-01	05/20/14 08:37	100.00	100.00
Blank	4E20006-BLK1	05/20/14 08:37	100.00	100.00
LCS	4E20006-BS1	05/20/14 08:37	100.00	100.00

PREPARATION BATCH SUMMARY

SM4500NH3BG

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Batch: 4E20012 Batch Matrix: Water Preparation: pNone

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
ST105-30043	1405013-03	05/20/14 12:29	100.00	100.00
ST105-30048	1405013-05	05/20/14 12:29	100.00	100.00
ST105-30049	1405013-07	05/20/14 12:29	100.00	100.00
ST105-30050	1405013-09	05/20/14 12:29	100.00	100.00
Blank	4E20012-BLK1	05/20/14 12:29	100.00	100.00
LCS	4E20012-BS1	05/20/14 12:29	100.00	100.00

ANALYSIS SEQUENCE SUMMARY

SM2320B

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Sequence:

Instrument:

Calibration:

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Blank	4E08017-BLK1	050814-003	05/08/14 14:20
LCS	4E08017-BS1	050814-002	05/08/14 14:22
Blank	4E12929-BLK1	051214-003	05/12/14 10:52
LCS	4E12929-BS1	051214-002	05/12/14 10:55
LCS	4E14026-BS1	051414-002	05/14/14 16:05
Blank	4E14026-BLK1	051414-003	05/14/14 16:12

ANALYSIS SEQUENCE SUMMARY

SM2540C

Laboratory: Empirical Laboratories, LLC

SDG: KirtlandECOS_014

Client: Shaw Environmental, Inc.

Project: Kirtland AFB (ECOS)

Sequence:

Instrument:

Calibration:

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
LCS	4D30008-BS1	043014-002	04/30/14 17:20
Blank	4D30008-BLK1	043014-001	04/30/14 17:20
LCS Dup	4E07008-BSD1	050714-003	05/07/14 13:14
LCS	4E07008-BS1	050714-002	05/07/14 13:14
Blank	4E07008-BLK1	050714-001	05/07/14 13:14

ANALYSIS SEQUENCE SUMMARY

SW9060A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4D11915	Instrument:	WC-TOC1
Calibration:	4119004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4D11915-CAL1		02/14/14 16:20
Cal Standard	4D11915-CAL2		02/14/14 16:42
Cal Standard	4D11915-CAL3		02/14/14 17:03
Cal Standard	4D11915-CAL4		02/14/14 17:25
Cal Standard	4D11915-CAL5		02/14/14 17:48
Cal Standard	4D11915-CAL6		02/14/14 18:13
Cal Standard	4D11915-CAL7		02/14/14 18:42
Cal Standard	4D11915-CAL8		02/14/14 19:18

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12102	Instrument:	WC-IC
Calibration:	4121001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E12102-CAL1	042914curve-003	04/29/14 14:13
Cal Standard	4E12102-CAL2	042914curve-004	04/29/14 14:31
Cal Standard	4E12102-CAL3	042914curve-005	04/29/14 14:48
Cal Standard	4E12102-CAL4	042914curve-006	04/29/14 15:06
Cal Standard	4E12102-CAL5	042914curve-007	04/29/14 15:23
Cal Standard	4E12102-CAL6	042914curve-008	04/29/14 15:40
Cal Standard	4E12102-CAL7	042914curve-009	04/29/14 15:58
Cal Standard	4E12102-CAL8	042914curve-010	04/29/14 16:15
Initial Cal Check	4E12102-ICV1	042914curve-011	04/29/14 16:33
Initial Cal Blank	4E12102-ICB1	042914curve-012	04/29/14 16:50

ANALYSIS SEQUENCE SUMMARY

SW9060A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12211	Instrument:	WC-TOC1
Calibration:	4119004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4E12211-CCV1	5-01-14Q-001	05/01/14 16:22
Calibration Blank	4E12211-CCB1	5-01-14Q-002	05/01/14 16:45
Blank	4E01024-BLK1	5-01-14Q-003	05/01/14 17:08
LCS	4E01024-BS1	5-01-14Q-004	05/01/14 17:35
Calibration Check	4E12211-CCV2	5-01-14Q-017	05/01/14 23:28
Calibration Blank	4E12211-CCB2	5-01-14Q-018	05/01/14 23:53

ANALYSIS SEQUENCE SUMMARY

SW9060A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12513	Instrument:	WC-TOC1
Calibration:	4119004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4E12513-CCV1	5-02-14Q-001	05/02/14 14:16
Calibration Blank	4E12513-CCB1	5-02-14Q-002	05/02/14 14:39
ST105-30047	1404205-01	5-02-14Q-012	05/02/14 18:42
ST105-30047	1404205-01		05/02/14 18:42
ST105-30047	1404205-02	5-02-14Q-013	05/02/14 19:05
ST105-30047	1404205-02		05/02/14 19:05
Calibration Check	4E12513-CCV2	5-02-14Q-014	05/02/14 19:33
Calibration Blank	4E12513-CCB2	5-02-14Q-015	05/02/14 19:58

ANALYSIS SEQUENCE SUMMARY

E351.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E12905	Instrument:	WC-Lachat
Calibration:	4129001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E12905-CAL1	)M_5-9-2014_09-25-20AM-00	05/09/14 09:27
Cal Standard	4E12905-CAL2	)M_5-9-2014_09-25-20AM-00	05/09/14 09:28
Cal Standard	4E12905-CAL4	)M_5-9-2014_09-25-20AM-00	05/09/14 09:30
Cal Standard	4E12905-CAL5	)M_5-9-2014_09-25-20AM-00	05/09/14 09:31
Cal Standard	4E12905-CAL7	)M_5-9-2014_09-25-20AM-00	05/09/14 09:33
Initial Cal Check	4E12905-ICV1	)M_5-9-2014_09-25-20AM-00	05/09/14 09:34
Initial Cal Blank	4E12905-ICB1	)M_5-9-2014_09-25-20AM-00	05/09/14 09:36
Blank	4E08007-BLK1	)M_5-9-2014_09-25-20AM-01	05/09/14 09:37
LCS	4E08007-BS1	)M_5-9-2014_09-25-20AM-01	05/09/14 09:38
LCS Dup	4E08007-BSD1	)M_5-9-2014_09-25-20AM-01	05/09/14 09:39
ST105-30047	1404205-01	)M_5-9-2014_09-25-20AM-01	05/09/14 09:40
ST105-30029	1405013-01	)M_5-9-2014_09-25-20AM-01	05/09/14 09:42
ST105-30043	1405013-03	)M_5-9-2014_09-25-20AM-01	05/09/14 09:43
ST105-30048	1405013-05	)M_5-9-2014_09-25-20AM-01	05/09/14 09:45
ST105-30049	1405013-07	)M_5-9-2014_09-25-20AM-01	05/09/14 09:46
Calibration Check	4E12905-CCV1	)M_5-9-2014_09-25-20AM-02	05/09/14 09:48
Calibration Blank	4E12905-CCB1	)M_5-9-2014_09-25-20AM-02	05/09/14 09:49

ANALYSIS SEQUENCE SUMMARY

E351.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E13410	Instrument:	WC-Lachat
Calibration:	4134003		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E13410-CAL1	M_5-14-2014_01-08-49PM-00	05/14/14 13:10
Cal Standard	4E13410-CAL2	M_5-14-2014_01-08-49PM-00	05/14/14 13:11
Cal Standard	4E13410-CAL3	M_5-14-2014_01-08-49PM-00	05/14/14 13:12
Cal Standard	4E13410-CAL4	M_5-14-2014_01-08-49PM-00	05/14/14 13:14
Cal Standard	4E13410-CAL5	M_5-14-2014_01-08-49PM-00	05/14/14 13:15
Cal Standard	4E13410-CAL6	M_5-14-2014_01-08-49PM-00	05/14/14 13:16
Cal Standard	4E13410-CAL7	M_5-14-2014_01-08-49PM-00	05/14/14 13:17
Initial Cal Check	4E13410-ICV1	M_5-14-2014_01-08-49PM-00	05/14/14 13:18
Initial Cal Blank	4E13410-ICB1	M_5-14-2014_01-08-49PM-00	05/14/14 13:19
ST105-30050	1405013-09RE1	M_5-14-2014_01-08-49PM-01	05/14/14 13:23
ST105-30050	4E08007-MS1	M_5-14-2014_01-08-49PM-01	05/14/14 13:24
ST105-30050	4E08007-MSD1	M_5-14-2014_01-08-49PM-01	05/14/14 13:25
Calibration Check	4E13410-CCV1	M_5-14-2014_01-08-49PM-02	05/14/14 13:37
Calibration Blank	4E13410-CCB1	M_5-14-2014_01-08-49PM-02	05/14/14 13:38

ANALYSIS SEQUENCE SUMMARY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E13512	Instrument:	WC-Lachat
Calibration:	4141001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E13512-CAL1	M_5-15-2014_02-16-15PM-00	05/15/14 14:18
Cal Standard	4E13512-CAL2	M_5-15-2014_02-16-15PM-00	05/15/14 14:19
Cal Standard	4E13512-CAL3	M_5-15-2014_02-16-15PM-00	05/15/14 14:21
Cal Standard	4E13512-CAL4	M_5-15-2014_02-16-15PM-00	05/15/14 14:22
Cal Standard	4E13512-CAL5	M_5-15-2014_02-16-15PM-00	05/15/14 14:24
Cal Standard	4E13512-CAL6	M_5-15-2014_02-16-15PM-00	05/15/14 14:25
Cal Standard	4E13512-CAL7	M_5-15-2014_02-16-15PM-00	05/15/14 14:26
Cal Standard	4E13512-CAL8	M_5-15-2014_02-16-15PM-00	05/15/14 14:28
Initial Cal Check	4E13512-ICV1	M_5-15-2014_02-16-15PM-00	05/15/14 14:29
Initial Cal Blank	4E13512-ICB1	M_5-15-2014_02-16-15PM-01	05/15/14 14:31
Blank	4E15013-BLK1	M_5-15-2014_02-16-15PM-01	05/15/14 14:34
LCS	4E15013-BS1	M_5-15-2014_02-16-15PM-01	05/15/14 14:35
Calibration Check	4E13512-CCV1	M_5-15-2014_02-16-15PM-02	05/15/14 14:54
Calibration Blank	4E13512-CCB1	M_5-15-2014_02-16-15PM-02	05/15/14 14:55
Calibration Check	4E13512-CCV2	M_5-15-2014_02-16-15PM-03	05/15/14 15:10
Calibration Blank	4E13512-CCB2	M_5-15-2014_02-16-15PM-03	05/15/14 15:11
ST105-30047	1404205-01RE1	M_5-15-2014_02-16-15PM-04	05/15/14 15:14
Calibration Check	4E13512-CCV3	M_5-15-2014_02-16-15PM-04	05/15/14 15:19
Calibration Blank	4E13512-CCB3	M_5-15-2014_02-16-15PM-04	05/15/14 15:20

ANALYSIS SEQUENCE SUMMARY

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E13612	Instrument:	WC-Lachat
Calibration:	4136005		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E13612-CAL1	M_5-16-2014_01-03-25PM-00	05/16/14 13:05
Cal Standard	4E13612-CAL2	M_5-16-2014_01-03-25PM-00	05/16/14 13:06
Cal Standard	4E13612-CAL3	M_5-16-2014_01-03-25PM-00	05/16/14 13:08
Cal Standard	4E13612-CAL4	M_5-16-2014_01-03-25PM-00	05/16/14 13:09
Cal Standard	4E13612-CAL5	M_5-16-2014_01-03-25PM-00	05/16/14 13:11
Cal Standard	4E13612-CAL6	M_5-16-2014_01-03-25PM-00	05/16/14 13:12
Cal Standard	4E13612-CAL7	M_5-16-2014_01-03-25PM-00	05/16/14 13:14
Cal Standard	4E13612-CAL8	M_5-16-2014_01-03-25PM-00	05/16/14 13:15
Initial Cal Check	4E13612-ICV1	M_5-16-2014_01-03-25PM-00	05/16/14 13:17
Initial Cal Blank	4E13612-ICB1	M_5-16-2014_01-03-25PM-01	05/16/14 13:18
Blank	4E16013-BLK1	M_5-16-2014_01-03-25PM-01	05/16/14 13:21
LCS	4E16013-BS1	M_5-16-2014_01-03-25PM-01	05/16/14 13:22
ST105-30029	1405013-01	M_5-16-2014_01-03-25PM-01	05/16/14 13:24
ST105-30043	1405013-03	M_5-16-2014_01-03-25PM-01	05/16/14 13:25
Calibration Check	4E13612-CCV1	M_5-16-2014_01-03-25PM-02	05/16/14 13:38
Calibration Blank	4E13612-CCB1	M_5-16-2014_01-03-25PM-02	05/16/14 13:40
Calibration Check	4E13612-CCV2	M_5-16-2014_01-03-25PM-03	05/16/14 13:59
Calibration Blank	4E13612-CCB2	M_5-16-2014_01-03-25PM-03	05/16/14 14:00
ST105-30048	1405013-05RE1	M_5-16-2014_01-03-25PM-04	05/16/14 14:02
ST105-30049	1405013-07RE1	M_5-16-2014_01-03-25PM-04	05/16/14 14:03
ST105-30050	1405013-09RE1	M_5-16-2014_01-03-25PM-04	05/16/14 14:04
Calibration Check	4E13612-CCV3	M_5-16-2014_01-03-25PM-04	05/16/14 14:06
Calibration Blank	4E13612-CCB3	M_5-16-2014_01-03-25PM-04	05/16/14 14:07

ANALYSIS SEQUENCE SUMMARY

SW9060A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E13904	Instrument:	WC-TOC1
Calibration:	4119004		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4E13904-CCV1	5-16-14Q-001	05/16/14 12:06
Calibration Blank	4E13904-CCB1	5-16-14Q-002	05/16/14 12:30
Blank	4E16007-BLK1	5-16-14Q-003	05/16/14 12:53
LCS	4E16007-BS1	5-16-14Q-004	05/16/14 13:21
ST105-30029	1405013-01	5-16-14Q-013	05/16/14 16:58
ST105-30029	1405013-02	5-16-14Q-014	05/16/14 17:21
ST105-30043	1405013-03	5-16-14Q-015	05/16/14 17:44
ST105-30043	1405013-04	5-16-14Q-016	05/16/14 18:06
Calibration Check	4E13904-CCV2	5-16-14Q-017	05/16/14 18:38
Calibration Blank	4E13904-CCB2	5-16-14Q-018	05/16/14 19:02
ST105-30048	1405013-05	5-16-14Q-019	05/16/14 19:25
ST105-30048	1405013-06	5-16-14Q-020	05/16/14 19:48
ST105-30049	1405013-07	5-16-14Q-021	05/16/14 20:11
ST105-30049	1405013-08	5-16-14Q-022	05/16/14 20:34
ST105-30050	1405013-09	5-16-14Q-023	05/16/14 20:57
ST105-30050	1405013-10	5-16-14Q-024	05/16/14 21:21
Calibration Check	4E13904-CCV3	5-16-14Q-029	05/16/14 23:20
Calibration Blank	4E13904-CCB3	5-16-14Q-030	05/16/14 23:45

ANALYSIS SEQUENCE SUMMARY

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E14037	Instrument:	WC-IC
Calibration:	4121001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	4E14037-CCV1	051314-003	05/13/14 12:46
Calibration Blank	4E14037-CCB1	051314-004	05/13/14 13:03
Instrument RL Check	4E14037-CRL1	051314-005	05/13/14 13:20
Instrument RL Check	4E14037-CRL2	051314-006	05/13/14 13:38
Blank	4E13320-BLK1	051314-008	05/13/14 14:13
LCS	4E13320-BS1	051314-009	05/13/14 14:30
Calibration Check	4E14037-CCV2	051314-023	05/13/14 18:34
Calibration Blank	4E14037-CCB2	051314-024	05/13/14 18:51
ST105-30047	1404205-01	051314-037	05/13/14 22:37
Calibration Check	4E14037-CCV3	051314-038	05/13/14 22:55
Calibration Blank	4E14037-CCB3	051314-039	05/13/14 23:12
Blank	4E13321-BLK1	051314-040	05/13/14 23:30
LCS	4E13321-BS1	051314-041	05/13/14 23:47
Calibration Check	4E14037-CCV4	051314-054	05/14/14 03:33
Calibration Blank	4E14037-CCB4	051314-055	05/14/14 03:51
ST105-30029	1405013-01	051314-056	05/14/14 04:08
ST105-30043	1405013-03	051314-057	05/14/14 04:26
ST105-30048	1405013-05	051314-058	05/14/14 04:43
ST105-30049	1405013-07	051314-059	05/14/14 05:01
ST105-30050	1405013-09	051314-060	05/14/14 05:18
Calibration Check	4E14037-CCV5	051314-066	05/14/14 07:02
Calibration Blank	4E14037-CCB5	051314-067	05/14/14 07:20

ANALYSIS SEQUENCE SUMMARY

SM4500NH3BG

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Sequence:	4E14047	Instrument:	WC-Lachat
Calibration:	4140003		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	4E14047-CAL1	M_5-20-2014_05-51-16PM-00	05/20/14 17:52
Cal Standard	4E14047-CAL2	M_5-20-2014_05-51-16PM-00	05/20/14 17:53
Cal Standard	4E14047-CAL3	M_5-20-2014_05-51-16PM-00	05/20/14 17:54
Cal Standard	4E14047-CAL4	M_5-20-2014_05-51-16PM-00	05/20/14 17:54
Cal Standard	4E14047-CAL5	M_5-20-2014_05-51-16PM-00	05/20/14 17:55
Cal Standard	4E14047-CAL6	M_5-20-2014_05-51-16PM-00	05/20/14 17:56
Cal Standard	4E14047-CAL7	M_5-20-2014_05-51-16PM-00	05/20/14 17:57
Cal Standard	4E14047-CAL8	M_5-20-2014_05-51-16PM-00	05/20/14 17:58
Initial Cal Check	4E14047-ICV1	M_5-20-2014_05-51-16PM-00	05/20/14 17:59
Initial Cal Blank	4E14047-ICB1	M_5-20-2014_05-51-16PM-01	05/20/14 18:00
Blank	4E20006-BLK1	M_5-20-2014_05-51-16PM-01	05/20/14 18:01
Blank	4E20012-BLK1	M_5-20-2014_05-51-16PM-01	05/20/14 18:02
LCS	4E20006-BS1	M_5-20-2014_05-51-16PM-01	05/20/14 18:03
LCS	4E20012-BS1	M_5-20-2014_05-51-16PM-01	05/20/14 18:04
ST105-30047	1404205-01	M_5-20-2014_05-51-16PM-01	05/20/14 18:05
Calibration Check	4E14047-CCV1	M_5-20-2014_05-51-16PM-02	05/20/14 18:14
Calibration Blank	4E14047-CCB1	M_5-20-2014_05-51-16PM-02	05/20/14 18:15
ST105-30029	1405013-01	M_5-20-2014_05-51-16PM-03	05/20/14 18:21
Calibration Check	4E14047-CCV2	M_5-20-2014_05-51-16PM-03	05/20/14 18:22
Calibration Blank	4E14047-CCB2	M_5-20-2014_05-51-16PM-03	05/20/14 18:23
ST105-30043	1405013-03	M_5-20-2014_05-51-16PM-03	05/20/14 18:24
ST105-30048	1405013-05	M_5-20-2014_05-51-16PM-03	05/20/14 18:25
ST105-30049	1405013-07	M_5-20-2014_05-51-16PM-03	05/20/14 18:26
ST105-30050	1405013-09	M_5-20-2014_05-51-16PM-03	05/20/14 18:27
Calibration Check	4E14047-CCV3	M_5-20-2014_05-51-16PM-04	05/20/14 18:33
Calibration Blank	4E14047-CCB3	M_5-20-2014_05-51-16PM-04	05/20/14 18:34

INITIAL CALIBRATION DATA

SW9060A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4119004	Instrument:	WC-TOC1	
Matrix:	Water	Calibration Dates:	2/14/14 16:20	2/14/14 19:18

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Total Organic Carbon	0	0	1	19.74	2.5	15.292	5	13.902	10	13.68	25	13.992
Total Organic Carbon	0	0	1	19.74	2.5	15.292	5	13.902	10	13.68	25	13.992

INITIAL CALIBRATION DATA (Continued)

SW9060A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4119004	Instrument:	WC-TOC1	
Matrix:	Water	Calibration Dates:	2/14/14 16:20	2/14/14 19:18

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Total Organic Carbon	50	14.424	100	15.05								
Total Organic Carbon	50	14.424	100	15.05								

INITIAL CALIBRATION DATA (Continued)

SW9060A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4119004	Instrument:	WC-TOC1	
Matrix:	Water	Calibration Dates:	2/14/14 16:20	2/14/14 19:18

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Total Organic Carbon	13.26	43.00536			0.9992826		0.995	
Total Organic Carbon	13.26	43.00536			0.9992826		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4121001	Instrument:	WC-IC	
Matrix:	Water	Calibration Dates:	4/29/14 14:13	4/29/14 16:15

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Bromide	0.126	159881	0.126	316904.8	0.63	163830.2	1.26	176354	6.3	183568.1	12.6	179961
Chloride	0.5	421506	0.5	787168	2.5	394408.4	5	399378.4	25	411468.8	50	407750.2
Fluoride	0.05	~~775280~~	0.05	1364560	0.25	691468	0.5	685650	2.5	686538.4	5	640231.8
Sulfate as SO4	0.5	538696	0.5	900462	2.5	380967.6	5	338126.8	25	312521.2	50	303954.4

INITIAL CALIBRATION DATA (Continued)

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4121001	Instrument:	WC-IC	
Matrix:	Water	Calibration Dates:	4/29/14 14:13	4/29/14 16:15

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Bromide	31.5	177743.7	63	181116.7								
Chloride	125	406745	250	403355.2								
Fluoride	12.5	~~575363.2~~	25	~~515857.6~~								
Sulfate as SO4	125	298662.8	250	296911.2								

INITIAL CALIBRATION DATA (Continued)

SW9056A

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4121001	Instrument:	WC-IC	
Matrix:	Water	Calibration Dates:	4/29/14 14:13	4/29/14 16:15

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Bromide	192419.9	26.50488	7.60125	1.262659	0.999913		0.995	
Chloride	453972.5	29.70977	4.45625	0.5989249	0.9999724		0.995	
Fluoride	813689.6	37.93147	3.106	1.058189	0.998347		0.995	
Sulfate as SO4	421287.7	49.79368	6.23375	4.232915	0.999902		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

E351.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4129001	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/9/14 9:27	5/9/14 9:33

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Total Kjeldahl Nitrogen	20	0.2992	10	~~0.3875~~	5	0.546	2	0.948	0	0		

INITIAL CALIBRATION DATA (Continued)

E351.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4129001	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/9/14 9:27	5/9/14 9:33

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Total Kjeldahl Nitrogen	0.4483	89.4533	50.2075	0.4082427	0.9984507		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

E351.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4134003	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/14/14 13:10	5/14/14 13:17

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Total Kjeldahl Nitrogen	20	0.2437	10	~~0.3078~~	8	~~0.3325~~	5	0.415	2	0.716	1	1.207

INITIAL CALIBRATION DATA (Continued)

E351.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4134003	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/14/14 13:10	5/14/14 13:17

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Total Kjeldahl Nitrogen	0	0										

INITIAL CALIBRATION DATA (Continued)

E351.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4134003	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/14/14 13:10	5/14/14 13:17

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Total Kjeldahl Nitrogen	0.51634	90.22259	48.578	1.100552	0.9991228		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4136005	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/16/14 13:05	5/16/14 13:15

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	2	3.61	1.6	3.75375	1.2	3.680833	0.8	3.75875	0.4	4.01	0.2	3.992

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4136005	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/16/14 13:05	5/16/14 13:15

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	0.1	4.422	0	0								

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4136005	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/16/14 13:05	5/16/14 13:15

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Nitrate/Nitrite as N	3.403417	41.11078	31.29125	3.948607	0.9992659		0.99	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

SM4500NH3BG

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4140003	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/20/14 17:52	5/20/14 17:58

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Ammonia as N	10	2.489	8	2.69875	2	2.744	1	2.719	0.4	2.48025	0.2	2.043

INITIAL CALIBRATION DATA (Continued)

SM4500NH3BG

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4140003	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/20/14 17:52	5/20/14 17:58

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Ammonia as N	0.1	1.183	0	0								

INITIAL CALIBRATION DATA (Continued)

SM4500NH3BG

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4140003	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/20/14 17:52	5/20/14 17:58

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Ammonia as N	2.044625	47.78459	30.9275	3.336566	0.997438		0.995	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

INITIAL CALIBRATION DATA

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4141001	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/15/14 14:18	5/15/14 14:28

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	2	3.866	1.6	4.045	1.2	4.015	0.8	4.0625	0.4	4.2975	0.2	4.3195

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4141001	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/15/14 14:18	5/15/14 14:28

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF	mg/L	RF
Nitrate/Nitrite as N	0.1	4.833	0	0								

INITIAL CALIBRATION DATA (Continued)

E353.2

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014	
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)	
Calibration:	4141001	Instrument:	WC-Lachat	
Matrix:	Water	Calibration Dates:	5/15/14 14:18	5/15/14 14:28

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Nitrate/Nitrite as N	3.679812	41.19857	33.45	1.672149	0.9990048		0.99	

Per current DoD QSM requirements, effective 03/17/2014, Empirical has updated the linear calibration coefficient requirements to reflect a limit of 0.990 for "r2" rather than the previously reported limit of 0.995 for "r". The change in assessment criteria is consistent with regulatory requirements.

PREPARATION BENCH SHEET

4D30008

Empirical Laboratories, LLC

Printed: 5/16/2014 12:59:20PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404165-01	H	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-02	V	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	MS/MSD;
1404165-04	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-08	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-09	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-10	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-11	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-12	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-13	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404165-15	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404168-01	G	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	MS/MSD
1404168-03	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404184-01	A	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404184-03	A	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404203-01	D	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
1404205-01	A	WC_TOTAL_DISS_SOLIDS_25	04/30/2014	100	100					NA	
4D30008-BLK1		QC	04/30/2014	100	100					NA	
4D30008-BS1		QC	04/30/2014	20	20	14B0390		20000		NA	
4D30008-DUP1		QC	04/30/2014	100	100		1404168-01			NA	
4D30008-DUP2		QC	04/30/2014	100	100		1404165-02			NA	

PREPARATION BENCH SHEET

4D30008

Empirical Laboratories, LLC

Printed: 5/16/2014 12:59:20PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description
13L0250	Syringe Filters - Glass Fiber, 25mm, 1.5um, 200pk

PREPARATION BENCH SHEET

4E01024

Empirical Laboratories, LLC

Printed: 5/7/2014 12:58:15PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404108-01	C	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404108-02	A	WC_TOC_DISS_9060A_QUAD	05/01/2014	40	40					NA	
1404108-03	C	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404108-04	A	WC_TOC_DISS_9060A_QUAD	05/01/2014	40	40					NA	
1404108-05	C	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404108-06	A	WC_TOC_DISS_9060A_QUAD	05/01/2014	40	40					NA	
1404119-02	E	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404119-05	E	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404119-05RE1	E	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	Added 5/2/2014 by RGB
1404119-07	E	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404119-07RE1	E	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	Added 5/2/2014 by RGB
1404142-01	U	WC_TOC_DISS_9060A_QUAD	05/01/2014	40	40					NA	Added for BatchQC in: 4E01024
1404142-01	U	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	MS/MSD
1404142-02	G	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404142-03	G	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404173-01	H	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404173-02	H	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404173-03	I	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404173-04	V	WC_TOC_DISS_9060A_QUAD	05/01/2014	40	40					NA	Added for BatchQC in: 4E01024
1404173-04	V	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	MS/MSD
1404173-05	I	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	
1404205-01	C	WC_TOC_9060A_QUAD	05/01/2014	40	40					NA	

PREPARATION BENCH SHEET

4E01024

Empirical Laboratories, LLC

Printed: 5/7/2014 12:58:15PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404205-02	A	WC_TOC_DISS_9060A_QUAD	05/01/2014	40	40					NA	Filtered
4E01024-BLK1		QC	05/01/2014	40	40					NA	
4E01024-BS1		QC	05/01/2014	40	40	14D0680		40000		NA	
4E01024-MS1		QC	05/01/2014	40	40	13F0271	1404142-01	600		NA	
4E01024-MS2		QC	05/01/2014	40	40	13F0271	1404173-04	600		NA	
4E01024-MSD1		QC	05/01/2014	40	40	13F0271	1404142-01	600		NA	
4E01024-MSD2		QC	05/01/2014	40	40	13F0271	1404173-04	600		NA	

Reagents Used:

Standard	Description
14D0319	TOC Phosphoric Acid Reagent
14D0959	TOC PERSULFATE REAGENT

PREPARATION BENCH SHEET

4E07008

Empirical Laboratories, LLC

Printed: 5/27/2014 3:46:44PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1405013-01	A	WC_TOTAL_DISS_SOLIDS_25	05/07/2014	100	100					NA	
1405013-03	A	WC_TOTAL_DISS_SOLIDS_25	05/07/2014	100	100					NA	
1405013-05	A	WC_TOTAL_DISS_SOLIDS_25	05/07/2014	100	100					NA	
1405013-07	A	WC_TOTAL_DISS_SOLIDS_25	05/07/2014	100	100					NA	
1405013-09	A	WC_TOTAL_DISS_SOLIDS_25	05/07/2014	100	100					NA	
1405038-09	L	WC_TOTAL_DISS_SOLIDS_25	05/08/2014	100	100					NA	
4E07008-BLK1		QC	05/07/2014	100	100					NA	
4E07008-BS1		QC	05/07/2014	20	20	14B0390		20000		NA	
4E07008-BSD1		QC	05/07/2014	20	20	14B0390		20000		NA	

Reagents Used:

Standard	Description
13L0250	Syringe Filters - Glass Fiber, 25mm, 1.5um, 200pk

PREPARATION BENCH SHEET

4E08007

Empirical Laboratories, LLC

Printed: 5/27/2014 3:48:05PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404205-01	C	WC_TKN_351.2	05/08/2014	20	20					NA	Outside DoD cert
1405006-03	A	WC_TKN_351.2	05/08/2014	4	20					NA	
1405006-03RE1	A	WC_TKN_351.2	05/08/2014	4	20					NA	Added 5/9/2014 by DXR
1405013-01	C	WC_TKN_351.2	05/08/2014	20	20					NA	Outside DoD cert
1405013-03	C	WC_TKN_351.2	05/08/2014	20	20					NA	Outside DoD cert
1405013-05	C	WC_TKN_351.2	05/08/2014	20	20					NA	Outside DoD cert
1405013-07	C	WC_TKN_351.2	05/08/2014	20	20					NA	Outside DoD cert
1405013-09	C	WC_TKN_351.2	05/08/2014	20	20					NA	Outside DoD cert
1405013-09RE1	C	WC_TKN_351.2	05/08/2014	20	20					NA	Added 5/14/2014 by DXR
4E08007-BLK1		QC	05/08/2014	20	20					NA	
4E08007-BS1		QC	05/08/2014	20	20	14A0452		20000		NA	
4E08007-BSD1		QC	05/08/2014	20	20	14A0452		20000		NA	
4E08007-MS1		QC	05/08/2014	18	20	14A0166	1405013-09RE1	2000		NA	
4E08007-MSD1		QC	05/08/2014	18	20	14A0166	1405013-09RE1	2000		NA	

Reagents Used:

Standard	Description
14D0663	TKN 0.8M NaOH
14D0724	TKN Digestion Soln
14D0899	TKN Carrier
14D0952	TKN Salicylate Nitroprusside Reagent
14E0201	TKN Buffer
14E0202	TKN Sodium Hypochlorite Reagent
14E0215	TKN Sodium Hypochlorite Reagent

PREPARATION BENCH SHEET

4E08007

Empirical Laboratories, LLC

Printed: 5/27/2014 3:48:05PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

PREPARATION BENCH SHEET

4E08017

Empirical Laboratories, LLC

Printed: 5/13/2014 2:25:14PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404165-01	H	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	Carb & Bicarb
1404165-04	D	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	Carb & Bicarb
1404165-13	D	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	Carb & Bicarb
1404165-15	D	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	Carb & Bicarb
1404166-03	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404166-11	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404166-13	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404168-01	G	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	MS/MSD
1404194-02	F	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404194-04	F	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404201-02	G	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404201-04	G	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404203-01	D	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404205-01	A	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	
1404207-03	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404207-09	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404207-13	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404207-15	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
1404207-17	I	WC_ALKALINITY_2320B	05/08/2014	25	25					NA	carb/bicarb
4E08017-BLK1		QC	05/08/2014	25	25					NA	
4E08017-BS1		QC	05/08/2014	5	25	13L0375		5000		NA	
4E08017-MS1		QC	05/08/2014	22.5	25	13L0375	1404168-01	2500		NA	

PREPARATION BENCH SHEET

4E08017

Empirical Laboratories, LLC

Printed: 5/13/2014 2:25:14PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E08017-MSD1		QC	05/08/2014	22.5	25	13L0375	1404168-01	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4E12929

Empirical Laboratories, LLC

Printed: 5/14/2014 4:40:55PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404207-01	I	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	carb/bicarb
1404207-05	I	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	carb/bicarb
1404207-07	I	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	carb/bicarb
1404207-11	I	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	carb/bicarb
1405003-01	C	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	
1405003-03	C	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	
1405003-05	C	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	
1405008-01	C	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	
1405008-03	C	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	
1405013-05	A	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	
1405013-07	A	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	
1405013-09	A	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	
1405015-07	I	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	carb/bicarb
1405015-09	I	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	Carb/bicarb
1405015-11	AA	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	MS/MSD; carb/bicarb
1405015-13	I	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	Carb/bicarb
1405015-15	I	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	Carb/bicarb
1405037-02	F	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	
1405037-03	F	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	
1405037-04	F	WC_ALKALINITY_2320B	05/12/2014	25	25					NA	
4E12929-BLK1		QC	05/12/2014	25	25					NA	
4E12929-BS1		QC	05/12/2014	5	25	13L0375		5000		NA	

PREPARATION BENCH SHEET

4E12929

Empirical Laboratories, LLC

Printed: 5/14/2014 4:40:55PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E12929-MS1		QC	05/12/2014	22.5	25	13L0375	1405008-01	2500		NA	
4E12929-MS2		QC	05/12/2014	22.5	25	13L0375	1405015-11	2500		NA	
4E12929-MSD1		QC	05/12/2014	22.5	25	13L0375	1405008-01	2500		NA	
4E12929-MSD2		QC	05/12/2014	22.5	25	13L0375	1405015-11	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4E13320

Empirical Laboratories, LLC

Printed: 5/27/2014 3:49:45PM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404168-01	G	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	Added for BatchQC in: 4E13320
1404168-01	G	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	MS/MSD
1404168-01	G	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Added for BatchQC in: 4E13320
1404168-03	D	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	see versions
1404203-01	D	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	see versions
1404205-01	A	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	see versions
1405096-04	B	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	see versions
1405097-01	A	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Added for BatchQC in: 4E13320
1405097-01	A	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	see version
1405097-01	A	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	Added for BatchQC in: 4E13320
1405097-02	A	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	see version
1405098-02	F	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	SO4
1405098-02	F	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	
1405098-03	F	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	SO4
1405098-03	F	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	
1405098-04	F	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	
1405098-04	F	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	SO4
1405098-05	F	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	SO4
1405098-05	F	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	
1405098-06	F	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	SO4
1405098-06	F	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	
1405099-01	A	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	see version sulfate and Chloride

PREPARATION BENCH SHEET

4E13320

Empirical Laboratories, LLC

Printed: 5/27/2014 3:49:45PM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1405099-01	A	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	See version
1405099-02	A	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	see version sulfate and Chloride
1405099-02	A	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	See version
1405099-03	A	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	see version sulfate and Chloride
1405099-03	A	WC_ANIONS_300.0 (Short Hol	05/13/2014	5	5					NA	See version
4E13320-BLK1		QC	05/13/2014	5	5					NA	
4E13320-BS1		QC	05/13/2014	5	5	14E0088		5000		NA	
4E13320-DUP1		QC	05/13/2014	5	5		1405097-01			NA	
4E13320-DUP2		QC	05/13/2014	5	5		1404168-01			NA	
4E13320-MS1		QC	05/13/2014	22.5	25	14D0880	1405097-01	2500		NA	
4E13320-MS2		QC	05/13/2014	22.5	25	14D0880	1404168-01	2500		NA	
4E13320-MSD1		QC	05/13/2014	22.5	25	14D0880	1405097-01	2500		NA	
4E13320-MSD2		QC	05/13/2014	22.5	25	14D0880	1404168-01	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4E13321

Empirical Laboratories, LLC

Printed: 5/22/2014 9:53:41AM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404207-01	I	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Br, Cl, SO4
1404207-03	I	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Br, Cl, SO4
1404207-05	I	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Br, Cl, SO4
1404207-07	I	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Br, Cl, SO4
1404207-09	I	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Br, Cl, SO4
1404207-11	I	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	Added for BatchQC in: 4E13321
1404207-11	I	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Br, Cl, SO4
1404207-13	I	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Br, Cl, SO4
1404207-15	I	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Br, Cl, SO4
1404207-17	I	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Br, Cl, SO4
1405007-18RE1	G	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	RR for Cl
1405007-23RE1	S	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	RR for Cl
1405007-23RE1	S	WC_ANIONS_300.0 (Regular)	05/13/2014	5	5					NA	Added for BatchQC in: 4E13321
1405013-01	A	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	see versions
1405013-03	A	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	see versions
1405013-05	A	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	see versions
1405013-07	A	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	see versions
1405013-09	A	WC_ANIONS_9056A (Regular)	05/13/2014	5	5					NA	see versions
4E13321-BLK1		QC	05/13/2014	5	5					NA	
4E13321-BS1		QC	05/13/2014	5	5	14E0088		5000		NA	
4E13321-DUP1		QC	05/13/2014	5	5		1404207-11			NA	
4E13321-DUP2		QC	05/13/2014	5	5		1405007-23RE1			NA	

PREPARATION BENCH SHEET

4E13321

Empirical Laboratories, LLC

Printed: 5/22/2014 9:53:41AM

Instrument:

Matrix: Water **Prepared using: WC - WC_PREP_ANIONS_W** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E13321-MS1		QC	05/13/2014	22.5	25	14D0880	1404207-11	2500		NA	
4E13321-MS2		QC	05/13/2014	22.5	25	14D0880	1405007-23RE1	2500		NA	
4E13321-MSD1		QC	05/13/2014	22.5	25	14D0880	1404207-11	2500		NA	
4E13321-MSD2		QC	05/13/2014	22.5	25	14D0880	1405007-23RE1	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4E14026

Empirical Laboratories, LLC

Printed: 5/20/2014 12:19:44PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1405007-16	G	WC_ALKALINITY_2320B	05/14/2014	25	25					NA	
1405007-18	G	WC_ALKALINITY_2320B	05/14/2014	25	25					NA	
1405007-21	G	WC_ALKALINITY_2320B	05/14/2014	25	25					NA	
1405007-23	S	WC_ALKALINITY_2320B	05/14/2014	25	25					NA	MS/MSD;
1405007-25	G	WC_ALKALINITY_2320B	05/14/2014	25	25					NA	
1405007-27	G	WC_ALKALINITY_2320B	05/15/2014	25	25					NA	
1405013-01	A	WC_ALKALINITY_2320B	05/15/2014	25	25					NA	
1405013-03	A	WC_ALKALINITY_2320B	05/15/2014	25	25					NA	
1405015-01	I	WC_ALKALINITY_2320B	05/15/2014	25	25					NA	carb/bicarb
1405015-03	I	WC_ALKALINITY_2320B	05/15/2014	25	25					NA	carb/bicarb
1405015-05	I	WC_ALKALINITY_2320B	05/15/2014	25	25					NA	carb/bicarb
1405037-05	F	WC_ALKALINITY_2320B	05/15/2014	25	25					NA	
4E14026-BLK1		QC	05/14/2014	25	25					NA	
4E14026-BS1		QC	05/14/2014	5	25	13L0375		5000		NA	
4E14026-MS1		QC	05/14/2014	22.5	25	13L0375	1405007-23	2500		NA	
4E14026-MSD1		QC	05/14/2014	22.5	25	13L0375	1405007-23	2500		NA	

Reagents Used:

Standard	Description

PREPARATION BENCH SHEET

4E15013

Empirical Laboratories, LLC **Printed: 5/23/2014 3:49:59PM**

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404149-01	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404149-03	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404149-05	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404168-01	L	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	MS/MSD
1404168-03	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404168-03RE1	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	Added 5/15/2014 by RGB
1404203-01	E	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404205-01	C	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404205-01RE1	C	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	Added 5/15/2014 by RGB
1404207-01	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-03	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-05	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-07	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-09	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-11	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-13	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-15	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1404207-17	J	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1405054-01	A	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1405054-03	A	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	
1405054-03RE1	A	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	Added 5/15/2014 by RGB
1405057-01	A	WC_NO3NO2_N_353.2	05/15/2014	4	20					NA	

PREPARATION BENCH SHEET

4E15013

Empirical Laboratories, LLC

Printed: 5/23/2014 3:49:59PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E15013-BLK1		QC	05/15/2014	20	20					NA	
4E15013-BS1		QC	05/15/2014	2	20	14A0409		2000		NA	
4E15013-MS1		QC	05/15/2014	4	20	14B0358	1404168-01	500		NA	
4E15013-MSD1		QC	05/15/2014	4	20	14B0358	1404168-01	500		NA	

Reagents Used:

Standard	Description
14D0740	NO2/NO3 Sulfanilimide Color Reagent
14D0864	NO2/NO3 Buffer
14E0119	NO3/NO2 Carrier (Acid DI)

PREPARATION BENCH SHEET

4E16007

Empirical Laboratories, LLC

Printed: 5/22/2014 9:56:25AM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1405007-16	H	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405007-18	H	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405007-21	H	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405007-23	X	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	MS/MSD
1405007-23	X	WC_TOC_DISS_9060A_QUAD	05/16/2014	40	40					NA	Added for BatchQC in: 4E16007
1405007-25	H	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405007-27	H	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405013-01	C	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405013-02	A	WC_TOC_DISS_9060A_QUAD	05/16/2014	40	40					NA	Filter in lab using unpreserved container from -01. Do not filter preserved container labeled as -02
1405013-03	C	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405013-04	A	WC_TOC_DISS_9060A_QUAD	05/16/2014	40	40					NA	
1405013-05	C	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405013-06	A	WC_TOC_DISS_9060A_QUAD	05/16/2014	40	40					NA	
1405013-07	C	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405013-08	A	WC_TOC_DISS_9060A_QUAD	05/16/2014	40	40					NA	
1405013-09	C	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405013-10	A	WC_TOC_DISS_9060A_QUAD	05/16/2014	40	40					NA	
1405014-02	H	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405014-03	H	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405014-04	H	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
1405014-05	I	WC_TOC_9060A_QUAD	05/16/2014	40	40					NA	
4E16007-BLK1		QC	05/16/2014	40	40					NA	

PREPARATION BENCH SHEET

4E16007

Empirical Laboratories, LLC

Printed: 5/22/2014 9:56:25AM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
4E16007-BS1		QC	05/16/2014	40	40	14E0197		40000		NA	
4E16007-MS1		QC	05/16/2014	40	40	13F0271	1405007-23	600		NA	
4E16007-MSD1		QC	05/16/2014	40	40	13F0271	1405007-23	600		NA	

Reagents Used:

Standard	Description
14E0251	TOC PERSULFATE REAGENT
14E0375	TOC Phosphoric Acid Reagent

PREPARATION BENCH SHEET

4E16013

Empirical Laboratories, LLC

Printed: 5/23/2014 3:50:39PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1405013-01	C	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405013-03	C	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405013-05	C	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405013-05RE1	C	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	Added 5/16/2014 by RGB
1405013-07	C	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405013-07RE1	C	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	Added 5/16/2014 by RGB
1405013-09	C	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405013-09RE1	C	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	Added 5/16/2014 by RGB
1405015-01	J	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405015-03	J	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405015-05	J	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405015-07	J	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405015-09	J	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405015-11	AD	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	MS/MSD
1405015-13	J	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405015-15	J	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405045-01	J	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405045-03	J	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405045-05	J	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405114-01	E	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405114-03	E	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
1405114-05	E	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	

PREPARATION BENCH SHEET

4E16013

Empirical Laboratories, LLC

Printed: 5/23/2014 3:50:39PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1405130-01	A	WC_NO3NO2_N_353.2	05/16/2014	4	20					NA	
4E16013-BLK1		QC	05/16/2014	20	20					NA	
4E16013-BS1		QC	05/16/2014	2	20	14A0409		2000		NA	
4E16013-MS1		QC	05/16/2014	4	20	14B0358	1405015-11	500		NA	
4E16013-MSD1		QC	05/16/2014	4	20	14B0358	1405015-11	500		NA	

Reagents Used:

Standard	Description
14D0740	NO2/NO3 Sulfanilimide Color Reagent
14D0864	NO2/NO3 Buffer
14E0119	NO3/NO2 Carrier (Acid DI)

PREPARATION BENCH SHEET

4E20006

Empirical Laboratories, LLC

Printed: 5/22/2014 9:57:22AM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1404205-01	C	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1404207-01	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1404207-03	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1404207-05	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1404207-07	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1404207-11	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1404207-13	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405007-16	H	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405007-18	H	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405007-21	H	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405007-23	X	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	MS/MSD;
1405007-25	H	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405007-27	H	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405013-01	C	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
4E20006-BLK1		QC	05/20/2014	100	100					NA	
4E20006-BS1		QC	05/20/2014	100	100	14E0466		100000		NA	
4E20006-MS1		QC	05/20/2014	100	100	14A0483	1405007-23	500		NA	
4E20006-MS2		QC	05/20/2014	100	100	14A0483	1405007-23	500		NA	
4E20006-MSD1		QC	05/20/2014	100	100	14A0483	1405007-23	500		NA	
4E20006-MSD2		QC	05/20/2014	100	100	14A0483	1405007-23	500		NA	

PREPARATION BENCH SHEET

4E20006

Empirical Laboratories, LLC

Printed: 5/22/2014 9:57:22AM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description
13J0555	10 N NaOH
13K0494	1N NaOH Solution
13L0451	10.00 pH Buffer
14B0165	pH 7.0 Buffer Yellow
14D0092	Borate Buffer
14D0365	NH3 Sodium Nitroprusside Reagent
14E0040	0.04N H2SO4 FOR NH3 simpledist. distillation
14E0362	0.04N H2SO4 FOR NH3 simpledist. distillation
14E0475	1N H2SO4
14E0499	NH3 Sodium Hypochlorite Reagent
14E0500	NH3 Sodium Phenolate Reagent
14E0503	NH3 Buffer

PREPARATION BENCH SHEET

4E20012

Empirical Laboratories, LLC

Printed: 5/23/2014 3:51:42PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments
1405013-03	C	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405013-05	C	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405013-07	C	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405013-09	C	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405015-01	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405015-03	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405015-05	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405015-07	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405015-09	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405015-11	AD	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	MS/MSD
1405015-13	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
1405015-15	J	WC_AMMONIA_PHENATE_45	05/20/2014	100	100					NA	
4E20012-BLK1		QC	05/20/2014	100	100					NA	
4E20012-BS1		QC	05/20/2014	100	100	14E0466		100000		NA	
4E20012-MS1		QC	05/20/2014	100	100	14A0483	1405015-11	500		NA	
4E20012-MS2		QC	05/20/2014	100	100	14A0483	1405015-11	500		NA	
4E20012-MSD1		QC	05/20/2014	100	100	14A0483	1405015-11	500		NA	
4E20012-MSD2		QC	05/20/2014	100	100	14A0483	1405015-11	500		NA	

PREPARATION BENCH SHEET

4E20012

Empirical Laboratories, LLC

Printed: 5/23/2014 3:51:42PM

Instrument:

Matrix: Water **Prepared using: WC - pNone** **(No Surrogate)**

Lab Number	Cont ID	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	PH	Extraction Comments

Reagents Used:

Standard	Description
13J0555	10 N NaOH
13K0494	1N NaOH Solution
13L0451	10.00 pH Buffer
14B0165	pH 7.0 Buffer Yellow
14D0092	Borate Buffer
14D0365	NH3 Sodium Nitroprusside Reagent
14E0362	0.04N H2SO4 FOR NH3 simpledist. distillation
14E0475	1N H2SO4
14E0499	NH3 Sodium Hypochlorite Reagent
14E0500	NH3 Sodium Phenolate Reagent
14E0503	NH3 Buffer

APPENDIX C

Data Validation Reports

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Kirtland Air Force Base
Groundwater Monitoring
Data Review Summary

Sample Delivery Group: KirtlandECOS_008 (1404017, 1404041)
Sampling Date: March 31-April 3, 2014
Data Reviewer: Katie Abbott Date Completed: September 18, 2014
Peer Reviewer: Sheri Fling Date Completed: September 22, 2014

The table below summarizes the data package and sample identifications discussed in this data review.

Field Identification	Sample Type	Lab Identification	Matrix	Analyses				
				VOCs	Dissolved Metals	Total Mercury	Inorganics	Radiological
1404017								
KAFB0118-GW-LF001-30001-REG Data Sheet ID: LF001-30001*	SA	1404017-01	Water	X	---	X	X^m	X
KAFB0118-GW-LF001-30001-REG Data Sheet ID: LF001-30001*	SA	1404017-02	Water	---	X	---	---	---
KAFB0119-GW-LF001-30002-REG Data Sheet ID: LF001-30002*	SA	1404017-03	Water	X	---	X	X	X
KAFB0119-GW-LF001-30002-REG Data Sheet ID: LF001-30002*	SA	1404017-04	Water	---	X	---	---	---
KAFB0120-GW-LF001-30003-REG Data Sheet ID: LF001-30003*	SA	1404017-05	Water	X	---	X	X	X
KAFB0120-GW-LF001-30003-REG Data Sheet ID: LF001-30003*	SA	1404017-06	Water	---	X	---	---	---
KAFB0121-GW-LF001-30004-REG Data Sheet ID: LF001-30004*	SA	1404017-07	Water	X	---	X	X	X
KAFB0121-GW-LF001-30004-REG Data Sheet ID: LF001-30004*	SA	1404017-08	Water	---	X	---	---	---
FIELDQC-BW-LF001-80001-ER Data Sheet ID: LF001-80001*	EB	1404017-09	Water	X	---	X	---	---
FIELDQC-BW-LF001-80001-ER Data Sheet ID: LF001-80001*	EB	1404017-10	Water	---	X	---	---	---
FIELDQC-BW-LF001-80003-TB Data Sheet ID: LF001-80003*	TB	1404017-11	Water	X	---	---	---	---
1404041								
KAFB0213-GW-LF002-30001-REG Data Sheet ID: LF002-30001*	SA	1404041-01	Water	X	---	X	X^m	X
KAFB0213-GW-LF002-30001-REG Data Sheet ID: LF002-30001*	SA	1404041-02	Water	---	X	---	---	---
KAFB0213-GW-LF002-30002-FD Data Sheet ID: LF002-30002*	FD	1404041-03	Water	X	---	X	X	X
KAFB0213-GW-LF002-30002-FD Data Sheet ID: LF002-30002*	FD	1404041-04	Water	---	X	---	---	---
KAFB0220-GW-LF002-30004-REG Data Sheet ID: LF002-30004*	SA	1404041-05	Water	X	---	X	X	X
KAFB0220-GW-LF002-30004-REG Data Sheet ID: LF002-30004*	SA	1404041-06	Water	---	X	---	---	---

Field Identification	Sample Type	Lab Identification	Matrix	Analyses				
				VOCs	Dissolved Metals	Total Mercury	Inorganics	Radiological
KAFB0221-GW-LF002-30005-REG Data Sheet ID: LF002-30005*	SA	1404041-07	Water	X	---	X	X^m	X
KAFB0221-GW-LF002-30005-REG Data Sheet ID: LF002-30005*	SA	1404041-08	Water	---	X	---	---	---
FIELDQC-BW-LF002-80001-ER Data Sheet ID: LF002-80001*	EB	1404041-09	Water	X	---	X	---	---
FIELDQC-BW-LF002-80001-ER Data Sheet ID: LF002-80001*	EB	1404041-10	Water	---	X	---	---	---
FIELDQC-BW-LF002-80003-TB Data Sheet ID: LF002-80003*	TB	1404041-11	Water	X	---	---	---	---

Sample Type: EB – Equipment Blank FD – Field Duplicate SA – Sample
TB – Trip Blank
X^m-Matrix spike/ matrix spike duplicate

Analyses: VOCs – Volatile Organic Compounds (8260B)
Dissolved Metals – Arsenic, Barium, Cadmium, Chromium, Iron, Lead, Manganese, Selenium, Silver (6010C)
Total Mercury (7470A)
Inorganics – Nitrite-Nitrite as N (353.2), Anions: Chloride, Sulfate (9056A), TDS (2540C)
Radiological – Gross Alpha/Beta (9310), Radium-228 (9320), Radium-226 (9315)

*Laboratory shortened sample IDs due to LIMS limitations.

This report contains the final results of the data validation conducted for water samples collected in March and April 2014 for Kirtland Air Force Base. The sample results were presented in two data packages. The data review was conducted in accordance with the Kirtland Air Force Base Albuquerque, New Mexico Quality Assurance Project Plan for Long-Term Groundwater Monitoring at Multiple Sites: Solid Waste Management Unit (SWMU) 6-1, Landfill 1; SWMU 6-1, Landfill 2; SWMU 6-4, Landfills 4, 5, and 6; ST-105 (CG-C564); UST-58 (PL567); WP026; and ST70 (Cape, December 2013), the requirements of the Department of Defense (DoD) Quality Systems Manual (QSM) Version 4.2 (June 2003), and evaluation of laboratory criteria, as applicable.

General Overall Assessment:

_____ Data are usable without qualification.
__X__ Data are usable with qualification (noted below).
_____ Some or all data are unusable for any purpose (detailed below).

Case Narrative Comments: Any case narrative comments concerning data qualification were addressed in the table below.

Review Parameter	Criteria Met?	Comment
Chain of Custody & Sample Receipt	No	The samples were received by Empirical Laboratories in good condition and were consistent with the accompanying chain of custody (COC). The cooler temperatures upon receipt were within the recommended ≤6 degrees Celsius (°C) temperature range. The sampler incorrectly referenced Method 300.0 on the COC. As the laboratory correctly analyzed the samples by Method 9056A, further action was not necessary.

Review Parameter	Criteria Met?	Comment
		In addition to the analytes requested on the COC, and to be consistent with the project, the laboratory also analyzed for dissolved arsenic, dissolved barium, dissolved cadmium, dissolved chromium, dissolved lead, dissolved selenium, dissolved silver, and fluoride. Samples submitted for radiological parameters were subcontracted to ALS Laboratories. The samples were received in good condition and were consistent with the accompanying COC.
Holding Times	No	Samples KAFB0118-GW-LF001-30001-REG, KAFB0119-GW-LF001-30002-REG, KAFB0120-GW-LF001-30003-REG, and KAFB0121-GW-LF001-30004-REG were analyzed 2 days outside the method required 7 day holding time for total dissolved solids (TDS). The samples were listed on the COC, but the analysis was missed by the laboratory during the login process. The associated TDS results were qualified as estimated (J HT-I).
Laboratory Blanks • Method Blank • Continuing Calibration Blank	No	With the exception listed in Table 1, target analytes were not detected within the method or continuing calibration blanks.
Matrix Quality Control • Matrix Spike/ Matrix Spike Duplicate KAFB0118-GW-LF001-30001-REG (Chloride, Sulfate) KAFB0213-GW-LF002-30001-REG (Nitrate-Nitrite as N) KAFB0221-GW-LF002-30005-REG (Chloride, Fluoride, Sulfate) • Method Duplicate KAFB0118-GW-LF001-30001-REG (Chloride, Sulfate) KAFB0121-GW-LF001-30004-REG (Gross Alpha/Beta) KAFB0220-GW-LF002-30004-REG (Radium-226) KAFB0221-GW-LF002-30005-REG (Chloride, Fluoride, Sulfate, Gross Alpha/Beta)	Yes	**Matrix Spike/ Matrix Spike Duplicate (MS/MSD)** The MS/MSD recoveries and relative percent differences (RPDs) met quality control criteria. As an MS/MSD was not submitted for volatile organic compounds (VOCs), dissolved metals, total mercury, and radium-228, there is no measure of accuracy or precision with respect to the sample matrix. As an MS/MSD was not submitted for or gross alpha/beta and radium-226, there is no measure of accuracy with respect to the sample matrix; however, an acceptable level of precision with respect to the site-specific sample matrix can be obtained from the acceptable method duplicate results. **Method Duplicate** **Non-Radiological Parameters** The comparison between results of the method duplicate pair met the criteria listed below. Data qualification was not required. • When both the sample and duplicate values are >5x the limit of quantitation (LOQ), acceptable sampling and analytical precision is indicated by an RPD between the results of ≤30% for waters (≤50% for soils). • Where the result for one or both analytes of the method duplicate pair is ≤5xLOQ, satisfactory precision is indicated if the absolute difference between the field duplicate results is ±2xLOQ for waters (±3xLOQ for soils). **Radiological Parameters** The agreement between parent sample results and the method duplicate sample results was evaluated. The duplicate error ratios (DERs) met the laboratory limits. The DER was calculated using the total propagated uncertainty (TPU).
Metals Only • Post Digestion Spike None • Serial Dilution None	N/A	**Post Digestion Spike (Metals Only)** A post digestion spike was not reported in association with the sample in this data package.

Review Parameter	Criteria Met?	Comment
		Serial Dilution (Metals Only) A serial dilution was not reported in association with the sample in this data package.
Laboratory Performance • Laboratory Control Sample	No	With the exception listed in Table 2, the laboratory control sample (LCS) and/or laboratory control sample duplicate (LCSD) recoveries and RPDs/DERs met quality control criteria.
Method Quality Control • Surrogates (VOCs Only) • Implied Detection Limits (Radiological Parameters Only) • Sample Specific Chemical Recovery (Chemical Yield) (Radiological Parameters Only)	Yes	**Surrogates (VOCs Only)** All of the surrogate recoveries were within the laboratory specified acceptance criteria. **Implied Detection Limits (Radiological Parameters Only)** No values for radionuclides were reported as detected with associated TPUs greater than the reported results. **Sample Specific Chemical Recovery (Chemical Yield) (Radiological Parameters Only)** All of the sample specific chemical recoveries were within the laboratory specified acceptance criteria.
Field Quality Control • Trip Blank FIELDQC-BW-WP026-80004-TB FIELDQC-BW-WP026-80005-TB • Field Duplicate KAFB0213-GW-LF002-30001-REG/ KAFB0213-GW-LF002-30002-FD • Field Blank None • Equipment Blank FIELDQC-BW-LF001-80001-ER/ FIELDQC-BW-LF002-80001-ER	No	**Trip Blank** With the exceptions listed in Table 3, target analytes were not detected in the trip blanks. **Field Duplicate** **Non-Radiological Parameters** The comparison between results of the field duplicate pair met the criteria listed below. Data qualification was not required. • When both the sample and duplicate values are >5x the LOQ acceptable sampling and analytical precision is indicated by an RPD between the results of ≤30% for waters (≤50% for soils). • Where the result for one or both analytes of the field duplicate pair is ≤5xLOQ, satisfactory precision is indicated if the absolute difference between the field duplicate results is ±2xLOQ for waters (±3xLOQ for soils). **Radiological Parameters** The agreement between parent sample results and the field duplicate sample results was evaluated. The DERs met the criterion of ≤2. The DER was calculated using the TPU. **Field Blank** A field blank was not submitted for this event. **Equipment Blank** With the exceptions listed in Table 4, target analytes were not detected in the equipment blanks. Sample FIELDQC-BW-LF001-80001-ER was submitted as an equipment blank for VOCs, dissolved metals and total mercury; however, as the equipment blank sample was not collected on the same day as the samples, the detections were not evaluated against the samples.

Review Parameter	Criteria Met?	Comment
		Sample FIELDQC-BW-LF002-80001-ER was evaluated against the samples reported in data package 1404041 and collected on the sample day as the equipment blank.
LOQs/MDCs met?	No	Trace level detects, reported between the DL and LOQ, have been qualified as estimated (J SQL-I). **1404017** Sample FIELDQC-BW-LF001-80001-ER was analyzed at a 2x dilution for VOCs due to the sampling foaming during screening. The associated detection limits (DLs) and LOQs were raised. As the samples were not collected on the same day as the equipment blank, and the equipment blank was not evaluated, this is not considered to affect the usability of the site samples. **L140414** Sample FIELDQC-BW-LF002-80001-ER was analyzed at a 2x dilution for VOCs due to the sampling foaming during screening. The associated DLs and LOQs were raised. As VOCs were reported or qualified as non-detect, data qualification was not issued to the site samples.
Other Parameters	Yes	**VOCs** The laboratory noted that the continuing calibration verification associated with samples KAFB0118-GW-LF001-30001-REG, KAFB0119-GW-LF001-30002-REG, KAFB0120-GW-LF001-30003-REG, KAFB0121-GW-LF001-30004-REG, FIELDQC-BW-LF001-80001-ER, FIELDQC-BW-LF001-80003-TB, KAFB0213-GW-LF002-30001-REG, KAFB0220-GW-LF002-30004-REG, KAFB0221-GW-LF002-30005-REG, FIELDQC-BW-LF002-80001-ER, and FIELDQC-BW-LF002-80003-TB exceeded criteria of ±20% for acetone at +36.7% . As the potential bias was considered to be high, and the associated acetone results were reported as non-detect, further action was not necessary.
Package Completeness	Yes	The results are usable as qualified for the project objective. The data are 100% complete.

> - Greater Than
≤ - Less Than or Equal to
°C – Degrees Celsius
% - Percent
± - Plus or Minus
COC – Chain of Custody
DERs – Duplicate Error Rations
DL – Detection Limit
HT – Holding Time
I – Indeterminate Bias
J - Estimated
LCS – Laboratory Control Sample
LCSD – Laboratory Control Sample Duplicate
LOQ – Limit of Quantitation
MDC – Minimum Detectable Concentration
MS/MSD – Matrix Spike/ Matrix Spike Duplicate
N/A – Not Applicable
RPD – Relative Percent Difference
SQL – Sample Quantitation Limit
TDS – Total Dissolved Solids
TPU – Total Propagated Uncertainty
VOCs – Volatile Organic Compounds

Table 1: Blank Outliers and Resultant Data Qualification

Associated Samples	Analyte	Concentration	Qualification
VOCs			
4D10015-BLK1 KAFB0118-GW-LF001-30001-REG KAFB0119-GW-LF001-30002-REG KAFB0120-GW-LF001-30003-REG KAFB0121-GW-LF001-30004-REG FIELDQC-BW-LF001-80001-ER	Hexachlorobutadiene	0.250 µg/L	None. The associated results were reported as non-detect.

Associated Samples	Analyte	Concentration	Qualification
FIELDQC-BW-LF001-80003-TB KAFB0213-GW-LF002-30001-REG KAFB0220-GW-LF002-30004-REG KAFB0221-GW-LF002-30005-REG FIELDQC-BW-LF002-80001-ER FIELDQC-BW-LF002-80003-TB			
Inorganics			
4D09812-CCB2 KAFB0213-GW-LF002-30001-REG KAFB0213-GW-LF002-30002-FD KAFB0220-GW-LF002-30004-REG KAFB0221-GW-LF002-30005-REG	Chloride	0.176 mg/L	None. The associated results were reported at concentrations >5x the blank contamination.
4D11401-CCB4 KAFB0213-GW-LF002-30001-REG KAFB0213-GW-LF002-30002-FD KAFB0220-GW-LF002-30004-REG KAFB0221-GW-LF002-30005-REG	Fluoride	0.0430 mg/L	

µg/L – Micrograms per Liter > - Greater Than mg/L – Milligrams per Liter
VOCs – Volatile Organic Compounds

Table 2: LCS/LCSD Recovery Outliers and Resultant Data Qualification

Associated Samples	Analyte	%R (Limits)	RPD (Limits)	Qualification
1311203				
VOCs				
LCS 4D070717 KAFB0213-GW-LF002-30002-FD	Acetone	**153** (40-140)	NA	As the potential bias was considered to be high and the associated sample results were reported as non-detect, data qualification was not considered necessary.

%R – Percent Recoveries LCS/LCSD – Laboratory Control Sample/Laboratory Control Sample Duplicate
RPD – Relative Percent Difference
VOCs – Volatile Organic Compounds
Bold indicates a recovery outside of acceptance limits.

Table 3: Trip Blank Outliers and Resultant Data Qualification

Associated Samples	Analyte	Concentration (µg/L)	Qualification
FIELDQC-BW-LF001-80003-TB (1404017)	Acetone	3.86	The associated results for samples FIELDQC-BW-LF001-80001-ER and FIELDQC-BW-LF002-80001-ER were reported at concentrations <10x the concentration of the blank contamination and were qualified as non-detect (U TB-I).
FIELDQC-BW-LF002-80003-TB (1404041)	Acetone	6.95	

µg/L – Micrograms per Liter I – Indeterminate Bias TB – Trip Blank
U – Non-detect

Table 4: Equipment Blank Outliers and Resultant Data Qualification

Associated Samples	Analyte	Concentration (µg/L)	Qualification
FIELDQC-BW-LF002-80001-ER KAFB0213-GW-LF002-30001-REG	Manganese	1.23	None. The associated manganese results

Associated Samples	Analyte	Concentration (µg/L)	Qualification
KAFB0213-GW-LF002-30002-FD KAFB0220-GW-LF002-30004-REG			were reported as non-detect.

µg/L – Micrograms per Liter

ANALYSIS DATA SHEET

LF001-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-01	File ID:	0401701.D
Sampled:	03/31/14 16:26	Prepared:	04/10/14 14:16	Analyzed:	04/10/14 14:16
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/08/14

ANALYSIS DATA SHEET

LF001-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-01	File ID:	0401701.D
Sampled:	03/31/14 16:26	Prepared:	04/10/14 14:16	Analyzed:	04/10/14 14:16
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.06	96.9	75 - 120	
Dibromofluoromethane	30.00	29.72	99.1	85 - 115	
1,2-Dichloroethane-d4	30.00	28.90	96.3	70 - 120	
Toluene-d8	30.00	31.00	103	85 - 120	

KA 9/18/14

ANALYSIS DATA SHEET

LF001-30002

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404017-03 File ID: 0401703.D

Sampled: 03/31/14 12:23 Prepared: 04/10/14 14:43 Analyzed: 04/10/14 14:43

Solids: Preparation: 5030B Dilution: 1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/18/14

ANALYSIS DATA SHEET

LF001-30002

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-03	File ID:	0401703.D
Sampled:	03/31/14 12:23	Prepared:	04/10/14 14:43	Analyzed:	04/10/14 14:43
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.76	95.9	75 - 120	
Dibromofluoromethane	30.00	30.03	100	85 - 115	
1,2-Dichloroethane-d4	30.00	29.84	99.5	70 - 120	
Toluene-d8	30.00	31.31	104	85 - 120	

KA 9/8/14

ANALYSIS DATA SHEET

LF001-30003

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 1404017-05
File ID: 0401705.D
Sampled: 03/31/14 16:50
Prepared: 04/10/14 15:11
Analyzed: 04/10/14 15:11
Solids:
Preparation: 5030B
Dilution: 1
Batch: 4D10015
Sequence: 4D10104
Calibration: 4069001
Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

RA 9/18/14

ANALYSIS DATA SHEET

LF001-30003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-05	File ID:	0401705.D
Sampled:	03/31/14 16:50	Prepared:	04/10/14 15:11	Analyzed:	04/10/14 15:11
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.04	93.5	75 - 120	
Dibromofluoromethane	30.00	29.77	99.2	85 - 115	
1,2-Dichloroethane-d4	30.00	28.98	96.6	70 - 120	
Toluene-d8	30.00	29.90	99.7	85 - 120	

KA 9/18/14

ANALYSIS DATA SHEET

LF001-30004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-07	File ID:	0401707.D
Sampled:	03/31/14 12:36	Prepared:	04/10/14 15:39	Analyzed:	04/10/14 15:39
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/18/14

ANALYSIS DATA SHEET

LF001-30004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-07	File ID:	0401707.D
Sampled:	03/31/14 12:36	Prepared:	04/10/14 15:39	Analyzed:	04/10/14 15:39
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene J SQL-I	**0.317**	0.250	0.500	1.00	J
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.54	95.1	75 - 120	
Dibromofluoromethane	30.00	29.69	99.0	85 - 115	
1,2-Dichloroethane-d4	30.00	29.87	99.6	70 - 120	
Toluene-d8	30.00	30.53	102	85 - 120	

ANALYSIS DATA SHEET

LF001-80001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-09	File ID:	0401709.D
Sampled:	04/01/14 07:45	Prepared:	04/10/14 16:07	Analyzed:	04/10/14 16:07
Solids:		Preparation:	5030B	Dilution:	2

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone U TB-I	10.0 ~~5.06~~	5.06 ~~5.00~~	10.0	20.0	XJD
71-43-2	Benzene		0.500	1.00	2.00	U
108-86-1	Bromobenzene		0.500	1.00	2.00	U
74-97-5	Bromochloromethane		0.500	1.00	2.00	U
75-27-4	Bromodichloromethane		0.500	1.00	2.00	U
75-25-2	Bromoform		0.500	1.00	2.00	U
74-83-9	Bromomethane		1.00	2.00	4.00	U
104-51-8	n-Butylbenzene		0.500	1.00	2.00	U
78-93-3	2-Butanone		5.00	10.0	20.0	U
135-98-8	sec-Butylbenzene		0.500	1.00	2.00	U
98-06-6	tert-Butylbenzene		0.500	1.00	2.00	U
75-15-0	Carbon disulfide		0.500	1.00	2.00	U
56-23-5	Carbon tetrachloride		0.500	1.00	2.00	U
108-90-7	Chlorobenzene		0.500	1.00	2.00	U
75-00-3	Chloroethane		1.00	2.00	4.00	U
67-66-3	Chloroform		0.500	1.00	2.00	U
74-87-3	Chloromethane		0.500	1.00	2.00	U
95-49-8	2-Chlorotoluene		0.500	1.00	2.00	U
106-43-4	4-Chlorotoluene		0.500	1.00	2.00	U
124-48-1	Dibromochloromethane		0.500	1.00	2.00	U
96-12-8	1,2-Dibromo-3-chloropropane		1.00	2.00	4.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.500	1.00	2.00	U
74-95-3	Dibromomethane		0.500	1.00	2.00	U
95-50-1	1,2-Dichlorobenzene		0.500	1.00	2.00	U
541-73-1	1,3-Dichlorobenzene		0.500	1.00	2.00	U
106-46-7	1,4-Dichlorobenzene		0.500	1.00	2.00	U
75-71-8	Dichlorodifluoromethane		1.00	2.00	4.00	U
75-34-3	1,1-Dichloroethane		0.500	1.00	2.00	U
107-06-2	1,2-Dichloroethane		0.500	1.00	2.00	U
75-35-4	1,1-Dichloroethene		0.500	1.00	2.00	U
156-59-2	cis-1,2-Dichloroethene		0.500	1.00	2.00	U
156-60-5	trans-1,2-Dichloroethene		0.500	1.00	2.00	U
540-59-0	1,2-Dichloroethene (total)		1.00	2.00	4.00	U
78-87-5	1,2-Dichloropropane		0.500	1.00	2.00	U
142-28-9	1,3-Dichloropropane		0.500	1.00	2.00	U
594-20-7	2,2-Dichloropropane		0.500	1.00	2.00	U
563-58-6	1,1-Dichloropropene		0.500	1.00	2.00	U
10061-01-5	cis-1,3-Dichloropropene		0.500	1.00	2.00	U
10061-02-6	trans-1,3-Dichloropropene		0.500	1.00	2.00	U
542-75-6	1,3-Dichloropropene (total)		1.00	2.00	4.00	U

KA 9/18/14

ANALYSIS DATA SHEET

LF001-80001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-09	File ID:	0401709.D
Sampled:	04/01/14 07:45	Prepared:	04/10/14 16:07	Analyzed:	04/10/14 16:07
Solids:		Preparation:	5030B	Dilution:	2

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.500	1.00	2.00	U
87-68-3	Hexachlorobutadiene		0.500	1.00	2.00	U
591-78-6	2-Hexanone		2.50	5.00	10.0	U
98-82-8	Isopropylbenzene		0.500	1.00	2.00	U
99-87-6	p-Isopropyltoluene		0.500	1.00	2.00	U
75-09-2	Methylene chloride		1.00	2.00	4.00	U
91-20-3	Naphthalene		0.500	1.00	2.00	U
108-10-1	4-Methyl-2-pentanone		2.50	5.00	10.0	U
1634-04-4	Methyl t-Butyl Ether		0.500	1.00	2.00	U
103-65-1	n-Propylbenzene		0.500	1.00	2.00	U
100-42-5	Styrene		0.500	1.00	2.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.500	1.00	2.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.500	1.00	2.00	U
127-18-4	Tetrachloroethene		0.500	1.00	2.00	U
108-88-3	Toluene		0.500	1.00	2.00	U
87-61-6	1,2,3-Trichlorobenzene		0.500	1.00	2.00	U
120-82-1	1,2,4-Trichlorobenzene		0.500	1.00	2.00	U
79-00-5	1,1,2-Trichloroethane		0.500	1.00	2.00	U
71-55-6	1,1,1-Trichloroethane		0.500	1.00	2.00	U
79-01-6	Trichloroethene		0.500	1.00	2.00	U
75-69-4	Trichlorofluoromethane		1.00	2.00	4.00	U
96-18-4	1,2,3-Trichloropropane		1.00	2.00	4.00	U
108-67-8	1,3,5-Trimethylbenzene		0.500	1.00	2.00	U
95-63-6	1,2,4-Trimethylbenzene		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.500	1.00	2.00	U
108-38-3/106-42-	m,p-Xylene		1.00	2.00	4.00	U
95-47-6	o-Xylene		0.500	1.00	2.00	U
1330-20-7	Xylenes (total)		1.50	3.00	6.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.09	90.3	75 - 120	
Dibromofluoromethane	30.00	29.34	97.8	85 - 115	
1,2-Dichloroethane-d4	30.00	30.36	101	70 - 120	
Toluene-d8	30.00	30.92	103	85 - 120	

KA 9/18/14

ANALYSIS DATA SHEET

LF001-80003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-11	File ID:	0401711.D
Sampled:	03/31/14 08:00	Prepared:	04/10/14 16:35	Analyzed:	04/10/14 16:35
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone J SQL-I	**3.86**	2.50	5.00	10.0	XJ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 4/18/14

ANALYSIS DATA SHEET

LF001-80003

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_008
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 1404017-11
File ID: 0401711.D
Sampled: 03/31/14 08:00
Prepared: 04/10/14 16:35
Analyzed: 04/10/14 16:35
Solids:
Preparation: 5030B
Dilution: 1
Batch: 4D10015
Sequence: 4D10104
Calibration: 4069001
Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.44	94.8	75 - 120	
Dibromofluoromethane	30.00	29.75	99.2	85 - 115	
1.2-Dichloroethane-d4	30.00	27.83	92.8	70 - 120	
Toluene-d8	30.00	30.43	101	85 - 120	

RA 9/18/14

ANALYSIS DATA SHEET

LF002-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-01RE1	File ID:	0404101R.D
Sampled:	04/03/14 10:49	Prepared:	04/10/14 17:30	Analyzed:	04/10/14 17:30
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-01RE1	File ID:	0404101R.D
Sampled:	04/03/14 10:49	Prepared:	04/10/14 17:30	Analyzed:	04/10/14 17:30
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.37	94.6	75 - 120	
Dibromofluoromethane	30.00	29.42	98.1	85 - 115	
1.2-Dichloroethane-d4	30.00	30.81	103	70 - 120	
Toluene-d8	30.00	31.15	104	85 - 120	

ANALYSIS DATA SHEET

LF002-30002

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-03	File ID:	0404103.D
Sampled:	04/03/14 10:49	Prepared:	04/07/14 13:06	Analyzed:	04/07/14 13:06
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D07017 Sequence: 4D09805 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA-9/18/14

ANALYSIS DATA SHEET

LF002-30002

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-03	File ID:	0404103.D
Sampled:	04/03/14 10:49	Prepared:	04/07/14 13:06	Analyzed:	04/07/14 13:06
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D07017 Sequence: 4D09805 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.28	97.6	75 - 120	
Dibromofluoromethane	30.00	30.38	101	85 - 115	
1,2-Dichloroethane-d4	30.00	31.01	103	70 - 120	
Toluene-d8	30.00	30.04	100	85 - 120	

CA 9/08/14

ANALYSIS DATA SHEET

LF002-30004

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404041-05 File ID: 0404105.D

Sampled: 04/03/14 15:16 Prepared: 04/10/14 17:58 Analyzed: 04/10/14 17:58

Solids: Preparation: 5030B Dilution: 1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-05	File ID:	0404105.D
Sampled:	04/03/14 15:16	Prepared:	04/10/14 17:58	Analyzed:	04/10/14 17:58
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.26	97.5	75 - 120	
Dibromofluoromethane	30.00	28.47	94.9	85 - 115	
1,2-Dichloroethane-d4	30.00	28.69	95.6	70 - 120	
Toluene-d8	30.00	30.82	103	85 - 120	

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30005

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_008

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404041-07 File ID: 0404107.D

Sampled: 04/02/14 14:21 Prepared: 04/10/14 18:26 Analyzed: 04/10/14 18:26

Solids: Preparation: 5030B Dilution: 1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UX
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30005

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-07	File ID:	0404107.D
Sampled:	04/02/14 14:21	Prepared:	04/10/14 18:26	Analyzed:	04/10/14 18:26
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.23	94.1	75 - 120	
Dibromofluoromethane	30.00	30.94	103	85 - 115	
1,2-Dichloroethane-d4	30.00	31.46	105	70 - 120	
Toluene-d8	30.00	30.25	101	85 - 120	

KA 9/18/14

ANALYSIS DATA SHEET

LF002-80001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-09	File ID:	0404109.D
Sampled:	04/03/14 07:50	Prepared:	04/10/14 18:54	Analyzed:	04/10/14 18:54
Solids:		Preparation:	5030B	Dilution:	2

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone U TB-I	~~9.27~~ 10.0	9.27 ~~5.00~~	10.0	20.0	XJD
71-43-2	Benzene		0.500	1.00	2.00	U
108-86-1	Bromobenzene		0.500	1.00	2.00	U
74-97-5	Bromochloromethane		0.500	1.00	2.00	U
75-27-4	Bromodichloromethane		0.500	1.00	2.00	U
75-25-2	Bromoform		0.500	1.00	2.00	U
74-83-9	Bromomethane		1.00	2.00	4.00	U
104-51-8	n-Butylbenzene		0.500	1.00	2.00	U
78-93-3	2-Butanone		5.00	10.0	20.0	U
135-98-8	sec-Butylbenzene		0.500	1.00	2.00	U
98-06-6	tert-Butylbenzene		0.500	1.00	2.00	U
75-15-0	Carbon disulfide		0.500	1.00	2.00	U
56-23-5	Carbon tetrachloride		0.500	1.00	2.00	U
108-90-7	Chlorobenzene		0.500	1.00	2.00	U
75-00-3	Chloroethane		1.00	2.00	4.00	U
67-66-3	Chloroform		0.500	1.00	2.00	U
74-87-3	Chloromethane		0.500	1.00	2.00	U
95-49-8	2-Chlorotoluene		0.500	1.00	2.00	U
106-43-4	4-Chlorotoluene		0.500	1.00	2.00	U
124-48-1	Dibromochloromethane		0.500	1.00	2.00	U
96-12-8	1,2-Dibromo-3-chloropropane		1.00	2.00	4.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.500	1.00	2.00	U
74-95-3	Dibromomethane		0.500	1.00	2.00	U
95-50-1	1,2-Dichlorobenzene		0.500	1.00	2.00	U
541-73-1	1,3-Dichlorobenzene		0.500	1.00	2.00	U
106-46-7	1,4-Dichlorobenzene		0.500	1.00	2.00	U
75-71-8	Dichlorodifluoromethane		1.00	2.00	4.00	U
75-34-3	1,1-Dichloroethane		0.500	1.00	2.00	U
107-06-2	1,2-Dichloroethane		0.500	1.00	2.00	U
75-35-4	1,1-Dichloroethene		0.500	1.00	2.00	U
156-59-2	cis-1,2-Dichloroethene		0.500	1.00	2.00	U
156-60-5	trans-1,2-Dichloroethene		0.500	1.00	2.00	U
540-59-0	1,2-Dichloroethene (total)		1.00	2.00	4.00	U
78-87-5	1,2-Dichloropropane		0.500	1.00	2.00	U
142-28-9	1,3-Dichloropropane		0.500	1.00	2.00	U
594-20-7	2,2-Dichloropropane		0.500	1.00	2.00	U
563-58-6	1,1-Dichloropropene		0.500	1.00	2.00	U
10061-01-5	cis-1,3-Dichloropropene		0.500	1.00	2.00	U
10061-02-6	trans-1,3-Dichloropropene		0.500	1.00	2.00	U
542-75-6	1,3-Dichloropropene (total)		1.00	2.00	4.00	U

KA 9/18/14

ANALYSIS DATA SHEET

LF002-80001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-09	File ID:	0404109.D
Sampled:	04/03/14 07:50	Prepared:	04/10/14 18:54	Analyzed:	04/10/14 18:54
Solids:		Preparation:	5030B	Dilution:	2

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.500	1.00	2.00	U
87-68-3	Hexachlorobutadiene		0.500	1.00	2.00	U
591-78-6	2-Hexanone		2.50	5.00	10.0	U
98-82-8	Isopropylbenzene		0.500	1.00	2.00	U
99-87-6	p-Isopropyltoluene		0.500	1.00	2.00	U
75-09-2	Methylene chloride		1.00	2.00	4.00	U
91-20-3	Naphthalene		0.500	1.00	2.00	U
108-10-1	4-Methyl-2-pentanone		2.50	5.00	10.0	U
1634-04-4	Methyl t-Butyl Ether		0.500	1.00	2.00	U
103-65-1	n-Propylbenzene		0.500	1.00	2.00	U
100-42-5	Styrene		0.500	1.00	2.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.500	1.00	2.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.500	1.00	2.00	U
127-18-4	Tetrachloroethene		0.500	1.00	2.00	U
108-88-3	Toluene		0.500	1.00	2.00	U
87-61-6	1,2,3-Trichlorobenzene		0.500	1.00	2.00	U
120-82-1	1,2,4-Trichlorobenzene		0.500	1.00	2.00	U
79-00-5	1,1,2-Trichloroethane		0.500	1.00	2.00	U
71-55-6	1,1,1-Trichloroethane		0.500	1.00	2.00	U
79-01-6	Trichloroethene		0.500	1.00	2.00	U
75-69-4	Trichlorofluoromethane		1.00	2.00	4.00	U
96-18-4	1,2,3-Trichloropropane		1.00	2.00	4.00	U
108-67-8	1,3,5-Trimethylbenzene		0.500	1.00	2.00	U
95-63-6	1,2,4-Trimethylbenzene		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.500	1.00	2.00	U
108-38-3/106-42-	m,p-Xylene		1.00	2.00	4.00	U
95-47-6	o-Xylene		0.500	1.00	2.00	U
1330-20-7	Xylenes (total)		1.50	3.00	6.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.69	95.6	75 - 120	
Dibromofluoromethane	30.00	29.39	98.0	85 - 115	
1,2-Dichloroethane-d4	30.00	28.45	94.8	70 - 120	
Toluene-d8	30.00	31.01	103	85 - 120	

KA 9/18/14

ANALYSIS DATA SHEET

LF002-80003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-11	File ID:	0404111.D
Sampled:	04/02/14 08:00	Prepared:	04/10/14 19:22	Analyzed:	04/10/14 19:22
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone J SQL-I	**4.26**	2.50	5.00	10.0	XJ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/18/14

ANALYSIS DATA SHEET

LF002-80003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-11	File ID:	0404111.D
Sampled:	04/02/14 08:00	Prepared:	04/10/14 19:22	Analyzed:	04/10/14 19:22
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D10015 Sequence: 4D10104 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.54	91.8	75 - 120	
Dibromofluoromethane	30.00	29.93	99.8	85 - 115	
1,2-Dichloroethane-d4	30.00	28.68	95.6	70 - 120	
Toluene-d8	30.00	30.46	102	85 - 120	

KA 9/10/14

ANALYSIS DATA SHEET

LF001-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-01
Sampled:	03/31/14 16:26	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15006	04/15/14 11:34

KA 9/8/14

ANALYSIS DATA SHEET

LF001-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-02
Sampled:	03/31/14 16:26	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved) J SQL-I	**1.33**	**0.750**	1.50	2.50	1	J	SW6010C	4D10009	04/17/14 15:34
7440-39-3	Barium (dissolved)	**86.1**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 15:34
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 15:34
7440-47-3	Chromium (dissolved) J SQL-I	**2.48**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 15:34
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 15:34
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 15:34
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D10009	04/17/14 15:34
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4D10009	04/17/14 15:34
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 15:34

KA 9/18/14

ANALYSIS DATA SHEET

LF001-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-03
Sampled:	03/31/14 12:23	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15006	04/15/14 11:35

KA 9/18/14

ANALYSIS DATA SHEET

LF001-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-04
Sampled:	03/31/14 12:23	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved) J SQL-I	**0.997**	**0.750**	1.50	2.50	1	J	SW6010C	4D10009	04/17/14 15:38
7440-39-3	Barium (dissolved)	**101**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 15:38
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 15:38
7440-47-3	Chromium (dissolved) J SQL-I	**2.06**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 15:38
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 15:38
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 15:38
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D10009	04/17/14 15:38
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4D10009	04/17/14 15:38
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 15:38

RA 9/15/14

ANALYSIS DATA SHEET

LF001-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-05
Sampled:	03/31/14 16:50	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15006	04/15/14 11:36

KA 9/18/14

ANALYSIS DATA SHEET

LF001-30003

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 03/31/14 16:50

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404017-06
Received: 04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved) J SQL-I	**1.32**	**0.750**	1.50	2.50	1	J	SW6010C	4D10009	04/17/14 15:43
7440-39-3	Barium (dissolved)	**102**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 15:43
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 15:43
7440-47-3	Chromium (dissolved) J SQL-I	**2.19**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 15:43
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 15:43
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 15:43
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D10009	04/17/14 15:43
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4D10009	04/17/14 15:43
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 15:43

CA 9/18/14

ANALYSIS DATA SHEET

LF001-30004

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-07
Sampled:	03/31/14 12:36	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D08006	04/08/14 18:49

KA 9/8/14

ANALYSIS DATA SHEET

LF001-30004

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 03/31/14 12:36

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404017-08
Received: 04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved) J SQL-I	**1.19**	**0.750**	1.50	2.50	1	J	SW6010C	4D10009	04/17/14 16:00
7440-39-3	Barium (dissolved)	**107**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 16:00
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 16:00
7440-47-3	Chromium (dissolved)	**2.64**	**0.500**	1.00	2.50	1		SW6010C	4D10009	04/17/14 16:00
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 16:00
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 16:00
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D10009	04/17/14 16:00
7782-49-2	Selenium (dissolved) J SQL-I	**0.956**	**0.750**	1.25	2.50	1	J	SW6010C	4D10009	04/17/14 16:00
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 16:00

KA 9/18/14

ANALYSIS DATA SHEET

LF001-80001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-09
Sampled:	04/01/14 07:45	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D08006	04/08/14 18:50

KA 9/18/14

ANALYSIS DATA SHEET

LF001-80001

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/01/14 07:45

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404017-10
Received: 04/02/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D10009	04/17/14 16:05
7440-39-3	Barium (dissolved)		1.25	2.50	10.0	1	U	SW6010C	4D10009	04/17/14 16:05
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 16:05
7440-47-3	Chromium (dissolved)	**2.91**	**0.500**	1.00	2.50	1		SW6010C	4D10009	04/17/14 16:05
7439-89-6	Iron (dissolved) J SOL-I	**23.9**	7.50	15.0	25.0	1	J	SW6010C	4D10009	04/17/14 16:05
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 16:05
7439-96-5	Manganese (dissolved)	**3.82**	0.750	1.50	3.75	1		SW6010C	4D10009	04/17/14 16:05
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4D10009	04/17/14 16:05
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 16:05

VA 9/18/14

ANALYSIS DATA SHEET

LF002-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-01
Sampled:	04/03/14 10:49	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 11:57

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30001

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/03/14 10:49

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404041-02
Received: 04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D07013	04/17/14 13:24
7440-39-3	Barium (dissolved)	**56.2**	**1.25**	2.50	10.0	1		SW6010C	4D07013	04/17/14 13:24
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D07013	04/17/14 13:24
7440-47-3	Chromium (dissolved) J SOL-I	**0.732**	**0.500**	1.00	2.50	1	J	SW6010C	4D07013	04/17/14 13:24
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D07013	04/17/14 13:24
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D07013	04/17/14 13:24
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D07013	04/17/14 13:24
7782-49-2	Selenium (dissolved) J SOL-I	**1.76**	**0.750**	1.25	2.50	1	J	SW6010C	4D07013	04/17/14 13:24
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D07013	04/17/14 13:24

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30002

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/03/14 10:49

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404041-03
Received: 04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 11:58

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30002

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/03/14 10:49

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404041-04
Received: 04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D07013	04/17/14 13:29
7440-39-3	Barium (dissolved)	**56.4**	**1.25**	2.50	10.0	1		SW6010C	4D07013	04/17/14 13:29
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D07013	04/17/14 13:29
7440-47-3	Chromium (dissolved) J SQL-I	**0.716**	**0.500**	1.00	2.50	1	J	SW6010C	4D07013	04/17/14 13:29
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D07013	04/17/14 13:29
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D07013	04/17/14 13:29
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D07013	04/17/14 13:29
7782-49-2	Selenium (dissolved) J SQL-I	**1.83**	**0.750**	1.25	2.50	1	J	SW6010C	4D07013	04/17/14 13:29
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D07013	04/17/14 13:29

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30004

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-05
Sampled:	04/03/14 15:16	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 11:58

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30004

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/03/14 15:16

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404041-06
Received: 04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D07013	04/17/14 13:33
7440-39-3	Barium (dissolved)	**45.6**	**1.25**	2.50	10.0	1		SW6010C	4D07013	04/17/14 13:33
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D07013	04/17/14 13:33
7440-47-3	Chromium (dissolved) J SQL-I	**0.818**	**0.500**	1.00	2.50	1	J	SW6010C	4D07013	04/17/14 13:33
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D07013	04/17/14 13:33
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D07013	04/17/14 13:33
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D07013	04/17/14 13:33
7782-49-2	Selenium (dissolved) J SQL-I	**1.70**	**0.750**	1.25	2.50	1	J	SW6010C	4D07013	04/17/14 13:33
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D07013	04/17/14 13:33

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30005

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-07
Sampled:	04/02/14 14:21	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 11:59

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30005

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/02/14 14:21

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404041-08
Received: 04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D07013	04/17/14 13:38
7440-39-3	Barium (dissolved)	**41.5**	**1.25**	2.50	10.0	1		SW6010C	4D07013	04/17/14 13:38
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D07013	04/17/14 13:38
7440-47-3	Chromium (dissolved) J SQL-I	**0.650**	**0.500**	1.00	2.50	1	J	SW6010C	4D07013	04/17/14 13:38
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D07013	04/17/14 13:38
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D07013	04/17/14 13:38
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D07013	04/17/14 13:38
7782-49-2	Selenium (dissolved) J SQL-I	**1.95**	**0.750**	1.25	2.50	1	J	SW6010C	4D07013	04/17/14 13:38
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D07013	04/17/14 13:38

KA 9/18/14

ANALYSIS DATA SHEET

LF002-80001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-10
Sampled:	04/03/14 07:50	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D07013	04/17/14 13:43
7440-39-3	Barium (dissolved)		1.25	2.50	10.0	1	U	SW6010C	4D07013	04/17/14 13:43
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D07013	04/17/14 13:43
7440-47-3	Chromium (dissolved)		0.500	1.00	2.50	1	U	SW6010C	4D07013	04/17/14 13:43
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D07013	04/17/14 13:43
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D07013	04/17/14 13:43
7439-96-5	Manganese (dissolved) J SOL-I	**1.23**	**0.750**	1.50	3.75	1	J	SW6010C	4D07013	04/17/14 13:43
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4D07013	04/17/14 13:43
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D07013	04/17/14 13:43

KA 9/18/14

ANALYSIS DATA SHEET

LF001-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-01
Sampled:	03/31/14 16:26	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids J HT-I	166	20.0	20.0	20.0	1	H1	SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	7.79	0.170	0.330	0.500	1		SW9056A	4D03010	04/03/14 15:18
NA	Nitrate/Nitrite as N		0.250	0.750	1.50	1	U	E353.2	4D14009	04/14/14 14:11
16984-48-8	Fluoride	0.517	0.0330	0.100	0.250	1		SW9056A	4D03010	04/03/14 15:18
14808-79-8	Sulfate as SO4	31.0	0.330	1.00	2.50	1	*	SW9056A	4D03010	04/03/14 15:18

KA 9/18/14

ANALYSIS DATA SHEET

LF001-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-03
Sampled:	03/31/14 12:23	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids J HT-I	**162**	**20.0**	20.0	20.0	1	H1	SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**7.28**	**0.170**	0.330	0.500	1		SW9056A	4D03010	04/03/14 16:28
NA	Nitrate/Nitrite as N		0.250	0.750	1.50	1	U	E353.2	4D14009	04/14/14 14:12
16984-48-8	Fluoride	**0.573**	**0.0330**	0.100	0.250	1		SW9056A	4D03010	04/03/14 16:28
14808-79-8	Sulfate as SO4	**31.3**	**0.330**	1.00	2.50	1		SW9056A	4D03010	04/03/14 16:28

KA 4/18/14

ANALYSIS DATA SHEET

LF001-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404017-05
Sampled:	03/31/14 16:50	Received:	04/02/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids J HT-I	**162**	**20.0**	20.0	20.0	1	H1	SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**7.88**	**0.170**	0.330	0.500	1		SW9056A	4D03010	04/03/14 16:45
NA	Nitrate/Nitrite as N J SQL-I	**0.670**	**0.250**	0.750	1.50	1	J	E353.2	4D14009	04/14/14 14:14
16984-48-8	Fluoride	**0.425**	**0.0330**	0.100	0.250	1		SW9056A	4D03010	04/03/14 16:45
14808-79-8	Sulfate as SO4	**28.0**	**0.330**	1.00	2.50	1		SW9056A	4D03010	04/03/14 16:45

KA 9/18/14

ANALYSIS DATA SHEET

LF001-30004

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 03/31/14 12:36

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404017-07
Received: 04/02/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids J HT-I	**176**	**20.0**	20.0	20.0	1	H1	SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**10.8**	**0.170**	0.330	0.500	1		SW9056A	4D03010	04/03/14 17:03
NA	Nitrate/Nitrite as N J SQL-I	**0.382**	**0.250**	0.750	1.50	1	J	E353.2	4D14009	04/14/14 14:15
16984-48-8	Fluoride	**0.501**	**0.0330**	0.100	0.250	1		SW9056A	4D03010	04/03/14 17:03
14808-79-8	Sulfate as SO4	**35.9**	**0.330**	1.00	2.50	1		SW9056A	4D03010	04/03/14 17:03

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30001

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/03/14 10:49

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404041-01
Received: 04/04/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**333**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.0**	0.170	0.330	0.500	1		SW9056A	4D08013	04/08/14 16:25
NA	Nitrate/Nitrite as N	**4.27**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 13:52
16984-48-8	Fluoride	**0.324**	**0.0330**	0.100	0.250	1		SW9056A	4D22007	04/22/14 23:40
14808-79-8	Sulfate as SO4	**71.4**	**0.330**	1.00	2.50	1		SW9056A	4D08013	04/08/14 16:25

KA 9/08/14

ANALYSIS DATA SHEET

LF002-30002

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/03/14 10:49

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404041-03
Received: 04/04/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**299**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.1**	**0.170**	0.330	0.500	1		SW9056A	4D08013	04/08/14 16:42
NA	Nitrate/Nitrite as N	**4.31**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 13:57
16984-48-8	Fluoride	**0.325**	**0.0330**	0.100	0.250	1		SW9056A	4D22007	04/22/14 23:57
14808-79-8	Sulfate as SO4	**71.9**	**0.330**	1.00	2.50	1		SW9056A	4D08013	04/08/14 16:42

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30004

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/03/14 15:16

SDG: KirtlandECOS_008
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404041-05
Received: 04/04/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**313**	20.0	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.4**	0.170	0.330	0.500	1		SW9056A	4D08013	04/08/14 17:00
NA	Nitrate/Nitrite as N	**4.39**	0.250	0.750	1.50	1		E353.2	4D23024	04/23/14 13:58
16984-48-8	Fluoride	**0.298**	0.0330	0.100	0.250	1		SW9056A	4D22007	04/23/14 00:15
14808-79-8	Sulfate as SO4	**77.1**	0.330	1.00	2.50	1		SW9056A	4D08013	04/08/14 17:00

KA 9/18/14

ANALYSIS DATA SHEET

LF002-30005

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_008
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404041-07
Sampled:	04/02/14 14:21	Received:	04/04/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**328**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**15.7**	**0.170**	0.330	0.500	1		SW9056A	4D08013	04/08/14 17:17
NA	Nitrate/Nitrite as N	**3.86**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 13:59
16984-48-8	Fluoride	**0.287**	**0.0330**	0.100	0.250	1		SW9056A	4D22007	04/23/14 00:32
14808-79-8	Sulfate as SO4	**72.1**	**0.330**	1.00	2.50	1		SW9056A	4D08013	04/08/14 17:17

KA 9/18/14

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30001
Lab ID: 1404027-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 31-Mar-14
Date Prepared: 03-Apr-14
Date Analyzed: 07-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 180 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0407D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.47 +/- 0.90	1.95	3	U
12587-47-2	GROSS BETA	1.8 +/- 1.4	2.7	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404027-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30002
Lab ID: 1404027-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 31-Mar-14
Date Prepared: 03-Apr-14
Date Analyzed: 07-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 190 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0407D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	1.19 +/- 0.98	1.81	3	U
12587-47-2	GROSS BETA	1.5 +/- 1.3	2.8	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404027-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30003
Lab ID: 1404027-3

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 31-Mar-14
Date Prepared: 03-Apr-14
Date Analyzed: 07-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0407B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.2 +/- 1.1	2.5	3	U
12587-47-2	GROSS BETA	1.5 +/- 1.6	3.4	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404027-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30004
Lab ID: 1404027-4

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 31-Mar-14
Date Prepared: 03-Apr-14
Date Analyzed: 07-Apr-14

Prep Batch: AB140403-1
QCBatchID: AB140403-1-3
Run ID: AB140403-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0407B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	1.6 +/- 1.1	1.9	3	U
12587-47-2	GROSS BETA	1.2 +/- 1.6	3.4	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404027-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30001
Lab ID: 1404027-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 31-Mar-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.18 +/- 0.14	0.21	1	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15890	16380	ug	103	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404027-1*

KA 9/8/14

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30002
Lab ID: 1404027-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 31-Mar-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.14 +/- 0.13	0.22	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15890	15640	ug	98.5	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404027-1*

KA 9/18/14

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30003
Lab ID: 1404027-3

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 31-Mar-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.10 +/- 0.12	0.22	1	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15890	16110	ug	101	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404027-1*

KA 9/18/14

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30004
Lab ID: 1404027-4

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 31-Mar-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.08 +/- 0.10	0.19	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15890	15760	ug	99.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404027-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30001
Lab ID: 1404027-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 31-Mar-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.11 +/- 0.21	0.46	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34020	32860	ug	96.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404027-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30002
Lab ID: 1404027-2

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 31-Mar-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.20 +/- 0.22	0.47	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34060	33670	ug	98.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404027-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30003
Lab ID: 1404027-3

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 31-Mar-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.13 +/- 0.21	0.46	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34050	32810	ug	96.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404027-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404027
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF001-30004
Lab ID: 1404027-4

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 31-Mar-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.17 +/- 0.21	0.46	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34100	33390	ug	97.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404027-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental – FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30001
Lab ID: 1404068-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 03-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 180 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0410

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	4.3 +/- 1.8	2.5	3	
12587-47-2	GROSS BETA	2.8 +/- 1.6	3.0	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404068-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30002
Lab ID: 1404068-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 03-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 160 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0410

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.4 +/- 1.8	2.7	3	
12587-47-2	GROSS BETA	5.9 +/- 2.4	4.3	4	M3

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404068-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30004
Lab ID: 1404068-3

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 03-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 1000 minutes
Report Basis: Unfiltered

Final Aliquot: 140 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0410I

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	2.59 +/- 0.90	1.12	3	LT
12587-47-2	GROSS BETA	3.1 +/- 1.1	1.5	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404068-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30005
Lab ID: 1404068-4

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 02-Apr-14
Date Prepared: 07-Apr-14
Date Analyzed: 10-Apr-14

Prep Batch: AB140407-1
QCBatchID: AB140407-1-2
Run ID: AB140407-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 160 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0410

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.4 +/- 1.8	2.7	3	
12587-47-2	GROSS BETA	3.1 +/- 1.7	3.3	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404068-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30001
Lab ID: 1404068-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 03-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.19 +/- 0.14	0.21	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15840	15380	ug	97.1	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404068-1*

KA 9/18/14

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30002
Lab ID: 1404068-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 03-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.18 +/- 0.15	0.21	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15840	15420	ug	97.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404068-1*

KA 9/12/14

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30004
Lab ID: 1404068-3

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 03-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.09 +/- 0.11	0.21	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15830	15500	ug	97.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404068-1*

KA 9/18/14

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Duplicate Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404068
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30004
Lab ID: 1404068-3DUP

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 03-Apr-14
Date Prepared: 05-Apr-14
Date Analyzed: 22-Apr-14

Prep Batch: TR140405-1
QCBatchID: TR140405-1-1
Run ID: TR140405-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0422

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.17 +/- 0.14	0.21	1	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15830	15840	ug	100	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404068-1*

Kirtland Air Force Base
Groundwater Monitoring
Data Review Summary

Sample Delivery Group: KirtlandECOS_010 (1404167)
Sampling Date: April 7, 2014
Data Reviewer: Katie Abbott Date Completed: September 19, 2014
Peer Reviewer: Sheri Fling Date Completed: September 19, 2014

The table below summarizes the data package and sample identifications discussed in this data review.

Field Identification	Sample Type	Lab Identification	Matrix	Analyses				
				VOCs	Total Mercury	Dissolved Metals	Inorganics	Radiological
1404167								
KAFB0219-GW-LF002-30003-REG Data Sheet ID: LF002-30003*	SA	1404167-01	Water	X	X	---	X	X
KAFB0219-GW-LF002-30003-REG Data Sheet ID: LF002-30003*	SA	1404167-02	Water	---	---	X	---	---
KAFB0222-GW-LF002-30006-REG Data Sheet ID: LF002-30006*	SA	1404167-03	Water	X	X	---	X	X
KAFB0222-GW-LF002-30006-REG Data Sheet ID: LF002-30006*	SA	1404167-04	Water	---	---	X	---	---
KAFB0223-GW-LF002-30007-REG Data Sheet ID: LF002-30007*	SA	1404167-05	Water	X	X	---	X	X
KAFB0223-GW-LF002-30007-REG Data Sheet ID: LF002-30007*	SA	1404167-06	Water	---	---	X	---	---
FIELDQC-BW-LF002-80004-TB Data Sheet ID: LF002-30004*	TB	1404167-07	Water	X	---	---	---	---

Sample Type: SA – Sample TB – Trip Blank
X^m-Matrix spike/ matrix spike duplicate
Analyses: VOCs – Volatile Organic Compounds (8260B)
Total Mercury (7470A)
Dissolved Metals – Arsenic, Barium, Cadmium, Chromium, Iron, Lead, Manganese, Selenium, Silver (6010C)
Inorganics –Nitrite-Nitrite as N (353.2), Anions: Chloride, Fluoride, Sulfate (9056A), TDS (2540C)
Radiological – Gross Alpha/Beta (9310), Radium-228 (9320), Radium-226 (9315)
*Laboratory shortened sample IDs due to LIMS limitations.

This report contains the final results of the data validation conducted for water samples collected in April 2014 for Kirtland Air Force Base. The sample results were presented in one data package. The data review was conducted in accordance with the Kirtland Air Force Base Albuquerque, New Mexico Quality Assurance Project Plan for Long-Term Groundwater Monitoring at Multiple Sites: Solid Waste Management Unit (SWMU) 6-1, Landfill 1; SWMU 6-1, Landfill 2; SWMU 6-4, Landfills 4, 5, and 6; ST-105 (CG-C564); UST-58 (PL567); WP026; and ST70 (Cape, December 2013), the requirements of the Department of Defense (DoD) Quality Systems Manual (QSM) Version 4.2 (June 2003), and evaluation of laboratory criteria, as applicable.

General Overall Assessment:

_____ Data are usable without qualification.
__X__ Data are usable with qualification (noted below).
_____ Some or all data are unusable for any purpose (detailed below).

Case Narrative Comments: Any case narrative comments concerning data qualification were addressed in the table below.

Review Parameter	Criteria Met?	Comment
Chain of Custody & Sample Receipt	No	The samples were received by Empirical Laboratories in good condition and were consistent with the accompanying chain of custody (COC). The cooler temperatures upon receipt were within the recommended ≤6 degrees Celsius (°C) temperature range. The sampler incorrectly referenced Method 300.0 on the COC. As the laboratory correctly analyzed the samples by Method 9056A, further action was not necessary. In addition to the analytes requested on the COC, and in order to be consistent with the project, the laboratory also analyzed for fluoride and the following dissolved metals: aluminum, barium, cadmium, chromium, lead, selenium, and silver. The samples submitted for radiological parameters were subcontracted to ALS Laboratories. The samples were received in good condition and were consistent with the accompanying COC.
Reporting	Yes	The volatile organic compound (VOC) results were revised to include results for 1,3-dichloropropene (total).
Holding Times	Yes	All samples were analyzed within the method required holding time.
Laboratory Blanks • Method Blank • Continuing Calibration Blank	No	With the exception listed in Table 1, target analytes were not detected within the method or continuing calibration blanks.
Matrix Quality Control • Matrix Spike/ Matrix Spike Duplicate • Method Duplicate KAFB0219-GW-LF002-30003-REG (Gross Alpha/Beta)	Yes	**Matrix Spike/ Matrix Spike Duplicate (MS/MSD)** An MS/MSD was not performed on a sample from this data package. As an MS/MSD was not submitted for VOCs, total and dissolved metals, inorganics, radium-226, and radium-228, there is no measure of accuracy or precision with respect to the sample matrix. As an MS/MSD was not submitted for or gross alpha/beta, there is no measure of accuracy with respect to the sample matrix; however, an acceptable level of precision with respect to the site-specific sample matrix can be obtained from the acceptable method duplicate results. **Method Duplicate** **Radiological Parameters** The agreement between parent sample results and the method duplicate sample results was evaluated. The duplicate error ratios (DERs) met the laboratory limits. The DER was calculated using the total propagated uncertainty (TPU).
Metals Only • Post Digestion Spike None • Serial Dilution None	N/A	**Post Digestion Spike (Metals Only)** A post digestion spike was not reported in association with the sample in this data package. **Serial Dilution (Metals Only)** A serial dilution was not reported in association with the sample in this data package.
Laboratory Performance • Laboratory Control Sample	No	With the exception listed in Table 2, the laboratory control sample (LCS) and/or laboratory control sample duplicate (LCSD) recoveries and relative

Review Parameter	Criteria Met?	Comment
		percent differences (RPDs)/DERs met quality control criteria.
Method Quality Control • Surrogates (VOCs Only) • Implied Detection Limits (Radiological Parameters Only) • Sample Specific Chemical Recovery (Chemical Yield) (Radiological Parameters Only)	Yes	**Surrogates (VOCs Only)** All of the surrogate recoveries were within the laboratory specified acceptance criteria. **Implied Detection Limits (Radiological Parameters Only)** No values for radionuclides were reported as detected with associated TPUs greater than the reported results. **Sample Specific Chemical Recovery (Chemical Yield) (Radiological Parameters Only)** All of the sample specific chemical recoveries were within the laboratory specified acceptance criteria.
Field Quality Control • Trip Blank FIELDQC-BW-LF008-80003-TB • Field Duplicate None • Field Blank None • Equipment Blank None	Yes	**Trip Blank** Target analytes were not detected in the trip blank. **Field Duplicate** A field duplicate was not submitted for this event. **Field Blank** A field blank was not submitted for this event. **Equipment Blank** An equipment blank was not submitted for this event.
LOQs/MDCs met?	Yes	No results were reported as non-detect at elevated reporting limits. Trace level detects, reported between the detection limit (DL) and limit of quantitation (LOQ), have been qualified as estimated (J SQL-I).
Other Parameters	Yes	**VOCs** The laboratory noted that the continuing calibration verification associated with samples KAFB0219-GW-LF002-30003-REG, KAFB0222-GW-LF002-30006-REG, KAFB0223-GW-LF002-30007-REG, and FIELDQC-BW-LF002-80004-TB exceeded criteria of ±20% for acetone at +36.7% . As the potential bias was considered to be high, and the associated acetone results were reported as non-detect, further action was not necessary.
Package Completeness	Yes	The results are usable as qualified for the project objective. The data are 100% complete.

≤ - Less Than or Equal to
°C – Degrees Celsius
% - Percent
+ - Plus
COC – Chain of Custody
DERs – Duplicate Error Rations
DL – Detection Limit
I – Indeterminate Bias
J - Estimated
LCS – Laboratory Control Sample
LCSD – Laboratory Control Sample Duplicate
LOQ – Limit of Quantitation
MDC – Minimum Detectable Concentration
MS/MSD – Matrix Spike/ Matrix Spike Duplicate
N/A – Not Applicable
RPD – Relative Percent Difference
SQL – Sample Quantitation Limit
TPU – Total Propagated Uncertainty
VOCs – Volatile Organic Compounds

Table 1: Blank Outliers and Resultant Data Qualification

Associated Samples	Analyte	Concentration	Qualification
VOCs			
4D11008-BLK KAFB0219-GW-LF002-30003-REG KAFB0222-GW-LF002-30006-REG KAFB0223-GW-LF002-30007-REG FIELDQC-BW-LF002-80004-TB	Hexachlorobutadiene	0.252 µg/L	None. The associated results were reported at concentrations >5x the blank contamination.

µg/L – Micrograms per Liter > - Greater Than VOCs – Volatile Organic Compounds

Table 2: LCS/LCSD Recovery Outliers and Resultant Data Qualification

Associated Samples	Analyte	%R (Limits)	RPD (Limits)	Qualification
VOCs				
LCS 4D25001 KAFB0219-GW-LF002-30003-REG KAFB0222-GW-LF002-30006-REG KAFB0223-GW-LF002-30007-REG FIELDQC-BW-LF002-80004-TB	Acetone	**151** (40-140)	NA	As the potential bias was considered to be high and the associated sample results were reported as non-detect, data qualification was not considered necessary.

%R – Percent Recoveries LCS – Laboratory Control Sample LCSD - Laboratory Control Sample Duplicate
NA – Not Applicable RPD – Relative Percent Difference VOCs – Volatile Organic Compounds
Bold indicates a recovery outside of acceptance limits.

ANALYSIS DATA SHEET

LF002-30003

Laboratory: Empirical Laboratories, LLC
SDG: KirtlandECOS_010
Client: Shaw Environmental, Inc.
Project: Kirtland AFB (ECOS)
Matrix: Water
Laboratory ID: 1404067-01
File ID: 0406701.D
Sampled: 04/07/14 12:51
Prepared: 04/11/14 18:03
Analyzed: 04/11/14 18:03
Solids:
Preparation: 5030B
Dilution: 1
Batch: 4D11008
Sequence: 4D10404
Calibration: 4069001
Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXO
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-01	File ID:	0406701.D
Sampled:	04/07/14 12:51	Prepared:	04/11/14 18:03	Analyzed:	04/11/14 18:03
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene	**0.270**	0.250	0.500	1.00	J
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.13	93.8	75 - 120	
Dibromofluoromethane	30.00	30.57	102	85 - 115	
1,2-Dichloroethane-d4	30.00	28.86	96.2	70 - 120	
Toluene-d8	30.00	30.64	102	85 - 120	

CA 9/19/14

ANALYSIS DATA SHEET

LF002-30006

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404067-03 File ID: 0406703.D

Sampled: 04/07/14 11:18 Prepared: 04/11/14 18:31 Analyzed: 04/11/14 18:31

Solids: Preparation: 5030B Dilution: 1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXO
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30006

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-03	File ID:	0406703.D
Sampled:	04/07/14 11:18	Prepared:	04/11/14 18:31	Analyzed:	04/11/14 18:31
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene J SQL-I	**0.324**	0.250	0.500	1.00	J
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.42	94.7	75 - 120	
Dibromofluoromethane	30.00	29.82	99.4	85 - 115	
1,2-Dichloroethane-d4	30.00	29.20	97.3	70 - 120	
Toluene-d8	30.00	29.27	97.6	85 - 120	

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30007

Laboratory: Empirical Laboratories, LLC | SDG: KirtlandECOS_010

Client: Shaw Environmental, Inc. | Project: Kirtland AFB (ECOS)

Matrix: Water | Laboratory ID: 1404067-05 | File ID: 0406705.D

Sampled: 04/07/14 14:42 | Prepared: 04/11/14 18:59 | Analyzed: 04/11/14 18:59

Solids: | Preparation: 5030B | Dilution: 1

Batch: 4D11008 | Sequence: 4D10404 | Calibration: 4069001 | Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXO
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30007

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-05	File ID:	0406705.D
Sampled:	04/07/14 14:42	Prepared:	04/11/14 18:59	Analyzed:	04/11/14 18:59
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.33	97.8	75 - 120	
Dibromofluoromethane	30.00	30.05	100	85 - 115	
1,2-Dichloroethane-d4	30.00	30.20	101	70 - 120	
Toluene-d8	30.00	31.19	104	85 - 120	

KA 9/9/14

ANALYSIS DATA SHEET

LF002-80004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-07	File ID:	0406707.D
Sampled:	04/07/14 08:00	Prepared:	04/11/14 19:27	Analyzed:	04/11/14 19:27
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/19/14

ANALYSIS DATA SHEET

LF002-80004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-07	File ID:	0406707.D
Sampled:	04/07/14 08:00	Prepared:	04/11/14 19:27	Analyzed:	04/11/14 19:27
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D11008 Sequence: 4D10404 Calibration: 4069001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.97	93.2	75 - 120	
Dibromofluoromethane	30.00	30.20	101	85 - 115	
1,2-Dichloroethane-d4	30.00	28.04	93.5	70 - 120	
Toluene-d8	30.00	32.02	107	85 - 120	

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30003

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/07/14 12:51

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404067-01
Received: 04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 12:12

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-02
Sampled:	04/07/14 12:51	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D10009	04/17/14 16:41
7440-39-3	Barium (dissolved)	**48.8**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 16:41
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 16:41
7440-47-3	Chromium (dissolved) J SQL-I	**0.949**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 16:41
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 16:41
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 16:41
7439-96-5	Manganese (dissolved) J SQL-I	**1.47**	**0.750**	1.50	3.75	1	J	SW6010C	4D10009	04/17/14 16:41
7782-49-2	Selenium (dissolved) J SQL-I	**2.14**	**0.750**	1.25	2.50	1	J	SW6010C	4D10009	04/17/14 16:41
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 16:41

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30006

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-03
Sampled:	04/07/14 11:18	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 12:13

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30006

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/07/14 11:18

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404067-04
Received: 04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D10009	04/17/14 16:45
7440-39-3	Barium (dissolved)	**56.2**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 16:45
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 16:45
7440-47-3	Chromium (dissolved) J SQL-I	**1.25**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 16:45
7439-89-6	Iron (dissolved) J SQL-I	**11.3**	7.50	15.0	25.0	1	J	SW6010C	4D10009	04/17/14 16:45
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 16:45
7439-96-5	Manganese (dissolved) J SQL-I	**2.72**	**0.750**	1.50	3.75	1	J	SW6010C	4D10009	04/17/14 16:45
7782-49-2	Selenium (dissolved) J SQL-I	**2.04**	**0.750**	1.25	2.50	1	J	SW6010C	4D10009	04/17/14 16:45
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 16:45

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30007

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-05
Sampled:	04/07/14 14:42	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D15008	04/15/14 12:13

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30007

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/07/14 14:42

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404067-06
Received: 04/09/14 08:45

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D10009	04/17/14 16:50
7440-39-3	Barium (dissolved)	**50.0**	**1.25**	2.50	10.0	1		SW6010C	4D10009	04/17/14 16:50
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D10009	04/17/14 16:50
7440-47-3	Chromium (dissolved) J SQL-I	**0.888**	**0.500**	1.00	2.50	1	J	SW6010C	4D10009	04/17/14 16:50
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D10009	04/17/14 16:50
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4D10009	04/17/14 16:50
7439-96-5	Manganese (dissolved) J SQL-I	**0.931**	**0.750**	1.50	3.75	1	J	SW6010C	4D10009	04/17/14 16:50
7782-49-2	Selenium (dissolved) J SQL-I	**1.89**	**0.750**	1.25	2.50	1	J	SW6010C	4D10009	04/17/14 16:50
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D10009	04/17/14 16:50

KA 9/14/14

ANALYSIS DATA SHEET

LF002-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-01
Sampled:	04/07/14 12:51	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**325**	20.0	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.1**	0.170	0.330	0.500	1		SW9056A	4D15005	04/15/14 17:26
NA	Nitrate/Nitrite as N	**5.68**	0.250	0.750	1.50	1		E353.2	4D23024	04/23/14 14:01
16984-48-8	Fluoride	**0.307**	0.0330	0.100	0.250	1		SW9056A	4D15005	04/15/14 17:26
14808-79-8	Sulfate as SO4	**66.8**	0.330	1.00	2.50	1		SW9056A	4D15005	04/15/14 17:26

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30006

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_010
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404067-03
Sampled:	04/07/14 11:18	Received:	04/09/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**316**	20.0	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.4**	0.170	0.330	0.500	1		SW9056A	4D15005	04/15/14 18:18
NA	Nitrate/Nitrite as N	**3.27**	0.250	0.750	1.50	1		E353.2	4D23024	04/23/14 14:02
16984-48-8	Fluoride	**0.401**	0.0330	0.100	0.250	1		SW9056A	4D15005	04/15/14 18:18
14808-79-8	Sulfate as SO4	**78.5**	0.330	1.00	2.50	1		SW9056A	4D15005	04/15/14 18:18

KA 9/19/14

ANALYSIS DATA SHEET

LF002-30007

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/07/14 14:42

SDG: KirtlandECOS_010
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404067-05
Received: 04/09/14 08:45

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**317**	**20.0**	20.0	20.0	1		SM2540C	4D08014	04/09/14 16:07
16887-00-6	Chloride	**16.6**	**0.170**	0.330	0.500	1		SW9056A	4D15005	04/15/14 18:35
NA	Nitrate/Nitrite as N	**4.09**	**0.250**	0.750	1.50	1		E353.2	4D23024	04/23/14 14:04
16984-48-8	Fluoride	**0.356**	**0.0330**	0.100	0.250	1		SW9056A	4D15005	04/15/14 18:35
14808-79-8	Sulfate as SO4	**74.2**	**0.330**	1.00	2.50	1		SW9056A	4D15005	04/15/14 18:35

KA 9/19/14

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30003
Lab ID: 1404147-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 07-Apr-14
Date Prepared: 09-Apr-14
Date Analyzed: 13-Apr-14

Prep Batch: AB140409-5
QCBatchID: AB140409-5-3
Run ID: AB140409-5A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 190 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0413B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.3 +/- 1.5	2.0	3	
12587-47-2	GROSS BETA	3.0 +/- 1.6	2.9	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404147-1*

KA 9/19/14

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30006
Lab ID: 1404147-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 07-Apr-14
Date Prepared: 09-Apr-14
Date Analyzed: 13-Apr-14

Prep Batch: AB140409-5
QCBatchID: AB140409-5-3
Run ID: AB140409-5A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 170 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0413B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	2.6 +/- 1.4	2.2	3	LT
12587-47-2	GROSS BETA	3.7 +/- 1.7	3.2	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404147-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30007
Lab ID: 1404147-3

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 07-Apr-14
Date Prepared: 09-Apr-14
Date Analyzed: 13-Apr-14

Prep Batch: AB140409-5
QCBatchID: AB140409-5-3
Run ID: AB140409-5A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 170 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0413B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.3 +/- 1.6	2.4	3	
12587-47-2	GROSS BETA	3.3 +/- 1.7	3.1	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404147-1*

KA 9/19/14

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30003
Lab ID: 1404147-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 07-Apr-14
Date Prepared: 11-Apr-14
Date Analyzed: 28-Apr-14

Prep Batch: TR140411-1
QCBatchID: TR140411-1-1
Run ID: TR140411-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0428

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.12 +/- 0.13	0.23	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16930	15540	ug	91.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404147-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30006
Lab ID: 1404147-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 07-Apr-14
Date Prepared: 11-Apr-14
Date Analyzed: 28-Apr-14

Prep Batch: TR140411-1
QCBatchID: TR140411-1-1
Run ID: TR140411-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0428

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.25 +/- 0.18	0.24	1	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16930	14890	ug	87.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404147-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30007
Lab ID: 1404147-3

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 07-Apr-14
Date Prepared: 11-Apr-14
Date Analyzed: 28-Apr-14

Prep Batch: TR140411-1
QCBatchID: TR140411-1-1
Run ID: TR140411-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0428

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.26 +/- 0.18	0.22	1	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16930	15300	ug	90.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404147-1*

CA 9/9/14

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Emplrical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30003
Lab ID: 1404147-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 07-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.03 +/- 0.20	0.46	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33960	32480	ug	95.7	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404147-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30006
Lab ID: 1404147-2

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 07-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.18 +/- 0.21	0.45	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34040	33110	ug	97.3	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404147-1*

KA 9/19/14

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404147
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF002-30007
Lab ID: 1404147-3

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 07-Apr-14
Date Prepared: 17-Apr-14
Date Analyzed: 21-Apr-14

Prep Batch: RA140416-1
QCBatchID: RA140416-1-1
Run ID: RA140416-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0421

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.07 +/- 0.24	0.54	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	33960	33390	ug	98.3	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404147-1*

Kirtland Air Force Base
Groundwater Monitoring
Data Review Summary

Sample Delivery Group: KirtlandECOS_012 (1404127)
Sampling Date: April 16-17, 2014
Data Reviewer: Katie Abbott Date Completed: September 19, 2014
Peer Reviewer: Sheri Fling Date Completed: September 19, 2014

The table below summarizes the data package and sample identifications discussed in this data review.

Field Identification	Sample Type	Lab Identification	Matrix	Analyses				
				VOCs	Total Metals	Dissolved Metals	Inorganics	Radiological
1404127								
KAFB0307-GW-LF008-30001-REG Data Sheet ID: LF008-30001*	SA	1404127-01	Water	X	X	---	X	X
KAFB0307-GW-LF008-30001-REG Data Sheet ID: LF008-30001*	SA	1404127-02	Water	---	---	X	---	---
KAFB0311-GW-LF008-30003-REG Data Sheet ID: LF008-30003*	SA	1404127-03	Water	X	X	---	X	X
KAFB0311-GW-LF008-30003-REG Data Sheet ID: LF008-30003*	SA	1404127-04	Water	---	---	X	---	---
FIELDQC-BW-LF008-80001-ER Data Sheet ID: LF008-80008*	EB	1404127-05	Water	X	X	---	---	---
FIELDQC-BW-LF008-80003-TB Data Sheet ID: LF008-80003*	TB	1404127-06	Water	X	---	---	---	---

Sample Type: SA – Sample TB – Trip Blank
X^m-Matrix spike/ matrix spike duplicate
Analyses: VOCs – Volatile Organic Compounds (8260B)
Total/Dissolved Metals – Aluminum, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Molybdenum, Nickel, Selenium, Silver, Thallium, Tin, Uranium, Vanadium, Zinc, Mercury (6010C/7470A)
Inorganics – Alkalinity (SM2320B), Nitrite-Nitrite as N (353.2), Anions: Chloride, Fluoride, Sulfate (9056A), TDS (2540C)
Radiological – Gross Alpha/Beta (9310), Radium-228 (9320), Radium-226 (9315)
*Laboratory shortened sample IDs due to LIMS limitations.

This report contains the final results of the data validation conducted for water samples collected in April 2014 for Kirtland Air Force Base. The sample results were presented in one data package. The data review was conducted in accordance with the Kirtland Air Force Base Albuquerque, New Mexico Quality Assurance Project Plan for Long-Term Groundwater Monitoring at Multiple Sites: Solid Waste Management Unit (SWMU) 6-1, Landfill 1; SWMU 6-1, Landfill 2; SWMU 6-4, Landfills 4, 5, and 6; ST-105 (CG-C564); UST-58 (PL567); WP026; and ST70 (Cape, December 2013), the requirements of the Department of Defense (DoD) Quality Systems Manual (QSM) Version 4.2 (June 2003), and evaluation of laboratory criteria, as applicable.

General Overall Assessment:

_____ Data are usable without qualification.
__X__ Data are usable with qualification (noted below).
_____ Some or all data are unusable for any purpose (detailed below).

Case Narrative Comments: Any case narrative comments concerning data qualification were addressed in the table below.

Review Parameter	Criteria Met?	Comment
Chain of Custody & Sample Receipt	No	The samples were received by Empirical Laboratories in good condition and were consistent with the accompanying chain of custody (COC). The cooler temperatures upon receipt were within the recommended ≤6 degrees Celsius (°C) temperature range. The sampler incorrectly referenced Method 300.0 on the COC. As the laboratory correctly analyzed the samples by Method 9056A, further action was not necessary. Per project specifications, the following total metals analyses were performed, but not listed on the associated COC: mercury, aluminum, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, thallium, tin, vanadium, and zinc. Total calcium and total potassium were listed on the COC, but not required for analysis. In addition to the analytes requested on the COC, and in order to be consistent with the project, the laboratory also analyzed for fluoride and the following dissolved metals: mercury, aluminum, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, tin, vanadium, and zinc. Sample FIELDQC-BW-LF008-80001-ER was listed on the COC requesting dissolved metals analysis, but was not required for analysis per the project scope of work. The samples submitted for radiological parameters were subcontracted to ALS Laboratories and the total and dissolved uranium results were subcontract to TestAmerica Laboratories. The samples were received in good condition and were consistent with the accompanying COC.
Reporting	Yes	The uranium results were revised to correct the sample identifications (IDs) and to include supporting documentation.
Holding Times	Yes	All samples were analyzed within the method required holding time.
Laboratory Blanks • Method Blank • Continuing Calibration Blank	No	With the exception listed in Table 1, target analytes were not detected within the method or continuing calibration blanks.
Matrix Quality Control • Matrix Spike/ Matrix Spike Duplicate • Method Duplicate KAFB0307-GW-LF008-30001-REG (Gross Alpha/Beta) • Total vs. Partial Analyses	Yes	**Matrix Spike/ Matrix Spike Duplicate (MS/MSD)** An MS/MSD was not performed on a sample from this data package. As an MS/MSD was not submitted for volatile organic compounds (VOCs), total and dissolved metals, inorganics, radium-226, and radium-228, there is no measure of accuracy or precision with respect to the sample matrix. As an MS/MSD was not submitted for or gross alpha/beta, there is no measure of accuracy with respect to the sample matrix; however, an acceptable level of precision with respect to the site-specific sample matrix can be obtained from the acceptable method duplicate results. **Method Duplicate** **Radiological Parameters** The agreement between parent sample results and the method duplicate sample results was evaluated. The duplicate error ratios (DERs) met the laboratory limits. The DER was calculated using the total propagated

Review Parameter	Criteria Met?	Comment
		uncertainty (TPU). **Total vs. Partial Analyses** The following criteria were used to evaluate the total versus dissolved results: • When both results are reported at concentrations >5x the limit of quantitation (LOQ) the two values should agree within ±30%. • When either of the results are reported <5x the LOQ, the two values should agree within 2x the higher LOQ. The total sample results were compared with the associated dissolved sample results against the concentration dependent criteria set forth in the method.
Metals Only • Post Digestion Spike None • Serial Dilution None	N/A	**Post Digestion Spike (Metals Only)** A post digestion spike was not reported in association with the sample in this data package. **Serial Dilution (Metals Only)** A serial dilution was not reported in association with the sample in this data package.
Laboratory Performance • Laboratory Control Sample	No	With the exception listed in Table 2, the laboratory control sample (LCS) and/or laboratory control sample duplicate (LCSD) recoveries and relative percent differences (RPDs)/DERs met quality control criteria.
Method Quality Control • Surrogates (VOCs Only) • Implied Detection Limits (Radiological Parameters Only) • Sample Specific Chemical Recovery (Chemical Yield) (Radiological Parameters Only)	Yes	**Surrogates (VOCs Only)** All of the surrogate recoveries were within the laboratory specified acceptance criteria. **Implied Detection Limits (Radiological Parameters Only)** No values for radionuclides were reported as detected with associated TPUs greater than the reported results. **Sample Specific Chemical Recovery (Chemical Yield) (Radiological Parameters Only)** All of the sample specific chemical recoveries were within the laboratory specified acceptance criteria.
Field Quality Control • Trip Blank FIELDQC-BW-LF008-80003-TB • Field Duplicate None • Field Blank None • Equipment Blank FIELDQC-BW-LF008-80001-ER	No	**Trip Blank** Target analytes were not detected in the trip blank. **Field Duplicate** A field duplicate was not submitted for this event. **Field Blank** A field blank was not submitted for this event. **Equipment Blank** With the exceptions listed in Table 3, target analytes were not detected in the equipment blank.
LOQs/MDCs met?	No	The total and dissolved uranium samples KAFB0307-GW-LF008-30001-REG and KAFB0311-GW-LF008-30003-REG were submitted to TestAmerica Laboratories with insufficient volume. The associated

Review Parameter	Criteria Met?	Comment
		detection limits (DLs) and LOQs were elevated. As uranium was reported as non-detect, these results will need to be evaluated by the end user of the data with respect to project objectives. Trace level detects, reported between the DL and LOQ, have been qualified as estimated (J SQL-I).
Package Completeness	Yes	The results are usable as qualified for the project objective. The data are 100% complete.

> - Greater Than
< - Less Than
≤ - Less Than or Equal to
°C – Degrees Celsius
% - Percent
± - Plus or Minus
COC – Chain of Custody
DERs – Duplicate Error Rations
DL – Detection Limit
I – Indeterminate Bias
IDs – Identifications
J - Estimated
LCS – Laboratory Control Sample
LCSD – Laboratory Control Sample Duplicate
LOQ – Limit of Quantitation
MDC – Minimum Detectable Concentration
MS/MSD – Matrix Spike/ Matrix Spike Duplicate
N/A – Not Applicable
RPD – Relative Percent Difference
SQL – Sample Quantitation Limit
TPU – Total Propagated Uncertainty
VOCs – Volatile Organic Compounds

Table 1: Blank Outliers and Resultant Data Qualification

Associated Samples	Analyte	Concentration	Qualification
Inorganics			
4D23015-BLK KAFB0307-GW-LF008-30001-REG KAFB0311-GW-LF008-30003-REG	Total Dissolved Solids	42.0 mg/L	None. The associated results were reported at concentrations >5x the blank contamination.
4D11401-CCB4 KAFB0307-GW-LF008-30001-REG KAFB0311-GW-LF008-30003-REG	Fluoride	0.0430 mg/L	
Radiological			
TR140421-1MB KAFB0307-GW-LF008-30001-REG KAFB0311-GW-LF008-30003-REG	Radium-226	0.089 pCi/L	None. The associated results were reported as non-detect.

> - Greater Than mg/L – Milligrams per Liter pCi-L – Picocuries per Liter

Table 2: LCS/LCSD Recovery Outliers and Resultant Data Qualification

Associated Samples	Analyte	%R (Limits)	RPD (Limits)	Qualification
VOCs				
LCS 4D25001 KAFB0307-GW-LF008-30001-REG KAFB0311-GW-LF008-30003-REG FIELDQC-BW-LF008-80001-ER FIELDQC-BW-LF008-80001-ER	Acetone	**162** (40-140)	NA	As the potential bias was considered to be high and the associated sample results were reported as non-detect, data qualification was not considered necessary.
	Bromoform	**68.7** (70-130)	NA	As the potential bias was considered to be low, the associated bromoform results were qualified as estimated (UJ LCS-L).
Inorganics				
LCS 4D23015	Total Dissolved Solids	114/**121**	6.11	As the potential bias was

Associated Samples	Analyte	%R (Limits)	RPD (Limits)	Qualification
KAFB0307-GW-LF008-30001-REG KAFB0311-GW-LF008-30003-REG		(80-120)	(20)	considered to be high, the associated detected results were qualified as estimated (J LCS-H).

%R – Percent Recoveries
H – High Bias
L – Low Bias
LCS – Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
NA – Not Applicable
RPD – Relative Percent Difference
VOCs – Volatile Organic Compounds
UJ/J - Estimated
Bold indicates a recovery outside of acceptance limits.

Table 3: Equipment Blank Outliers and Resultant Data Qualification

Associated Samples	Analyte	Concentration (µg/L)	Qualification
FIELDQC-BW-LF008-80001-ER KAFB0307-GW-LF008-30001-REG KAFB0311-GW-LF008-30003-REG	Total Aluminum	34.8	The associated results reported at concentrations <5x the concentration of the blank contamination were qualified as non-detect (U EB-I).
	Total Copper	1.26	
	Total Iron	42.5	
	Total Manganese	1.00	
	Total Zinc	1.97	

µg/L – Micrograms per Liter
EB – Equipment Blank
I – Indeterminate Bias
U – Non-detect

ANALYSIS DATA SHEET

LF008-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-01	File ID:	0412701.D
Sampled:	04/17/14 12:39	Prepared:	04/25/14 14:34	Analyzed:	04/25/14 14:34
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform VJ LCS-L		0.250	0.500	1.00	UQ
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/19/14

ANALYSIS DATA SHEET

LF008-30001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-01	File ID:	0412701.D
Sampled:	04/17/14 12:39	Prepared:	04/25/14 14:34	Analyzed:	04/25/14 14:34
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene	**1.08**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.00	100	75 - 120	
Dibromofluoromethane	30.00	29.39	98.0	85 - 115	
1,2-Dichloroethane-d4	30.00	29.11	97.0	70 - 120	
Toluene-d8	30.00	28.84	96.1	85 - 120	

KA 9/14/14

ANALYSIS DATA SHEET

LF008-30003

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_012

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404127-03 File ID: 0412703.D

Sampled: 04/16/14 13:32 Prepared: 04/25/14 15:01 Analyzed: 04/25/14 15:01

Solids: Preparation: 5030B Dilution: 1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform US LCS-L		0.250	0.500	1.00	UQ
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/19/14

ANALYSIS DATA SHEET

LF008-30003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-03	File ID:	0412703.D
Sampled:	04/16/14 13:32	Prepared:	04/25/14 15:01	Analyzed:	04/25/14 15:01
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.34	101	75 - 120	
Dibromofluoromethane	30.00	28.99	96.6	85 - 115	
1,2-Dichloroethane-d4	30.00	29.44	98.1	70 - 120	
Toluene-d8	30.00	29.26	97.5	85 - 120	

KA 9/4/14

ANALYSIS DATA SHEET

LF008-80001

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-05	File ID:	0412705.D
Sampled:	04/16/14 15:45	Prepared:	04/25/14 15:29	Analyzed:	04/25/14 15:29
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform UJ LCS-L		0.250	0.500	1.00	UQ
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

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ANALYSIS DATA SHEET

LF008-80001

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_012	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Matrix:	Water	Laboratory ID:	1404127-05	File ID:	0412705.D
Sampled:	04/16/14 15:45	Prepared:	04/25/14 15:29	Analyzed:	04/25/14 15:29
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.95	99.8	75 - 120	
Dibromofluoromethane	30.00	29.32	97.7	85 - 115	
1,2-Dichloroethane-d4	30.00	30.07	100	70 - 120	
Toluene-d8	30.00	29.13	97.1	85 - 120	

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ANALYSIS DATA SHEET

LF008-80003

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-06	File ID:	0412706.D
Sampled:	04/16/14 08:00	Prepared:	04/25/14 12:44	Analyzed:	04/25/14 12:44
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform UJ LCS-L		0.250	0.500	1.00	UQ
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

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ANALYSIS DATA SHEET

LF008-80003

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_012	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Matrix:	Water	Laboratory ID:	1404127-06	File ID:	0412706.D
Sampled:	04/16/14 08:00	Prepared:	04/25/14 12:44	Analyzed:	04/25/14 12:44
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4D25001 Sequence: 4D11901 Calibration: 4114001 Instrument: MS-VOA6

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.59	98.6	75 - 120	
Dibromofluoromethane	30.00	29.33	97.8	85 - 115	
1,2-Dichloroethane-d4	30.00	29.83	99.4	70 - 120	
Toluene-d8	30.00	29.25	97.5	85 - 120	

ANALYSIS DATA SHEET

LF008-30001

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-01
Sampled:	04/17/14 12:39	Received:	04/18/14 09:00

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:09
7429-90-5	Aluminum U EB-I	40.5	~~12.5~~ 48.5	~~25.0~~ 48.5	50.0	1	J	SW6010C	4D29021	05/02/14 11:58
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 11:58
7440-39-3	Barium	162	1.25	2.50	10.0	1		SW6010C	4D29021	05/02/14 11:58
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:58
7440-42-8	Boron	40.9	2.50	5.00	10.0	1		SW6010C	4D29021	05/02/14 11:58
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 11:58
7440-47-3	Chromium	10.6	0.500	1.00	2.50	1		SW6010C	4D29021	05/02/14 11:58
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 11:58
7440-50-8	Copper U EB-I	5.01	~~1.00~~ 5.01	~~2.00~~ 5.01	~~2.50~~ 5.01	1		SW6010C	4D29021	05/02/14 11:58
7439-89-6	Iron U EB-I	52.7	~~7.60~~ 52.7	~~15.0~~ 52.7	~~25.0~~ 52.7	1		SW6010C	4D29021	05/02/14 11:58
7439-92-1	Lead		0.375	0.750	0.750	1	U	SW6010C	4D29021	05/02/14 11:58
7439-96-5	Manganese U EB-I	~~0.928~~ 1.50	~~0.750~~ 0.928	1.50	3.75	1	J	SW6010C	4D29021	05/02/14 11:58
7439-98-7	Molybdenum J SOL-I	1.82	1.25	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 11:58
7440-02-0	Nickel J SOL-I	2.27	0.750	1.50	2.50	1	J	SW6010C	4D29021	05/02/14 11:58
7782-49-2	Selenium	4.96	0.750	1.25	2.50	1		SW6010C	4D29021	05/02/14 11:58
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 11:58
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 11:58
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 11:58
7440-62-2	Vanadium	4.85	1.25	2.50	3.12	1		SW6010C	4D29021	05/02/14 11:58
7440-66-6	Zinc U EB-I	5.08	~~1.25~~ 5.08	~~2.50~~ 5.08	~~5.00~~ 5.08	1		SW6010C	4D29021	05/02/14 11:58

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ANALYSIS DATA SHEET

LF008-30001

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/17/14 12:39

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404127-02
Received: 04/18/14 09:00

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:10
7429-90-5	Aluminum (dissolved) J SQL-I	**30.4**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 12:02
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:02
7440-39-3	Barium (dissolved)	**160**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:02
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:02
7440-42-8	Boron (dissolved)	**41.3**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:02
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:02
7440-47-3	Chromium (dissolved) J SQL-I	**1.11**	**0.500**	1.00	2.50	1	J	SW6010C	4D29021	05/02/14 12:02
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:02
7440-50-8	Copper (dissolved)	**4.15**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 12:02
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4D29021	05/02/14 12:02
7439-92-1	Lead (dissolved) J SQL-I	**0.589**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 12:02
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4D29021	05/02/14 12:02
7439-98-7	Molybdenum (dissolved) J SQL-I	**1.71**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:02
7440-02-0	Nickel (dissolved) J SQL-I	**1.72**	**0.750**	1.50	2.50	1	J	SW6010C	4D29021	05/02/14 12:02
7782-49-2	Selenium (dissolved)	**5.17**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:02
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:02
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:02
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:02
7440-62-2	Vanadium (dissolved)	**4.63**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:02
7440-66-6	Zinc (dissolved) J SQL-I	**4.53**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:02

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ANALYSIS DATA SHEET

LF008-30003

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/16/14 13:32

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404127-03
Received: 04/18/14 09:00

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:11
7429-90-5	Aluminum U EB-I	**81.4**	81.4 ~~72.5~~	81.4 ~~25.0~~	81.4 ~~50.0~~	1		SW6010C	4D29021	05/02/14 12:06
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:06
7440-39-3	Barium	**143**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:06
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:06
7440-42-8	Boron	**38.4**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:06
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:06
7440-47-3	Chromium J SQL-I	**2.29**	**0.500**	1.00	2.50	1	J	SW6010C	4D29021	05/02/14 12:06
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:06
7440-50-8	Copper U EB-I	**4.79**	4.79 ~~1.00~~	4.79 ~~2.00~~	4.79 ~~2.50~~	1		SW6010C	4D29021	05/02/14 12:06
7439-89-6	Iron U EB-I	**70.5**	70.5 ~~7.50~~	70.5 ~~15.0~~	70.5 ~~25.0~~	1		SW6010C	4D29021	05/02/14 12:06
7439-92-1	Lead	**0.994**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 12:06
7439-96-5	Manganese U EB-I	**2.04**	2.04 ~~0.750~~	2.04 ~~1.50~~	3.75	1	J	SW6010C	4D29021	05/02/14 12:06
7439-98-7	Molybdenum J SQL-I	**2.02**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:06
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:06
7782-49-2	Selenium	**2.82**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:06
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:06
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:06
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:06
7440-62-2	Vanadium	**4.50**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:06
7440-66-6	Zinc	**11.4**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 12:06

KA 9/19/14

ANALYSIS DATA SHEET

LF008-30003

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_012
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404127-04
Sampled:	04/16/14 13:32	Received:	04/18/14 09:00

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:12
7429-90-5	Aluminum (dissolved)		12.5	25.0	50.0	1	U	SW6010C	4E06002	05/07/14 14:00
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7440-39-3	Barium (dissolved)		1.25	2.50	10.0	1	U	SW6010C	4E06002	05/07/14 14:00
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:00
7440-42-8	Boron (dissolved)		2.50	5.00	10.0	1	U	SW6010C	4E06002	05/07/14 14:00
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:00
7440-47-3	Chromium (dissolved)		0.500	1.00	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:00
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4E06002	05/07/14 14:00
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 14:00
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4E06002	05/07/14 14:00
7439-98-7	Molybdenum (dissolved)		1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 14:00
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7782-49-2	Selenium (dissolved)		0.750	1.25	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 14:00
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 14:00
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 14:00
7440-62-2	Vanadium (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:00
7440-66-6	Zinc (dissolved)		1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 14:00

KA 9/19/14

ANALYSIS DATA SHEET

LF008-80001

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/16/14 15:45

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404127-05
Received: 04/18/14 09:00

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:14
7429-90-5	Aluminum J SQL-I	**34.8**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 14:05
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:05
7440-39-3	Barium		1.25	2.50	10.0	1	U	SW6010C	4E06002	05/07/14 14:05
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:05
7440-42-8	Boron		2.50	5.00	10.0	1	U	SW6010C	4E06002	05/07/14 14:05
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:05
7440-47-3	Chromium		0.500	1.00	2.50	1	U	SW6010C	4E06002	05/07/14 14:05
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:05
7440-50-8	Copper J SQL-I	**1.26**	**1.00**	2.00	2.50	1	J	SW6010C	4E06002	05/07/14 14:05
7439-89-6	Iron	**42.5**	**7.50**	15.0	25.0	1		SW6010C	4E06002	05/07/14 14:05
7439-92-1	Lead		0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 14:05
7439-96-5	Manganese J SQL-I	**1.00**	**0.750**	1.50	3.75	1	J	SW6010C	4E06002	05/07/14 14:05
7439-98-7	Molybdenum		1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 14:05
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:05
7782-49-2	Selenium		0.750	1.25	2.50	1	U	SW6010C	4E06002	05/07/14 14:05
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 14:05
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 14:05
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 14:05
7440-62-2	Vanadium		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:05
7440-66-6	Zinc J SQL-I	**1.97**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 14:05

ANALYSIS DATA SHEET

LF008-30001

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/17/14 12:39

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404127-01
Received: 04/18/14 09:00

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids J LCS-H	**398**	**20.0**	20.0	20.0	1	BQ	SM2540C	4D23015	04/23/14 15:51
16887-00-6	Chloride	**58.1**	**0.170**	0.330	0.500	1		SW9056A	4D22010	04/23/14 01:42
NA	Nitrate/Nitrite as N	**7.94**	**0.250**	0.750	1.50	1		E353.2	4E06011	05/06/14 16:33
16984-48-8	Fluoride	**0.357**	**0.0330**	0.100	0.250	1		SW9056A	4D22010	04/23/14 01:42
471-34-1	Alkalinity, Total (as CACO3)	**132**	**1.00**	1.00	1.00	1		SM2320B	4D22006	04/22/14 15:37
14808-79-8	Sulfate as SO4	**39.2**	**0.330**	1.00	2.50	1		SW9056A	4D22010	04/23/14 01:42

ANALYSIS DATA SHEET

LF008-30003

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/16/14 13:32

SDG: KirtlandECOS_012
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404127-03
Received: 04/18/14 09:00

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids J LCS-H	**332**	**20.0**	20.0	20.0	1	BQ	SM2540C	4D23015	04/23/14 15:51
16887-00-6	Chloride	**18.5**	0.170	0.330	0.500	1		SW9056A	4D22010	04/23/14 01:59
NA	Nitrate/Nitrite as N	**8.80**	**0.250**	0.750	1.50	1		E353.2	4E06011	05/06/14 16:35
16984-48-8	Fluoride	**0.376**	**0.0330**	0.100	0.250	1		SW9056A	4D22010	04/23/14 01:59
471-34-1	Alkalinity, Total (as CACO3)	**144**	**1.00**	1.00	1.00	1		SM2320B	4D22006	04/22/14 15:47
14808-79-8	Sulfate as SO4	**35.3**	**0.330**	1.00	2.50	1		SW9056A	4D22010	04/23/14 01:59

KA 9/19/14

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30001
Lab ID: 1404329-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 17-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 24-Apr-14

Prep Batch: AB140421-3
QCBatchID: AB140421-3-2
Run ID: AB140421-3A
Count Time: 1000 minutes
Report Basis: Unfiltered

Final Aliquot: 150 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0424

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	2.15 +/- 0.87	1.17	3	LT
12587-47-2	GROSS BETA	2.9 +/- 1.0	1.5	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404329-1*

KA 9/19/14

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30003
Lab ID: 1404329-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 16-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 24-Apr-14

Prep Batch: AB140421-3
QCBatchID: AB140421-3-2
Run ID: AB140421-3A
Count Time: 1000 minutes
Report Basis: Unfiltered

Final Aliquot: 160 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0424

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	2.71 +/- 0.81	0.90	3	LT
12587-47-2	GROSS BETA	3.01 +/- 0.96	1.31	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404329-1*

KA 9/19/14

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30001
Lab ID: 1404329-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 17-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140421-1
QCBatchID: TR140421-1-1
Run ID: TR140421-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.23 +/- 0.23	0.42	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15890	15390	ug	96.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404329-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30003
Lab ID: 1404329-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 16-Apr-14
Date Prepared: 21-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140421-1
QCBatchID: TR140421-1-1
Run ID: TR140421-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.10 +/- 0.17	0.37	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	15940	15300	ug	96.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404329-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30001
Lab ID: 1404329-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 17-Apr-14
Date Prepared: 25-Apr-14
Date Analyzed: 29-Apr-14

Prep Batch: RA140425-1
QCBatchID: RA140425-1-1
Run ID: RA140425-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0429

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.23 +/- 0.21	0.43	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	35250	33910	ug	96.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404329-1*

KA 9/14/14

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404329
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30003
Lab ID: 1404329-2

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 16-Apr-14
Date Prepared: 25-Apr-14
Date Analyzed: 29-Apr-14

Prep Batch: RA140425-1
QCBatchID: RA140425-1-1
Run ID: RA140425-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0429

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.34 +/- 0.23	0.44	1	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	35190	35500	ug	101	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404329-1*

RA 9/19/14

Client Sample Results

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6364-1
SDG: 1404127

Client Sample ID: LF008-30001

Lab Sample ID: 160-6364-1
Matrix: Water

Date Collected: 04/17/14 12:39
Date Received: 04/23/14 10:10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.4		2.0	0.46	ug/L		04/28/14 12:35	04/30/14 21:43	1

Client Sample ID: LF008-30001

Lab Sample ID: 160-6364-2
Matrix: Water

Date Collected: 04/17/14 12:39
Date Received: 04/23/14 10:10

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.2		2.0	0.46	ug/L		04/28/14 12:35	04/30/14 21:56	1

Client Sample ID: LF008-30003

Lab Sample ID: 160-6364-3
Matrix: Water

Date Collected: 04/16/14 13:32
Date Received: 04/23/14 10:10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.1		2.0	0.46	ug/L		04/28/14 12:35	04/30/14 22:03	1

Client Sample ID: LF008-30003

Lab Sample ID: 160-6364-4
Matrix: Water

Date Collected: 04/16/14 13:32
Date Received: 04/23/14 10:10

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	1.4	U	2.0	0.46	ug/L		04/28/14 12:35	04/30/14 22:09	1

Client Sample ID: LF008-80001

Lab Sample ID: 160-6364-5
Matrix: Water

Date Collected: 04/16/14 15:45
Date Received: 04/23/14 10:10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	1.4	U	2.0	0.46	ug/L		04/28/14 12:35	04/30/14 22:16	1

KA 9/19/14

Kirtland Air Force Base
Groundwater Monitoring
Data Review Summary

Sample Delivery Group: KirtlandECOS_013 (1404149, 1404168, 1404203)
Sampling Date: April 21, 23-24, 28, 2014
Data Reviewer: Katie Abbott Date Completed: September 22, 2014
Peer Reviewer: Sheri Fling Date Completed: September 22, 2014

The table below summarizes the data package and sample identifications discussed in this data review.

Field Identification	Sample Type	Lab Identification	Matrix	Analyses				
				VOCs	Total Metals	Dissolved Metals	Inorganics	Radiological
1404149								
KAFB0313-GW-LF008-30005-REG Data Sheet ID: LF008-30005*	SA	1404149-01	Water	X	X^m	---	X	X
KAFB0313-GW-LF008-30005-REG Data Sheet ID: LF008-30005*	SA	1404149-02	Water	---	---	X	---	---
KAFB0313-GW-LF008-30006-FD Data Sheet ID: LF008-30006*	FD	1404149-03	Water	X	X	---	X	X
KAFB0313-GW-LF008-30006-FD Data Sheet ID: LF008-30006*	FD	1404149-04	Water	---	---	X	---	---
KAFB0314-GW-LF008-30007-REG Data Sheet ID: LF008-30007*	SA	1404149-05	Water	X	X	---	X	X
KAFB0314-GW-LF008-30007-REG Data Sheet ID: LF008-30007*	SA	1404149-06	Water	---	---	X	---	---
FIELDQC-BW-LF008-80004-TB Data Sheet ID: LF008-80004*	TB	1404149-07	Water	X	---	---	---	---
1404168								
KAFB0310-GW-LF008-30002-REG Data Sheet ID: LF008-30002*	SA	1404168-01	Water	X^m	X^m	---	X^m	X^m
KAFB0310-GW-LF008-30002-REG Data Sheet ID: LF008-30002*	SA	1404168-02	Water	---	---	X^m	---	---
KAFB0312-GW-LF008-30004-REG Data Sheet ID: LF008-30004*	SA	1404168-03	Water	X	X	---	X	X
KAFB0312-GW-LF008-30004-REG Data Sheet ID: LF008-30004*	SA	1404168-04	Water	---	---	X	---	---
FIELDQC-BW-LF008-80005-TB Data Sheet ID: LF008-80005*	TB	1404168-05	Water	X	---	---	---	---
1404203								
KAFB0315-GW-LF008-30008-REG Data Sheet ID: LF008-30008*	SA	1404203-01	Water	X	X	---	X	X
KAFB0315-GW-LF008-30008-REG Data Sheet ID: LF008-30008*	SA	1404203-02	Water	---	---	X	---	---
FIELDQC-BW-LF008-80008-TB Data Sheet ID: LF008-80008*	TB	1404203-03	Water	X	---	---	---	---

Sample Type: FD – Field Duplicate SA – Sample TB – Trip Blank
X^m-Matrix spike/ matrix spike duplicate
Analyses: VOCs – Volatile Organic Compounds (8260B)
Total/Dissolved Metals – Aluminum, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Molybdenum, Nickel, Selenium, Silver, Thallium, Tin, Uranium, Vanadium, Zinc, Mercury (6010C/7470A)

Inorganics – Alkalinity (SM2320B), Nitrite-Nitrite as N (353.2), Anions: Chloride, Fluoride, Sulfate (9056A), TDS (2540C)
Radiological – Gross Alpha/Beta (9310), Radium-228 (9320), Radium-226 (9315)
*Laboratory shortened sample IDs due to LIMS limitations.

This report contains the final results of the data validation conducted for water samples collected in April 2014 for Kirtland Air Force Base. The sample results were presented in three data packages. The data review was conducted in accordance with the Kirtland Air Force Base Albuquerque, New Mexico Quality Assurance Project Plan for Long-Term Groundwater Monitoring at Multiple Sites: Solid Waste Management Unit (SWMU) 6-1, Landfill 1; SWMU 6-1, Landfill 2; SWMU 6-4, Landfills 4, 5, and 6; ST-105 (CG-C564); UST-58 (PL567); WP026; and ST70 (Cape, December 2013), the requirements of the Department of Defense (DoD) Quality Systems Manual (QSM) Version 4.2 (June 2003), and evaluation of laboratory criteria, as applicable.

General Overall Assessment:

_____ Data are usable without qualification.
__X__ Data are usable with qualification (noted below).
_____ Some or all data are unusable for any purpose (detailed below).

Case Narrative Comments: Any case narrative comments concerning data qualification were addressed in the table below.

Review Parameter	Criteria Met?	Comment
Chain of Custody & Sample Receipt	No	The samples were received by Empirical Laboratories in good condition and were consistent with the accompanying chain of custody (COC). The cooler temperatures upon receipt were within the recommended ≤6 degrees Celsius (°C) temperature range. The sampler incorrectly referenced Method 300.0 on the COC. As the laboratory correctly analyzed the samples by Method 9056A, further action was not necessary. Per project specifications, the following total metals analyses were performed, but not listed on the associated COC: mercury, aluminum, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, thallium, tin, vanadium, and zinc. Total calcium and total potassium were listed on the COC, but not required for analysis. In addition to the analytes requested on the COC, and in order to be consistent with the project, the laboratory also analyzed for fluoride and the following dissolved metals: mercury, aluminum, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, tin, vanadium, and zinc. The samples submitted for radiological parameters were subcontracted to ALS Laboratories and the total and dissolved uranium results were subcontract to TestAmerica Laboratories. The samples were received in good condition and were consistent with the accompanying COC.
Holding Times	Yes	All samples were analyzed within the method required holding time.
Laboratory Blanks • Method Blank • Continuing Calibration Blank	No	With the exception listed in Table 1, target analytes were not detected within the method or continuing calibration blanks.
Matrix Quality Control • Matrix Spike/ Matrix Spike Duplicate KAFB0313-GW-LF008-30005-REG (Total Uranium) KAFB0310-GW-LF008-30002-REG	Yes	**Matrix Spike/ Matrix Spike Duplicate (MS/MSD)** With the exception listed in Table 2, the MS/MSD recoveries and relative percent differences (RPDs) met quality control criteria for the applicable

Review Parameter	Criteria Met?	Comment
(VOCs, Total Metals, Dissolved Metals, Alkalinity, Chloride, Fluoride, Sulfate, Nitrate-Nitrite as N, Gross Alpha/Beta) • Method Duplicate KAFB0310-GW-LF008-30002-REG (TDS, Chloride, Fluoride, Sulfate, Gross Alpha/Beta, Radium-226, Radium-228) KAFB0315-GW-LF008-30008-REG (Gross Alpha/Beta) • Total vs. Partial Analyses		methods. Results in the native sample greater than four times the concentration of the spike added during digestions are not considered to be a representative measure of accuracy. Further action or qualification of data was not considered necessary. The laboratory noted that boron, molybdenum, and tin were mistakenly not spiked into the MS/MSD. Reanalysis was not performed per instructions from the client. When MS/MSD issues accounted for less than 35% of the MS/MSD analyses conducted, applicable data qualification was limited to qualification of the parent sample. When >35% of the MS/MSD results did not meet criteria, evaluation was extended to all associated samples. As an MS/MSD was not submitted for or radium-226, and radium-228, there is no measure of accuracy with respect to the sample matrix; however, an acceptable level of precision with respect to the site-specific sample matrix can be obtained from the acceptable method duplicate results. **Method Duplicate** **Non-Radiological Parameters** The comparison between results of the method duplicate pair met the criteria listed below. Data qualification was not required. • When both the sample and duplicate values are >5x the limit of quantitation (LOQ), acceptable sampling and analytical precision is indicated by an RPD between the results of ≤30% for waters (≤50% for soils). • Where the result for one or both analytes of the method duplicate pair is ≤5xLOQ, satisfactory precision is indicated if the absolute difference between the field duplicate results is ±2xLOQ for waters (±3xLOQ for soils). **Radiological Parameters** The agreement between parent sample results and the method duplicate sample results was evaluated. The duplicate error ratios (DERs) met the laboratory limits. The DER was calculated using the total propagated uncertainty (TPU). **Total vs. Partial Analyses** The following criteria were used to evaluate the total versus dissolved results: • When both results are reported at concentrations >5x the LOQ the two values should agree within ±30%. • When either of the results are reported <5x the LOQ, the two values should agree within 2x the higher LOQ. The total sample results were compared with the associated dissolved sample results against the concentration dependent criteria set forth in the method.
Metals Only • Post Digestion Spike KAFB0310-GW-LF008-30002-REG (Total Metals)	No	**Post Digestion Spike (PDS) (Metals Only)** With the exceptions listed in Table 3, all PDS recoveries were within the

Review Parameter	Criteria Met?	Comment
• Serial Dilution KAFB0310-GW-LF008-30002-REG (Total Metals)		acceptance limits. Results in the native sample greater than four times the concentration of the spike added during digestions are not considered to be a representative measure of accuracy. Further action or qualification of data was not considered necessary. **Serial Dilution (Metals Only)** Only the results that were greater than 50 times their respective detection limits (DLs) were appropriate for comparing to the evaluation criterion. All percent differences (%Ds) between the original sample results and the results obtained from the sample-diluted 1:5 were ≤10%.
Laboratory Performance • Laboratory Control Sample	No	With the exception listed in Table 4, the laboratory control sample (LCS) and/or laboratory control sample duplicate (LCSD) recoveries and RPDs/DERs met quality control criteria.
Method Quality Control • Surrogates (VOCs Only) • Implied Detection Limits (Radiological Parameters Only) • Sample Specific Chemical Recovery (Chemical Yield) (Radiological Parameters Only)	Yes	**Surrogates (VOCs Only)** All of the surrogate recoveries were within the laboratory specified acceptance criteria. **Implied Detection Limits (Radiological Parameters Only)** No values for radionuclides were reported as detected with associated TPUs greater than the reported results. **Sample Specific Chemical Recovery (Chemical Yield) (Radiological Parameters Only)** All of the sample specific chemical recoveries were within the laboratory specified acceptance criteria.
Field Quality Control • Trip Blank FIELDQC-BW-LF008-80004-TB (1404149) FIELDQC-BW-LF008-80005-TB (1404168) FIELDQC-BW-LF008-80008-TB (1404203) • Field Duplicate None • Field Blank None • Equipment Blank FIELDQC-BW-LF008-80001-ER	No	**Trip Blank** With the exceptions listed in Table 5, target analytes were not detected in the trip blanks. **Field Duplicate** **Non-Radiological Parameters** With the exceptions listed in Table 6, the comparison between results of the field duplicate pair met the criteria listed below. • When both the sample and duplicate values are >5x the LOQ acceptable sampling and analytical precision is indicated by an RPD between the results of ≤30% for waters (≤50% for soils). • Where the result for one or both analytes of the field duplicate pair is ≤5xLOQ, satisfactory precision is indicated if the absolute difference between the field duplicate results is ±2xLOQ for waters (±3xLOQ for soils). **Radiological Parameters** The agreement between parent sample results and the field duplicate sample results was evaluated. The DERs met the criterion of ≤2. The DER was calculated using the TPU. **Field Blank** A field blank was not submitted for this event.

Review Parameter	Criteria Met?	Comment
		Equipment Blank An equipment blank was not submitted for this event.
LOQs/MDCs met?	Yes	No results were reported as non-detect at elevated reporting limits. Trace level detects, reported between the DL and LOQ, have been qualified as estimated (J SQL-I).
Other Parameters	Yes	**VOCs** The laboratory noted that the continuing calibration verification associated with samples KAFB0310-GW-LF008-30002-REG, KAFB0312-GW-LF008-30004-REG, and FIELDQC-BW-LF008-80005-TB exceeded criteria of ±20% for bromomethane at -27.1%. As the potential bias was considered to be low, the associated bromomethane results were qualified as estimated (UJ CCAL-L). In addition, samples KAFB0315-GW-LF008-30008-REG and FIELDQC-BW-LF008-80008-TB exceeded criteria of ±20% for acetone (+24.6%) and bromoform (+36.7%). As the potential bias was considered to be high, and the associated acetone results were reported as non-detect, further action was not necessary. The laboratory noted that the MSD for VOCs was performed outside the 12 hour tune criteria. As the MSD was within acceptance limits, further action was not necessary.
Package Completeness	Yes	The results are usable as qualified for the project objective. The data are 100% complete.

> - Greater Than
< - Less Than
≤ - Less Than or Equal to
°C – Degrees Celsius
% - Percent
%Ds – Percent Differences
± - Plus or Minus
COC – Chain of Custody
DERs – Duplicate Error Rations
DL – Detection Limit
I – Indeterminate Bias
J - Estimated
LCS – Laboratory Control Sample
LCSD – Laboratory Control Sample Duplicate
LOQ – Limit of Quantitation
MDC – Minimum Detectable Concentration
MS/MSD – Matrix Spike/ Matrix Spike Duplicate
N – Nitrogen
PDS – Post Digestion Spike
RPD – Relative Percent Difference
SQL – Sample Quantitation Limit
TDS – Total Dissolved Solids
TPU – Total Propagated Uncertainty
VOCs – Volatile Organic Compounds

Table 1: Blank Outliers and Resultant Data Qualification

Associated Samples	Analyte	Concentration	Qualification
VOCs			
4E01023-BLK KAFB0313-GW-LF008-30005-REG KAFB0313-GW-LF008-30006-FD KAFB0314-GW-LF008-30007-REG FIELDQC-BW-LF008-80004-TB	Hexachlorobutadiene	0.336 µg/L	None. The associated results were reported as non-detect.
4E05011-BLK KAFB0315-GW-LF008-30008-REG FIELDQC-BW-LF008-80008-TB		0.350 µg/L	
Inorganics			
4D23015-BLK KAFB0313-GW-LF008-30005-REG KAFB0313-GW-LF008-30006-FD KAFB0314-GW-LF008-30007-REG	Total Dissolved Solids	42.0 mg/L	None. The associated results were reported at concentrations >5x the blank contamination.

Associated Samples	Analyte	Concentration	Qualification
Radiological			
AB140424-BLK KAFB0313-GW-LF008-30005-REG KAFB0313-GW-LF008-30006-FD KAFB0314-GW-LF008-30007-REG	Gross Beta	1.26 pCi/L	As the potential bias was considered to be high, the associated results were qualified as estimated (J MB-H).

µg/L – Micrograms per Liter
J – Estimated
pCi/L – Picocuries per Liter
> - Greater Than
mg/L – Milligrams per Liter
VOCs – Volatile Organic Compounds
H – High Bias
MB – Method Blank

Table 2: MS/MSD Recovery and RPD Outliers and Resultant Data Qualification

Associated Sample	Analyte	%R (Limits)	RPD (Limit)	Qualification
Total Metals				
KAFB0310-GW-LF008-30002-REG	Total Iron	**252/-144** (80-120)	**96.0** (20)	As >35% of the MS/MSD percent recoveries and RPDs were outside of control limits, the total iron results for all samples in KirtlandECOS_013 (1404149, 1404168, 1404203) were qualified as estimated (J MS,D-I).
	Total Manganese	99.4/**75.4** (80-120)	**23.3** (20)	As >35% of the MS/MSD percent recoveries and RPDs were outside of control limits, the total manganese results for all samples in KirtlandECOS_013 (1404149, 1404168, 1404203) were qualified as estimated (J MS,D-L).
Inorganics				
KAFB0310-GW-LF008-30002-REG	Nitrate-Nitrite as N	**82.6/84.2** (90-110)	0.442 (20)	As >35% of the MS/MSD percent recoveries were outside of control limits, the nitrate-nitrite as N results for all samples in KirtlandECOS_013 (1404149, 1404168, 1404203) were qualified as estimated (J MS-L).

> - Greater Than
% - Percent
%R – Percent Recoveries
D – Duplicate
I – Indeterminate Bias
J – Estimated
L – Low Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference
Bold indicates a recovery outside of acceptance limits.

Table 3: Post-Digestion Spike Outliers and Resultant Data Qualification

Associated Samples	Analyte	%R (Limits)	Qualification
KAFB0310-GW-LF008-30002-REG	Total Arsenic	**122** (80-120)	As the potential bias was considered to be high and the associated sample result was reported as non-detect, data qualification was not considered necessary.

%R – Percent Recovery
Bold indicates a recovery or RPD outside of acceptance limit

Table 4: LCS/LCSD Recovery Outliers and Resultant Data Qualification

Associated Samples	Analyte	%R (Limits)	RPD (Limits)	Qualification
VOCs				
LCS 4E05011 KAFB0315-GW-LF008-30008-REG FIELDQC-BW-LF008-80008-TB	Acetone	**143** (40-140)	NA	As the potential bias was considered to be high and the associated sample results were reported as non-detect, data qualification was not considered necessary.
Inorganics				
LCS 4D23015 KAFB0313-GW-LF008-30005-REG KAFB0313-GW-LF008-30006-FD KAFB0314-GW-LF008-30007-REG	Total Dissolved Solids	114/**121** (80-120)	6.11 (20)	As the potential bias was considered to be high, the associated detected results were qualified as estimated (J LCS-H).

%R – Percent Recoveries
H – High Bias
J – Estimated
LCS – Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
NA – Not Applicable
RPD – Relative Percent Difference
VOCs – Volatile Organic Compounds
Bold indicates a recovery outside of acceptance limits.

Table 5: Trip Blank Outliers and Resultant Data Qualification

Associated Samples	Analyte	Concentration (µg/L)	Qualification
FIELDQC-BW-LF008-80005-TB (1404168)	Chloromethane	1.91	None. The associated results were reported as non-detect.
	Methylene Chloride	2.58	

µg/L – Micrograms per Liter

Table 6: Field Duplicate Outliners and Resultant Data Qualification

Field Duplicate Pair	Analyte	Parent Result (µg/L)	FD Result (µg/L)	Criteria not Met	Qualification
Metals					
KAFB0313-GW-LF008-30005-REG/ KAFB0313-GW-LF008-30006-FD	Total Iron	117	39.8	Absolute Difference >2x LOQ	As >35% of the field duplicate RPDs for total iron were outside control limits, data qualification was extended to all samples in KirtlandECOS_013 (1404149, 1404168, 1404203). As the absolute difference between the field duplicate pair results exceeded 2x the LOQ, the total iron results for all samples were qualified as estimated (J FD-I).

µg/L – Micrograms per Liter
% - Percent
> - Greater Than
FD – Field Duplicate
I – Indeterminate Bias
J – Estimated
LOQ – Limit of Quantitation
RPD – Relative Percent Difference

ANALYSIS DATA SHEET

LF008-30005

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-01	File ID:	0414901.D
Sampled:	04/21/14 10:56	Prepared:	05/01/14 15:33	Analyzed:	05/01/14 15:33
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30005

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404149-01 File ID: 0414901.D

Sampled: 04/21/14 10:56 Prepared: 05/01/14 15:33 Analyzed: 05/01/14 15:33

Solids: Preparation: 5030B Dilution: 1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene J SQL-I	**0.536**	0.250	0.500	1.00	J
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.98	103	75 - 120	
Dibromofluoromethane	30.00	29.99	100	85 - 115	
1,2-Dichloroethane-d4	30.00	29.41	98.0	70 - 120	
Toluene-d8	30.00	30.73	102	85 - 120	

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30006

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-03	File ID:	0414903.D
Sampled:	04/21/14 10:56	Prepared:	05/01/14 16:01	Analyzed:	05/01/14 16:01
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30006

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-03	File ID:	0414903.D
Sampled:	04/21/14 10:56	Prepared:	05/01/14 16:01	Analyzed:	05/01/14 16:01
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene J SQL-I	**0.599**	0.250	0.500	1.00	J
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.89	99.6	75 - 120	
Dibromofluoromethane	30.00	30.26	101	85 - 115	
1,2-Dichloroethane-d4	30.00	29.54	98.5	70 - 120	
Toluene-d8	30.00	30.37	101	85 - 120	

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30007

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404149-05 File ID: 0414905.D

Sampled: 04/21/14 15:26 Prepared: 05/01/14 16:28 Analyzed: 05/01/14 16:28

Solids: Preparation: 5030B Dilution: 1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30007

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-05	File ID:	0414905.D
Sampled:	04/21/14 15:26	Prepared:	05/01/14 16:28	Analyzed:	05/01/14 16:28
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene J SQL-I	**0.658**	0.250	0.500	1.00	J
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene J SQL-I	**0.549**	0.250	0.500	1.00	J
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.59	98.6	75 - 120	
Dibromofluoromethane	30.00	29.70	99.0	85 - 115	
1,2-Dichloroethane-d4	30.00	29.60	98.7	70 - 120	
Toluene-d8	30.00	29.29	97.6	85 - 120	

KA 9/22/14

ANALYSIS DATA SHEET

LF008-80004

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404149-07 File ID: 0414907.D

Sampled: 04/20/14 08:00 Prepared: 05/01/14 16:56 Analyzed: 05/01/14 16:56

Solids: Preparation: 5030B Dilution: 1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/22/14

ANALYSIS DATA SHEET

LF008-80004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-07	File ID:	0414907.D
Sampled:	04/20/14 08:00	Prepared:	05/01/14 16:56	Analyzed:	05/01/14 16:56
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E01023 Sequence: 4E12206 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.74	99.1	75 - 120	
Dibromofluoromethane	30.00	29.44	98.1	85 - 115	
1,2-Dichloroethane-d4	30.00	29.40	98.0	70 - 120	
Toluene-d8	30.00	28.66	95.5	85 - 120	

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30002

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-01	File ID:	0416801.D
Sampled:	04/24/14 13:46	Prepared:	05/02/14 16:23	Analyzed:	05/02/14 16:23
Solids:		Preparation:	5030B	Dilution:	1
Batch:	4E02004	Sequence:	4E12501	Calibration:	4120001
Instrument:	MS-VOA3				

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane UJ CCAL-L		0.500	1.00	2.00	UY
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene J SQL-I	**0.266**	0.250	0.500	1.00	J
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30002

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-01	File ID:	0416801.D
Sampled:	04/24/14 13:46	Prepared:	05/02/14 16:23	Analyzed:	05/02/14 16:23
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene	**1.10**	0.250	0.500	1.00	
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.33	94.4	75 - 120	
Dibromofluoromethane	30.00	29.45	98.2	85 - 115	
1,2-Dichloroethane-d4	30.00	30.84	103	70 - 120	
Toluene-d8	30.00	30.67	102	85 - 120	

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-03	File ID:	0416803.D
Sampled:	04/23/14 15:51	Prepared:	05/02/14 16:48	Analyzed:	05/02/14 16:48
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane UJ CCAL-L		0.500	1.00	2.00	UY
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30004

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-03	File ID:	0416803.D
Sampled:	04/23/14 15:51	Prepared:	05/02/14 16:48	Analyzed:	05/02/14 16:48
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.69	92.3	75 - 120	
Dibromofluoromethane	30.00	29.62	98.7	85 - 115	
1,2-Dichloroethane-d4	30.00	31.69	106	70 - 120	
Toluene-d8	30.00	29.65	98.8	85 - 120	

KA 9/22/14

ANALYSIS DATA SHEET

LF008-80005

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-05	File ID:	0416805.D
Sampled:	04/23/14 08:00	Prepared:	05/02/14 17:13	Analyzed:	05/02/14 17:13
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane VJ CCAL-L		0.500	1.00	2.00	UY
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane	**1.91**	0.250	0.500	1.00	
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/22/14

ANALYSIS DATA SHEET

LF008-80005

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-05	File ID:	0416805.D
Sampled:	04/23/14 08:00	Prepared:	05/02/14 17:13	Analyzed:	05/02/14 17:13
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E02004 Sequence: 4E12501 Calibration: 4120001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride	**2.58**	0.500	1.00	2.00	
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.00	93.3	75 - 120	
Dibromofluoromethane	30.00	29.41	98.0	85 - 115	
1,2-Dichloroethane-d4	30.00	31.35	104	70 - 120	
Toluene-d8	30.00	29.32	97.7	85 - 120	

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30008

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404203-01	File ID:	0420301.D
Sampled:	04/28/14 12:17	Prepared:	05/05/14 12:06	Analyzed:	05/05/14 12:06
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	UX
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30008

Laboratory:	Empirical Laboratories, LLC		SDG:	KirtlandECOS_013	
Client:	Shaw Environmental, Inc.		Project:	Kirtland AFB (ECOS)	
Matrix:	Water	Laboratory ID:	1404203-01	File ID:	0420301.D
Sampled:	04/28/14 12:17	Prepared:	05/05/14 12:06	Analyzed:	05/05/14 12:06
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene J SQL-I	**0.267**	0.250	0.500	1.00	J
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.36	101	75 - 120	
Dibromofluoromethane	30.00	30.48	102	85 - 115	
1,2-Dichloroethane-d4	30.00	28.06	93.5	70 - 120	
Toluene-d8	30.00	28.86	96.2	85 - 120	

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ANALYSIS DATA SHEET

LF008-80006

Laboratory: Empirical Laboratories, LLC SDG: KirtlandECOS_013

Client: Shaw Environmental, Inc. Project: Kirtland AFB (ECOS)

Matrix: Water Laboratory ID: 1404203-03 File ID: 0420303.D

Sampled: 04/28/14 08:00 Prepared: 05/05/14 12:34 Analyzed: 05/05/14 12:34

Solids: Preparation: 5030B Dilution: 1

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	UXQ
71-43-2	Benzene		0.250	0.500	1.00	U
108-86-1	Bromobenzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	UX
74-83-9	Bromomethane		0.500	1.00	2.00	U
104-51-8	n-Butylbenzene		0.250	0.500	1.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
135-98-8	sec-Butylbenzene		0.250	0.500	1.00	U
98-06-6	tert-Butylbenzene		0.250	0.500	1.00	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
95-49-8	2-Chlorotoluene		0.250	0.500	1.00	U
106-43-4	4-Chlorotoluene		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
74-95-3	Dibromomethane		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
540-59-0	1,2-Dichloroethene (total)		0.500	1.00	2.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
142-28-9	1,3-Dichloropropane		0.250	0.500	1.00	U
594-20-7	2,2-Dichloropropane		0.250	0.500	1.00	U
563-58-6	1,1-Dichloropropene		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
542-75-6	1,3-Dichloropropene (total)		0.500	1.00	2.00	U

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ANALYSIS DATA SHEET

LF008-80006

Laboratory:	Empirical Laboratories, LLC			SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.			Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404203-03	File ID:	0420303.D
Sampled:	04/28/14 08:00	Prepared:	05/05/14 12:34	Analyzed:	05/05/14 12:34
Solids:		Preparation:	5030B	Dilution:	1

Batch: 4E05011 Sequence: 4E12606 Calibration: 4121002 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
87-68-3	Hexachlorobutadiene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
99-87-6	p-Isopropyltoluene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
91-20-3	Naphthalene		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
103-65-1	n-Propylbenzene		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
96-18-4	1,2,3-Trichloropropane		0.500	1.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	0.500	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	0.500	1.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U
1330-20-7	Xylenes (total)		0.750	1.50	3.00	U

Total Target Analytes Reported: 68

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.07	100	75 - 120	
Dibromofluoromethane	30.00	32.19	107	85 - 115	
1,2-Dichloroethane-d4	30.00	30.26	101	70 - 120	
Toluene-d8	30.00	28.70	95.7	85 - 120	

ANALYSIS DATA SHEET

LF008-30005

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-01
Sampled:	04/21/14 10:56	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:43
7429-90-5	Aluminum	**61.4**	**12.5**	25.0	50.0	1		SW6010C	4D29021	05/02/14 12:11
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:11
7440-39-3	Barium	**43.7**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:11
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:11
7440-42-8	Boron	**24.8**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:11
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:11
7440-47-3	Chromium	**5.42**	**0.500**	1.00	2.50	1	N*	SW6010C	4D29021	05/02/14 12:11
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:11
7440-50-8	Copper J SQL-I	**1.98**	1.00	2.00	2.50	1	J	SW6010C	4D29021	05/02/14 12:11
7439-89-6	Iron J MS,D-~~I~~ PD-I	**117**	**7.50**	15.0	25.0	1	N*	SW6010C	4D29021	05/02/14 12:11
7439-92-1	Lead J SQL-I	**0.701**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 12:11
7439-96-5	Manganese J MS,D-~~I~~L	**5.82**	**0.750**	1.50	3.75	1	N*	SW6010C	4D29021	05/02/14 12:11
7439-98-7	Molybdenum J SQL-I	**1.76**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:11
7440-02-0	Nickel J SQL-I	**1.63**	**0.750**	1.50	2.50	1	J	SW6010C	4D29021	05/02/14 12:11
7782-49-2	Selenium	**4.64**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:11
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:11
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:11
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:11
7440-62-2	Vanadium	**5.38**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:11
7440-66-6	Zinc J SQL-I	**3.46**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:11

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ANALYSIS DATA SHEET

LF008-30005

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/21/14 10:56

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404149-02
Received: 04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:44
7429-90-5	Aluminum (dissolved) J SOL-I	**30.7**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 12:15
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:15
7440-39-3	Barium (dissolved)	**43.5**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:15
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:15
7440-42-8	Boron (dissolved)	**25.2**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:15
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:15
7440-47-3	Chromium (dissolved) J SOL-I	**1.39**	**0.500**	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 12:15
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:15
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 12:15
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U N*	SW6010C	4D29021	05/02/14 12:15
7439-92-1	Lead (dissolved) J SOL-I	**0.581**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 12:15
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U N*	SW6010C	4D29021	05/02/14 12:15
7439-98-7	Molybdenum (dissolved) J SOL-I	**1.82**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:15
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:15
7782-49-2	Selenium (dissolved)	**4.37**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:15
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:15
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:15
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:15
7440-62-2	Vanadium (dissolved)	**4.87**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:15
7440-66-6	Zinc (dissolved) J SOL-I	**1.56**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:15

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ANALYSIS DATA SHEET

LF008-30006

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-03
Sampled:	04/21/14 10:56	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:45
7429-90-5	Aluminum J SQL-I	**30.2**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 14:09
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:09
7440-39-3	Barium	**41.8**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 14:09
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:09
7440-42-8	Boron	**24.8**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 14:09
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:09
7440-47-3	Chromium	**2.59**	**0.500**	1.00	2.50	1		SW6010C	4E06002	05/07/14 14:09
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:09
7440-50-8	Copper		1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 14:09
7439-89-6	Iron J MS,D,I FD-I	**39.8**	**7.50**	15.0	25.0	1		SW6010C	4E06002	05/07/14 14:09
7439-92-1	Lead J SQL-I	**0.430**	**0.375**	0.750	0.750	1	J	SW6010C	4E06002	05/07/14 14:09
7439-96-5	Manganese J SQL, MS,D-I L	**2.74**	**0.750**	1.50	3.75	1	J	SW6010C	4E06002	05/07/14 14:09
7439-98-7	Molybdenum J SQL-I	**1.73**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 14:09
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:09
7782-49-2	Selenium	**4.32**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 14:09
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 14:09
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 14:09
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 14:09
7440-62-2	Vanadium	**4.93**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 14:09
7440-66-6	Zinc J SQL-I	**1.94**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 14:09

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30006

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/21/14 10:56

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404149-04
Received: 04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:46
7429-90-5	Aluminum (dissolved) J SOL-I	**27.2**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 12:20
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:20
7440-39-3	Barium (dissolved)	**43.9**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:20
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:20
7440-42-8	Boron (dissolved)	**24.3**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:20
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:20
7440-47-3	Chromium (dissolved) J SOL-I	**1.55**	**0.500**	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 12:20
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:20
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 12:20
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U N*	SW6010C	4D29021	05/02/14 12:20
7439-92-1	Lead (dissolved) J SOL-I	**0.566**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 12:20
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U N*	SW6010C	4D29021	05/02/14 12:20
7439-98-7	Molybdenum (dissolved) J SOL-I	**1.77**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:20
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:20
7782-49-2	Selenium (dissolved)	**4.62**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:20
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:20
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:20
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:20
7440-62-2	Vanadium (dissolved)	**4.73**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:20
7440-66-6	Zinc (dissolved) J SOL-I	**3.61**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:20

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30007

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-05
Sampled:	04/21/14 15:26	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29006	04/29/14 11:48
7429-90-5	Aluminum		12.5	25.0	50.0	1	U	SW6010C	4E06002	05/07/14 14:14
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:14
7440-39-3	Barium	**39.0**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 14:14
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 14:14
7440-42-8	Boron	**25.2**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 14:14
7440-43-9	Cadmium		0.500	0.500	1.25	1	MU	SW6010C	4E06002	05/07/14 14:14
7440-47-3	Chromium	**14.6**	**0.500**	1.00	2.50	1		SW6010C	4E06002	05/07/14 14:14
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 14:14
7440-50-8	Copper		1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 14:14
7439-89-6	Iron J MS,D,~~I~~FD-I	**64.1**	**7.50**	15.0	25.0	1		SW6010C	4E06002	05/07/14 14:14
7439-92-1	Lead J SQL-I	**0.407**	**0.375**	0.750	0.750	1	J	SW6010C	4E06002	05/07/14 14:14
7439-96-5	Manganese J SQL,MS,D-~~I~~L	**1.80**	**0.750**	1.50	3.75	1	J	SW6010C	4E06002	05/07/14 14:14
7439-98-7	Molybdenum J SQL-I	**1.42**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 14:14
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 14:14
7782-49-2	Selenium	**12.3**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 14:14
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 14:14
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 14:14
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 14:14
7440-62-2	Vanadium	**4.19**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 14:14
7440-66-6	Zinc J SQL-I	**1.70**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 14:14

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30007

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/21/14 15:26

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404149-06
Received: 04/23/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29005	04/29/14 11:26
7429-90-5	Aluminum (dissolved) J SQL-I	**46.4**	**25.0**	50.0	100	2	JD	SW6010C	4D29021	05/05/14 16:37
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:24
7440-39-3	Barium (dissolved)	**40.7**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 12:24
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:24
7440-42-8	Boron (dissolved)	**25.5**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 12:24
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 12:24
7440-47-3	Chromium (dissolved) J SQL-I	**1.52**	**0.500**	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 12:24
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 12:24
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 12:24
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U N*	SW6010C	4D29021	05/02/14 12:24
7439-92-1	Lead (dissolved)	**0.825**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 12:24
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U N*	SW6010C	4D29021	05/02/14 12:24
7439-98-7	Molybdenum (dissolved) J SQL-I	**1.34**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 12:24
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 12:24
7782-49-2	Selenium (dissolved)	**12.9**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 12:24
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 12:24
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 12:24
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 12:24
7440-62-2	Vanadium (dissolved)	**4.08**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 12:24
7440-66-6	Zinc (dissolved)		2.50	5.00	10.0	2	U	SW6010C	4D29021	05/05/14 16:37

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30002

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/24/14 13:46

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404168-01
Received: 04/25/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29007	04/29/14 12:34
7429-90-5	Aluminum J SQL-I	**24.6**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 13:04
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:04
7440-39-3	Barium	**66.7**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 13:04
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:04
7440-42-8	Boron	**24.1**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 13:04
7440-43-9	Cadmium		0.500	0.500	1.25	1	MU	SW6010C	4D29021	05/02/14 13:04
7440-47-3	Chromium	**218**	**0.500**	1.00	2.50	1	N*	SW6010C	4D29021	05/02/14 13:04
7440-48-4	Cobalt	**3.16**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:04
7440-50-8	Copper	**16.6**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 13:04
7439-89-6	Iron J MS,D,~~I~~ FD-I	**897**	**7.50**	15.0	25.0	1	N*	SW6010C	4D29021	05/02/14 13:04
7439-92-1	Lead J SQL-I	**0.663**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 13:04
7439-96-5	Manganese J MS,D-~~I~~L	**19.2**	**0.750**	1.50	3.75	1	N*	SW6010C	4D29021	05/02/14 13:04
7439-98-7	Molybdenum J SQL-I	**2.87**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 13:04
7440-02-0	Nickel	**5.33**	**0.750**	1.50	2.50	1		SW6010C	4D29021	05/02/14 13:04
7782-49-2	Selenium	**8.23**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 13:04
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 13:04
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 13:04
7440-31-5	Tin J SQL-I	**5.56**	**2.50**	5.00	7.50	1	J	SW6010C	4D29021	05/02/14 13:04
7440-62-2	Vanadium	**7.33**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:04
7440-66-6	Zinc	**17.0**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 13:04

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30002

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/24/14 13:46

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404168-02
Received: 04/25/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29007	04/29/14 12:38
7429-90-5	Aluminum (dissolved) J SOL-I	**25.0**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 13:26
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:26
7440-39-3	Barium (dissolved)	**65.0**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 13:26
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:26
7440-42-8	Boron (dissolved)	**24.4**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 13:26
7440-43-9	Cadmium (dissolved)		0.500	0.500	1.25	1	MU	SW6010C	4D29021	05/02/14 13:26
7440-47-3	Chromium (dissolved) J SOL-I	**1.01**	**0.500**	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 13:26
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 13:26
7440-50-8	Copper (dissolved)	**10.5**	**1.00**	2.00	2.50	1		SW6010C	4D29021	05/02/14 13:26
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U N*	SW6010C	4D29021	05/02/14 13:26
7439-92-1	Lead (dissolved)	**0.767**	**0.375**	0.750	0.750	1		SW6010C	4D29021	05/02/14 13:26
7439-96-5	Manganese (dissolved) J SOL-I	**1.76**	**0.750**	1.50	3.75	1	J N*	SW6010C	4D29021	05/02/14 13:26
7439-98-7	Molybdenum (dissolved) J SOL-I	**1.56**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 13:26
7440-02-0	Nickel (dissolved) J SOL-I	**0.799**	**0.750**	1.50	2.50	1	J	SW6010C	4D29021	05/02/14 13:26
7782-49-2	Selenium (dissolved)	**8.37**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 13:26
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 13:26
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 13:26
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 13:26
7440-62-2	Vanadium (dissolved)	**4.56**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:26
7440-66-6	Zinc (dissolved)	**17.0**	**1.25**	2.50	5.00	1		SW6010C	4D29021	05/02/14 13:26

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30004

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/23/14 15:51

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404168-03
Received: 04/25/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4D29007	04/29/14 12:39
7429-90-5	Aluminum J SOL-I	41.7	12.5	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 13:31
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:31
7440-39-3	Barium	168	1.25	2.50	10.0	1		SW6010C	4D29021	05/02/14 13:31
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:31
7440-42-8	Boron	44.4	2.50	5.00	10.0	1		SW6010C	4D29021	05/02/14 13:31
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:31
7440-47-3	Chromium J SOL-I	1.05	0.500	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 13:31
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 13:31
7440-50-8	Copper		1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 13:31
7439-89-6	Iron J SOL, MS, D-~~I~~ FD-I	19.5	7.50	15.0	25.0	1	J N*	SW6010C	4D29021	05/02/14 13:31
7439-92-1	Lead	0.832	0.375	0.750	0.750	1		SW6010C	4D29021	05/02/14 13:31
7439-96-5	Manganese J SOL, MS, D-~~I~~ L	1.36	0.750	1.50	3.75	1	J N*	SW6010C	4D29021	05/02/14 13:31
7439-98-7	Molybdenum J SOL-I	1.98	1.25	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 13:31
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:31
7782-49-2	Selenium	4.40	0.750	1.25	2.50	1		SW6010C	4D29021	05/02/14 13:31
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 13:31
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 13:31
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 13:31
7440-62-2	Vanadium	4.62	1.25	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:31
7440-66-6	Zinc		1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 13:31

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30004

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/23/14 15:51

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404168-04
Received: 04/25/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4D29007	04/29/14 12:40
7429-90-5	Aluminum (dissolved) J SQL-I	**32.4**	**12.5**	25.0	50.0	1	J	SW6010C	4D29021	05/02/14 13:35
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:35
7440-39-3	Barium (dissolved)	**166**	**1.25**	2.50	10.0	1		SW6010C	4D29021	05/02/14 13:35
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:35
7440-42-8	Boron (dissolved)	**42.8**	**2.50**	5.00	10.0	1		SW6010C	4D29021	05/02/14 13:35
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4D29021	05/02/14 13:35
7440-47-3	Chromium (dissolved) J SQL-I	**0.974**	**0.500**	1.00	2.50	1	J N*	SW6010C	4D29021	05/02/14 13:35
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4D29021	05/02/14 13:35
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4D29021	05/02/14 13:35
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U N*	SW6010C	4D29021	05/02/14 13:35
7439-92-1	Lead (dissolved) J SQL-I	**0.702**	**0.375**	0.750	0.750	1	J	SW6010C	4D29021	05/02/14 13:35
7439-96-5	Manganese (dissolved) J SQL-I	**0.781**	**0.750**	1.50	3.75	1	J N*	SW6010C	4D29021	05/02/14 13:35
7439-98-7	Molybdenum (dissolved) J SQL-I	**1.81**	**1.25**	2.50	5.00	1	J	SW6010C	4D29021	05/02/14 13:35
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4D29021	05/02/14 13:35
7782-49-2	Selenium (dissolved)	**3.88**	**0.750**	1.25	2.50	1		SW6010C	4D29021	05/02/14 13:35
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4D29021	05/02/14 13:35
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4D29021	05/02/14 13:35
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4D29021	05/02/14 13:35
7440-62-2	Vanadium (dissolved)	**4.35**	**1.25**	2.50	3.12	1		SW6010C	4D29021	05/02/14 13:35
7440-66-6	Zinc (dissolved)		1.25	2.50	5.00	1	U	SW6010C	4D29021	05/02/14 13:35

VA 9/22/14

ANALYSIS DATA SHEET

LF008-30008

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404203-01
Sampled:	04/28/14 12:17	Received:	04/30/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury		0.0800	0.160	0.200	1	U	SW7470A	4E07020	05/07/14 11:52
7429-90-5	Aluminum J SQL-I	**32.8**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 15:42
7440-38-2	Arsenic		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 15:42
7440-39-3	Barium	**74.3**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 15:42
7440-41-7	Beryllium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 15:42
7440-42-8	Boron	**23.7**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 15:42
7440-43-9	Cadmium		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 15:42
7440-47-3	Chromium J SQL-I	**0.884**	**0.500**	1.00	2.50	1	J	SW6010C	4E06002	05/07/14 15:42
7440-48-4	Cobalt		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 15:42
7440-50-8	Copper		1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 15:42
7439-89-6	Iron J SQL,MS,D,~~I~~FD-I	**16.4**	**7.50**	15.0	25.0	1	J	SW6010C	4E06002	05/07/14 15:42
7439-92-1	Lead		0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 15:42
7439-96-5	Manganese J SQL,MS,D-L	**0.997**	**0.750**	1.50	3.75	1	J	SW6010C	4E06002	05/07/14 15:42
7439-98-7	Molybdenum J SQL-I	**1.38**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 15:42
7440-02-0	Nickel		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 15:42
7782-49-2	Selenium	**7.02**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 15:42
7440-22-4	Silver		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 15:42
7440-28-0	Thallium		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 15:42
7440-31-5	Tin		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 15:42
7440-62-2	Vanadium	**3.89**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 15:42
7440-66-6	Zinc		1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 15:42

KH 9/22/14

ANALYSIS DATA SHEET

LF008-30008

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/28/14 12:17

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404203-02
Received: 04/30/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-97-6	Mercury (dissolved)		0.0800	0.160	0.200	1	U	SW7470A	4E07020	05/07/14 11:53
7429-90-5	Aluminum (dissolved) J SQL-I	**19.4**	**12.5**	25.0	50.0	1	J	SW6010C	4E06002	05/07/14 15:46
7440-38-2	Arsenic (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 15:46
7440-39-3	Barium (dissolved)	**77.4**	**1.25**	2.50	10.0	1		SW6010C	4E06002	05/07/14 15:46
7440-41-7	Beryllium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 15:46
7440-42-8	Boron (dissolved)	**25.0**	**2.50**	5.00	10.0	1		SW6010C	4E06002	05/07/14 15:46
7440-43-9	Cadmium (dissolved)		0.250	0.500	1.25	1	U	SW6010C	4E06002	05/07/14 15:46
7440-47-3	Chromium (dissolved) J SQL-I	**0.797**	**0.500**	1.00	2.50	1	J	SW6010C	4E06002	05/07/14 15:46
7440-48-4	Cobalt (dissolved)		1.25	2.50	3.12	1	U	SW6010C	4E06002	05/07/14 15:46
7440-50-8	Copper (dissolved)		1.00	2.00	2.50	1	U	SW6010C	4E06002	05/07/14 15:46
7439-89-6	Iron (dissolved)		7.50	15.0	25.0	1	U	SW6010C	4E06002	05/07/14 15:46
7439-92-1	Lead (dissolved)		0.375	0.750	0.750	1	U	SW6010C	4E06002	05/07/14 15:46
7439-96-5	Manganese (dissolved)		0.750	1.50	3.75	1	U	SW6010C	4E06002	05/07/14 15:46
7439-98-7	Molybdenum (dissolved) J SQL-I	**1.47**	**1.25**	2.50	5.00	1	J	SW6010C	4E06002	05/07/14 15:46
7440-02-0	Nickel (dissolved)		0.750	1.50	2.50	1	U	SW6010C	4E06002	05/07/14 15:46
7782-49-2	Selenium (dissolved)	**7.38**	**0.750**	1.25	2.50	1		SW6010C	4E06002	05/07/14 15:46
7440-22-4	Silver (dissolved)		0.250	0.500	2.50	1	U	SW6010C	4E06002	05/07/14 15:46
7440-28-0	Thallium (dissolved)		0.750	1.00	2.00	1	U	SW6010C	4E06002	05/07/14 15:46
7440-31-5	Tin (dissolved)		2.50	5.00	7.50	1	U	SW6010C	4E06002	05/07/14 15:46
7440-62-2	Vanadium (dissolved)	**4.15**	**1.25**	2.50	3.12	1		SW6010C	4E06002	05/07/14 15:46
7440-66-6	Zinc (dissolved)		1.25	2.50	5.00	1	U	SW6010C	4E06002	05/07/14 15:46

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30005

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-01
Sampled:	04/21/14 10:56	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids J LCS-H	**361**	**20.0**	20.0	20.0	1	BQ	SM2540C	4D23015	04/24/14 11:15
16887-00-6	Chloride	**30.9**	**0.170**	0.330	0.500	1		SW9056A	4E05021	05/05/14 19:36
NA	Nitrate/Nitrite as N J MS-L	**9.46**	**0.250**	0.750	1.50	1	N	E353.2	4E15013	05/15/14 14:37
16984-48-8	Fluoride	**0.385**	**0.0330**	0.100	0.250	1		SW9056A	4E05021	05/05/14 19:36
471-34-1	Alkalinity, Total (as CACO3)	**119**	**1.00**	1.00	1.00	1		SM2320B	4E01003	05/01/14 11:50
14808-79-8	Sulfate as SO4	**95.2**	**0.330**	1.00	2.50	1		SW9056A	4E05021	05/05/14 19:36

KA 9/22/14

ANALYSIS DATA SHEET

LF008-30006

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/21/14 10:56

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404149-03
Received: 04/23/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids J LCS-H	**367**	**20.0**	20.0	20.0	1	BQ	SM2540C	4D23015	04/24/14 11:15
16887-00-6	Chloride	**31.0**	0.170	0.330	0.500	1		SW9056A	4E05021	05/05/14 19:53
NA	Nitrate/Nitrite as N J MS-L	**9.52**	**0.250**	0.750	1.50	1	N	E353.2	4E15013	05/15/14 14:38
16984-48-8	Fluoride	**0.382**	**0.0330**	0.100	0.250	1		SW9056A	4E05021	05/05/14 19:53
471-34-1	Alkalinity, Total (as CACO3)	**119**	**1.00**	1.00	1.00	1		SM2320B	4E01003	05/01/14 12:04
14808-79-8	Sulfate as SO4	**95.6**	**0.330**	1.00	2.50	1		SW9056A	4E05021	05/05/14 19:53

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ANALYSIS DATA SHEET

LF008-30007

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404149-05
Sampled:	04/21/14 15:26	Received:	04/23/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids J LCS-H	**10600**	20.0	20.0	20.0	1	Q	SM2540C	4D23015	04/24/14 11:15
16887-00-6	Chloride	**124**	0.170	0.330	0.500	1		SW9056A	4E05021	05/05/14 20:10
NA	Nitrate/Nitrite as N J MS-L	**5.38**	0.250	0.750	1.50	1	N	E353.2	4E15013	05/15/14 14:40
16984-48-8	Fluoride	**0.285**	0.0330	0.100	0.250	1		SW9056A	4E05021	05/05/14 20:10
471-34-1	Alkalinity, Total (as CACO3)	**97.5**	1.00	1.00	1.00	1		SM2320B	4E01003	05/01/14 12:12
14808-79-8	Sulfate as SO4	**183**	0.330	1.00	2.50	1		SW9056A	4E05021	05/05/14 20:10

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ANALYSIS DATA SHEET

LF008-30002

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404168-01
Sampled:	04/24/14 13:46	Received:	04/25/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**469**	**20.0**	20.0	20.0	1		SM2540C	4D30008	04/30/14 17:20
16887-00-6	Chloride	**92.3**	**0.170**	0.330	0.500	1		SW9056A	4E13320	05/13/14 20:53
NA	Nitrate/Nitrite as N J MS-L	**6.96**	**0.250**	0.750	1.50	1	N	E353.2	4E15013	05/15/14 14:41
16984-48-8	Fluoride	**0.293**	**0.0330**	0.100	0.250	1		SW9056A	4E13320	05/13/14 20:53
471-34-1	Alkalinity, Total (as CACO3)	**114**	1.00	1.00	1.00	1		SM2320B	4E08017	05/08/14 14:53
14808-79-8	Sulfate as SO4	**95.8**	**0.330**	1.00	2.50	1		SW9056A	4E13320	05/13/14 20:53

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ANALYSIS DATA SHEET

LF008-30004

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/23/14 15:51

SDG: KirtlandECOS_013
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404168-03
Received: 04/25/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**339**	20.0	20.0	20.0	1		SM2540C	4D30008	04/30/14 17:20
16887-00-6	Chloride	**20.0**	0.170	0.330	0.500	1		SW9056A	4E13320	05/13/14 22:03
NA	Nitrate/Nitrite as N J MS-L	**18.4**	0.500	1.50	3.00	2	D N	E353.2	4E15013	05/15/14 15:13
16984-48-8	Fluoride	**0.349**	0.0330	0.100	0.250	1		SW9056A	4E13320	05/13/14 22:03
471-34-1	Alkalinity, Total (as CACO3)	**131**	1.00	1.00	1.00	1		SM2320B	4E07005	05/07/14 12:02
14808-79-8	Sulfate as SO4	**41.0**	0.330	1.00	2.50	1		SW9056A	4E13320	05/13/14 22:03

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ANALYSIS DATA SHEET

LF008-30008

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_013
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404203-01
Sampled:	04/28/14 12:17	Received:	04/30/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
TDS	Total Dissolved Solids	**396**	20.0	20.0	20.0	1		SM2540C	4D30008	04/30/14 17:20
16887-00-6	Chloride	**63.5**	0.170	0.330	0.500	1		SW9056A	4E13320	05/13/14 22:20
NA	Nitrate/Nitrite as N J MS-L	**6.74**	0.250	0.750	1.50	1	N	E353.2	4E15013	05/15/14 14:47
16984-48-8	Fluoride	**0.320**	0.0330	0.100	0.250	1		SW9056A	4E13320	05/13/14 22:20
471-34-1	Alkalinity, Total (as CACO3)	**122**	1.00	1.00	1.00	1		SM2320B	4E08017	05/08/14 16:22
14808-79-8	Sulfate as SO4	**83.7**	0.330	1.00	2.50	1		SW9056A	4E13320	05/13/14 22:20

KA 9/22/14

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30005
Lab ID: 1404392-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 21-Apr-14
Date Prepared: 24-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: AB140424-1
QCBatchID: AB140424-1-2
Run ID: AB140424-1A
Count Time: 240 minutes
Report Basis: Unfiltered

Final Aliquot: 170 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0425A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.6 +/- 1.4	1.9	3	
12587-47-2	GROSS BETA J MB-H	2.7 +/- 1.4	2.6	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404392-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental – FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30006
Lab ID: 1404392-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 21-Apr-14
Date Prepared: 24-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: AB140424-1
QCBatchID: AB140424-1-2
Run ID: AB140424-1A
Count Time: 240 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0425A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	4.2 +/- 1.9	2.8	3	
12587-47-2	GROSS BETA J MB-H	3.2 +/- 1.3	2.4	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404392-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30007
Lab ID: 1404392-3

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 21-Apr-14
Date Prepared: 24-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: AB140424-1
QCBatchID: AB140424-1-2
Run ID: AB140424-1A
Count Time: 1000 minutes
Report Basis: Unfiltered

Final Aliquot: 110 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0425

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.0 +/- 1.1	1.5	3	LT
12587-47-2	GROSS BETA J MB-H	3.4 +/- 1.3	1.8	4	LT

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404392-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30005
Lab ID: 1404392-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 21-Apr-14
Date Prepared: 23-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140423-1
QCBatchID: TR140423-1-1
Run ID: TR140423-1A
Count Time: 60 minutes
Report Basis: Unfiltered

Final Aliquot: 975 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.57 +/- 0.32	0.39	1	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16050	15310	ug	95.4	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404392-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30006
Lab ID: 1404392-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 21-Apr-14
Date Prepared: 23-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140423-1
QCBatchID: TR140423-1-1
Run ID: TR140423-1A
Count Time: 60 minutes
Report Basis: Unfiltered

Final Aliquot: 985 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.68 +/- 0.34	0.37	1	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16040	15650	ug	97.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404392-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30007
Lab ID: 1404392-3

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 21-Apr-14
Date Prepared: 23-Apr-14
Date Analyzed: 25-Apr-14

Prep Batch: TR140423-1
QCBatchID: TR140423-1-1
Run ID: TR140423-1A
Count Time: 60 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0425

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.71 +/- 0.35	0.36	1	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16030	15820	ug	98.7	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404392-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30005
Lab ID: 1404392-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 21-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.31 +/- 0.24	0.49	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34140	32500	ug	95.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404392-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30006
Lab ID: 1404392-2

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 21-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.35 +/- 0.25	0.50	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34140	32300	ug	94.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404392-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404392
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30007
Lab ID: 1404392-3

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 21-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.28 +/- 0.24	0.48	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34130	32000	ug	93.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404392-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 24-Apr-14
Date Prepared: 28-Apr-14
Date Analyzed: 01-May-14

Prep Batch: AB140428-2
QCBatchID: AB140428-2-2
Run ID: AB140428-2A
Count Time: 400 minutes
Report Basis: Unfiltered

Final Aliquot: 150 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0501A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	1.8 +/- 1.2	2.1	3	U
12587-47-2	GROSS BETA	2.1 +/- 1.3	2.3	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404448-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30004
Lab ID: 1404448-2

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 24-Apr-14
Date Prepared: 28-Apr-14
Date Analyzed: 30-Apr-14

Prep Batch: AB140428-2
QCBatchID: AB140428-2-2
Run ID: AB140428-2A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 190 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABC0430A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.9 +/- 2.0	2.8	3	
12587-47-2	GROSS BETA	2.1 +/- 1.7	3.4	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404448-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140429-1MB

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 29-Apr-14
Date Prepared: 29-Apr-14
Date Analyzed: 13-May-14

Prep Batch: TR140429-1
QCBatchID: TR140429-1-1
Run ID: TR140429-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0513A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.15 +/- 0.13	0.19	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16840	16100	ug	95.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *TR1404448-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140429-1LCS

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 29-Apr-14
Date Prepared: 29-Apr-14
Date Analyzed: 13-May-14

Prep Batch: TR140429-1
QCBatchID: TR140429-1-1
Run ID: TR140429-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0513A

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	41 +/- 10	0	45.30	90.5	75 - 125	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16840	16210	ug	96.2	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
LT - Result is less than Requested MDC, greater than sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS Recovery within control limits.
M - The requested MDC was not met.
M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty
MDC - Minimum Detectable Concentration

Data Package ID: *TR1404448-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 24-Apr-14
Date Prepared: 29-Apr-14
Date Analyzed: 13-May-14

Prep Batch: TR140429-1
QCBatchID: TR140429-1-1
Run ID: TR140429-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0513

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.068 +/- 0.095	0.187	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16920	16860	ug	99.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404448-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30004
Lab ID: 1404448-2

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 24-Apr-14
Date Prepared: 29-Apr-14
Date Analyzed: 13-May-14

Prep Batch: TR140429-1
QCBatchID: TR140429-1-1
Run ID: TR140429-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0513A

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.13 +/- 0.13	0.22	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	17020	16860	ug	99.1	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404448-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30002
Lab ID: 1404448-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 24-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAC0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.08 +/- 0.22	0.48	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34170	33100	ug	96.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404448-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404448
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30004
Lab ID: 1404448-2

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 24-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.21 +/- 0.26	0.55	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34330	32490	ug	94.6	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404448-1*

Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30008
Lab ID: 1404514-1

Sample Matrix: WATER
Prep SOP: PAI 702 Rev 20
Date Collected: 28-Apr-14
Date Prepared: 01-May-14
Date Analyzed: 05-May-14

Prep Batch: AB140501-1
QCBatchID: AB140501-1-3
Run ID: AB140501-1A
Count Time: 180 minutes
Report Basis: Unfiltered

Final Aliquot: 200 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: ABA0505

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	3.2 +/- 1.6	2.3	3	
12587-47-2	GROSS BETA	1.7 +/- 1.4	2.9	4	U

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *AB1404514-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Method Blank Results

Lab Name: ALS Environmental - FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Lab ID: TR140502-1MB

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 02-May-14
Date Prepared: 02-May-14
Date Analyzed: 19-May-14

Prep Batch: TR140502-1
QCBatchID: TR140502-1-1
Run ID: TR140502-1A
Count Time: 30 minutes

Final Aliquot: 995 ml
Result Units: pCi/l
File Name: RDC0519

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.030 +/- 0.089	0.224	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	1787.0	17330	ug	97.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: *TR1404514-1*

Ra-226 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30008
Lab ID: 1404514-1

Sample Matrix: WATER
Prep SOP: PAI 712 Rev 16
Date Collected: 28-Apr-14
Date Prepared: 02-May-14
Date Analyzed: 19-May-14

Prep Batch: TR140502-1
QCBatchID: TR140502-1-1
Run ID: TR140502-1A
Count Time: 30 minutes
Report Basis: Unfiltered

Final Aliquot: 995 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RDC0519

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
13982-63-3	Ra-226	0.12 +/- 0.12	0.20	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	17920	16110	ug	89.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *TR1404514-1*

Radium-228 Analysis by GFPC

PAI 724 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1404514
Client Name: Empirical Laboratories, LLC
ClientProject ID: Kirtland AFB 150577

Field ID: LF008-30008
Lab ID: 1404514-1

Sample Matrix: WATER
Prep SOP: SOP749 Rev 2
Date Collected: 28-Apr-14
Date Prepared: 05-May-14
Date Analyzed: 08-May-14

Prep Batch: RA140502-1
QCBatchID: RA140502-1-1
Run ID: RA140502-1A
Count Time: 120 minutes
Report Basis: Unfiltered

Final Aliquot: 1500 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: pCi/l
File Name: RAA0508

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
15262-20-1	Ra-228	0.24 +/- 0.26	0.56	1	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	34200	31630	ug	92.5	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: *RA1404514-1*

KA 9/22/14

Client Sample Results

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6422-1

Client Sample ID: LF008-30005
Date Collected: 04/21/14 10:56
Date Received: 04/29/14 09:35

Lab Sample ID: 160-6422-1
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.6		2.5	0.58	ug/L		05/01/14 12:13	05/02/14 20:56	1

Client Sample ID: LF008-30005
Date Collected: 04/21/14 10:56
Date Received: 04/29/14 09:35

Lab Sample ID: 160-6422-2
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.8		2.5	0.58	ug/L		05/01/14 12:13	05/02/14 21:22	1

Client Sample ID: LF008-30006
Date Collected: 04/21/14 10:56
Date Received: 04/29/14 09:35

Lab Sample ID: 160-6422-3
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium J SQL-I	2.4	J	2.5	0.58	ug/L		05/01/14 12:13	05/02/14 21:29	1

Client Sample ID: LF008-30006
Date Collected: 04/21/14 10:56
Date Received: 04/29/14 09:35

Lab Sample ID: 160-6422-4
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium J SQL-I	2.3	J	2.5	0.58	ug/L		05/01/14 12:13	05/02/14 21:35	1

Client Sample ID: LF008-30007
Date Collected: 04/21/14 15:26
Date Received: 04/29/14 09:35

Lab Sample ID: 160-6422-5
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium J SQL-I	1.9	J	2.5	0.58	ug/L		05/01/14 12:13	05/02/14 21:42	1

Client Sample ID: LF008-30007
Date Collected: 04/21/14 15:26
Date Received: 04/29/14 09:35

Lab Sample ID: 160-6422-6
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium J SQL-I	2.2	J	2.5	0.58	ug/L		05/01/14 12:13	05/02/14 22:02	1

KA 9/22/14

Client Sample Results

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6423-1

Client Sample ID: LF008-30002

Date Collected: 04/24/14 13:46
Date Received: 04/29/14 09:35

Lab Sample ID: 160-6423-1
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium J SQL-I	2.3	J	2.5	0.58	ug/L		05/01/14 12:16	05/02/14 22:22	1

Client Sample ID: LF008-30002

Date Collected: 04/24/14 13:46
Date Received: 04/29/14 09:35

Lab Sample ID: 160-6423-2
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium J SQL-I	2.4	J	2.5	0.58	ug/L		05/01/14 12:16	05/02/14 22:49	1

Client Sample ID: LF008-30004

Date Collected: 04/23/14 15:51
Date Received: 04/29/14 09:35

Lab Sample ID: 160-6423-3
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	2.5		2.5	0.58	ug/L		05/01/14 12:16	05/02/14 22:56	1

Client Sample ID: LF008-30004

Date Collected: 04/23/14 15:51
Date Received: 04/29/14 09:35

Lab Sample ID: 160-6423-4
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium J SQL-I	2.4	J	2.5	0.58	ug/L		05/01/14 12:16	05/02/14 23:02	1

TestAmerica St. Louis

KA 9/22/14

Client Sample Results

Client: Empirical Laboratories, LLC
Project/Site: Kirtland

TestAmerica Job ID: 160-6605-1

Client Sample ID: LF008-30008

Date Collected: 04/28/14 12:17
Date Received: 05/09/14 09:40

Lab Sample ID: 160-6605-1
Matrix: Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium J SOL-I	2.3	J	2.5	0.58	ug/L		05/13/14 12:38	05/14/14 18:52	1

Client Sample ID: LF008-30008

Date Collected: 04/28/14 12:17
Date Received: 05/09/14 09:40

Lab Sample ID: 160-6605-2
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium J SOL-I	1.9	J	2.5	0.58	ug/L		05/13/14 12:38	05/14/14 19:05	1

KA 9/22/14

Kirtland Air Force Base
Groundwater Monitoring
Data Review Summary

Sample Delivery Group: KirtlandECOS_0014 (1404205, 1405013)
Sampling Date: April 28, 30, May 1, 2014
Data Reviewer: Katie Abbott Date Completed: September 15, 2014
Peer Reviewer: Sheri Fling Date Completed: September 15, 2014

The table below summarizes the data package and sample identifications discussed in this data review.

Field Identification	Sample Type	Lab Identification	Matrix	Analyses		
				Total Metals	Inorganics	DOC
1404205						
TJA-2-GW-ST105-30047-REG Data Sheet ID: ST105-30047*	SA	1404205-01	Water	X	X	---
TJA-2-GW-ST105-30047-REG Data Sheet ID: ST105-30047*	SA	1404205-02	Water	---	---	X
1405013						
GCMP-GW-ST105-30029-REG Data Sheet ID: ST105-30029*	SA	1405013-01	Water	X	X	---
GCMP-GW-ST105-30029-REG Data Sheet ID: ST105-30029*	SA	1405013-02	Water	---	---	X
KAFB0622-GW-ST105-30043-REG Data Sheet ID: ST105-30043*	SA	1405013-03	Water	X	X	---
KAFB0622-GW-ST105-30043-REG Data Sheet ID: ST105-30043*	SA	1405013-04	Water	---	---	X
TJA-4-GW-ST105-30048-REG Data Sheet ID: ST105-30048*	SA	1405013-05	Water	X	X	---
TJA-4-GW-ST105-30048-REG Data Sheet ID: ST105-30048*	SA	1405013-06	Water	---	---	X
TJA-4-GW-ST105-30049-FD Data Sheet ID: ST105-30049*	FD	1405013-07	Water	X	X	---
TJA-4-GW-ST105-30049-FD Data Sheet ID: ST105-30049*	FD	1405013-08	Water	---	---	X
TJA-5-GW-ST105-30050-REG Data Sheet ID: ST105-30050*	SA	1405013-09	Water	X	X^m	---
TJA-5-GW-ST105-30050-REG Data Sheet ID: ST105-30050*	SA	1405013-10	Water	---	---	X

Sample Type: FD – Field Duplicate SA – Sample
X^m-Matrix spike/ matrix spike duplicate
Analyses: Dissolved Metals – Calcium, Magnesium Potassium, Sodium, Iron, Manganese (6010B)
Inorganics – Total Kjeldahl Nitrogen (TKN) (351.2), Nitrite-Nitrite as N (353.2), Ammonia as N (SM4500), Anions: Bromide, Chloride, Fluoride, Sulfate (9056A), Alkalinity (SM2320B), Total Dissolved Solids (TDS) (2540C), Total Organic Carbon (TOC), TOC-MIN, TOC-MAX(9060A),
Dissolved Organic Carbon (DOC), DOC-MIN, DOC-MAX (9060A)
*Laboratory shortened sample IDs due to LIMS limitations.

This report contains the final results of the data validation conducted for water samples collected in April 2014 for Kirtland Air Force Base. The sample results were presented in two data packages. The data review was conducted in accordance with the Kirtland Air Force Base Albuquerque, New

Mexico Quality Assurance Project Plan for Long-Term Groundwater Monitoring at Multiple Sites: Solid Waste Management Unit (SWMU) 6-1, Landfill 1; SWMU 6-1, Landfill 2; SWMU 6-4, Landfills 4,5, and 6; ST-105 (CG-C564); UST-58 (PL567); WP026; and ST70 (Cape, December 2013), the requirements of the Department of Defense (DoD) Quality Systems Manual (QSM) Version 4.2 (June 2003), and evaluation of laboratory criteria, as applicable.

General Overall Assessment:

_____ Data are usable without qualification.
__X__ Data are usable with qualification (noted below).
_____ Some or all data are unusable for any purpose (detailed below).

Case Narrative Comments: Any case narrative comments concerning data qualification were addressed in the table below.

Review Parameter	Criteria Met?	Comment
Chain of Custody & Sample Receipt	No	The samples were received by Empirical Laboratories in good condition and were consistent with the accompanying chain of custody (COC). The cooler temperatures upon receipt were within the recommended ≤6 degrees Celsius (°C) temperature range. The sampler incorrectly referenced Methods 300.0 and 5310 on the COC. As the laboratory correctly analyzed the samples by Methods 9056A and 9060A, further action was not necessary. The sampler indicated on the COC that sample GCMP-GW-ST105-30029-REG required filtering prior to analysis for dissolved organic carbon (DOC). As the volume submitted to the laboratory for DOC was preserved, an unpreserved aliquot from another bottle was filtered and then preserved in the laboratory and used for analysis; therefore, the associated DOC result for sample GCMP-GW-ST105-30029-REG was qualified as estimated (UJ P-I)
Reporting	Yes	In addition to the total organic carbon (TOC) and DOC results, the laboratory also reported the minimum and maximum values from the analysis.
Holding Times	Yes	All samples were analyzed within the method required holding time.
Laboratory Blanks • Method Blank	No	With the exception listed in Table 1, target analytes were not detected within the method blank.
Matrix Quality Control • Matrix Spike/ Matrix Spike Duplicate TJA-5-GW-ST105-30050-REG (TKN) • Method Duplicate None	No	**Matrix Spike/ Matrix Spike Duplicate (MS/MSD)** With the exception listed in table 2, the MS/MSD recoveries and relative percent differences (RPDs) met quality control criteria for the applicable methods As an MS/MSD was not submitted for total metals, ammonia as N, TOC, bromide, chloride, fluoride, sulfate, nitrate-nitrite as N, alkalinity, and DOC, there is no measure of accuracy or precision with respect to the sample matrix. **Method Duplicate** A method duplicate was not performed.
Metals Only • Post Digestion Spike None • Serial Dilution	N/A	**Post Digestion Spike (Metals Only)** A post digestion spike was not reported in association with the sample in this data package.

Review Parameter	Criteria Met?	Comment
None		**Serial Dilution (Metals Only)** A serial dilution was not reported in association with the sample in this data package.
Laboratory Performance • Laboratory Control Sample	No	With the exceptions listed in Table 3, the laboratory control sample (LCS) and/or laboratory control sample duplicate (LCSD) recoveries and RPDs met quality control criteria.
Field Quality Control • Trip Blank None • Field Duplicate None • Field Blank TJA-4-GW-ST105-30048-REG/ TJA-4-GW-ST105-30049-FD • Equipment Blank None	Yes	**Trip Blank** As volatile organic compounds (VOCs) were not analyzed during this sampling event, a trip blank was not required. Further action was not necessary. **Field Duplicate** The comparison between results of the field duplicate pair met the criteria listed below. Data qualification was not required. • When both the sample and duplicate values are >5x the LOQ acceptable sampling and analytical precision is indicated by an RPD between the results of ≤30% for waters (≤50% for soils). • Where the result for one or both analytes of the field duplicate pair is ≤5xLOQ, satisfactory precision is indicated if the absolute difference between the field duplicate results is ±2xLOQ for waters (±3xLOQ for soils). **Field Blank** A field blank was not submitted for this event. **Equipment Blank** An equipment blank were not submitted for this event.
LOQs met?	No	The TKN results are suppressed with negative concentrations more negative than the LOQ for samples TJA-2-GW-ST105-30047-REG, GCMP-GW-ST105-30029-REG, KAFB0622-GW-ST105-30043-REG, TJA-4-GW-ST105-30048-REG, TJA-4-GW-ST105-30049-FD, and TJA-5-GW-ST105-30050-REG. As a result, the detection limits (DLs) and LOQs were elevated by the laboratory. As TKN was reported as non-detect, these results will need to be evaluated by the end user of the data with respect to project objectives. Trace level detects, reported between the DL and LOQ, have been qualified as estimated (J SQL-I).
Package Completeness	Yes	The results are usable as qualified for the project objective. The data are 100% complete.

≤ - Less Than or Equal to
> - Greater Than
± - Plus or Minus
°C – Degrees Celsius
% - Percent
COC – Chain of Custody
DL – Detection Limit
DOC – Dissolved Organic Carbon
I – Indeterminate Bias
J - Estimated
LCS – Laboratory Control Sample
LCSD – Laboratory Control Sample Duplicate
LOQ – Limit of Quantitation
MS/MSD – Matrix Spike/ Matrix Spike Duplicate
N – Nitrogen
P - Preservative
RPD – Relative Percent Difference
SQL – Sample Quantitation Limit
TKN – Total Kjeldahl Nitrogen
TOC – Total Organic Carbon
VOCs – Volatile Organic Compounds

Table 1: Blank Outliers and Resultant Data Qualification

Associated Samples	Analyte	Concentration	Qualification
Inorganics			
4D16014-BLK1 TJA-2-GW-ST105-30047-REG GCMP-GW-ST105-30029-REG KAFB0622-GW-ST105-30043-REG TJA-4-GW-ST105-30048-REG TJA-4-GW-ST105-30049-FD TJA-5-GW-ST105-30050-REG	TKN	-1.18 mg/L	As the potential bias was considered to be low, the associated results were qualified as estimated (UJ MB-L).

L – Low Bias
MB – Method Blank
mg/L – Milligrams per Liter
TKN – Total Kjeldahl Nitrogen
UJ - Estimated

Table 2: MS/MSD Recovery and RPD Outliers and Resultant Data Qualification

Associated Sample	Analyte	%R (Limits)	RPD (Limit)	Qualification
Inorganics				
TJA-5-GW-ST105-30050-REG	TKN	**39.5/33.0** (75-125)	18.0 (20)	As >35% of the MS/MSD percent recoveries were outside of control limits, data qualification was extended to all samples reported in data package KirtlandECOS_014 (1404205, 1405013). As the potential bias was considered to be low, the results for all samples were qualified as estimated (UJ MS-L).

> - Greater Than
% - Percent
L – Low Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
TKN – Total Kjeldahl Nitrogen
RPD – Relative Percent Difference
UJ – Estimated
Bold indicates a recovery outside of acceptance limits.

Table 3: LCS Recovery Outliers and Resultant Data Qualification

Associated Samples	Analyte	%R (Limits)	RPD (Limit)	Qualification
Inorganics				
4E08007-BS1 TJA-2-GW-ST105-30047-REG GCMP-GW-ST105-30029-REG KAFB0622-GW-ST105-30043-REG TJA-4-GW-ST105-30048-REG TJA-4-GW-ST105-30049-FD TJA-5-GW-ST105-30050-REG	TKN	116/**133** (80-120)	13.5 (20)	As the potential bias was considered to be high and the associated sample results were reported as non-detect, data qualification was not considered necessary.

%R – Percent Recoveries
LCS – Laboratory Control Sample
RPD – Relative Percent Difference
TKN – Total Kjeldahl Nitrogen
Bold indicates a recovery outside of acceptance limits.

ANALYSIS DATA SHEET

ST105-30047

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1404205-01
Sampled:	04/28/14 15:29	Received:	04/30/14 08:50

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**75300**	**250**	500	1250	1		SW6010C	4E06002	05/07/14 15:51
7439-89-6	Iron		7.50	15.0	25.0	1	U	SW6010C	4E06002	05/07/14 15:51
7439-95-4	Magnesium	**11700**	**250**	750	1250	1		SW6010C	4E06002	05/07/14 15:51
7439-96-5	Manganese		0.750	1.50	3.75	1	U	SW6010C	4E06002	05/07/14 15:51
7440-09-7	Potassium	**1820**	**250**	750	1250	1		SW6010C	4E06002	05/07/14 15:51
7440-23-5	Sodium	**22400**	**250**	750	1250	1		SW6010C	4E06002	05/07/14 15:51

KA 9/10/14

ANALYSIS DATA SHEET

ST105-30029

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 05/01/14 13:15

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 1405013-01
Received: 05/02/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**34200**	**250**	500	1250	1		SW6010C	4E14023	05/20/14 14:13
7439-89-6	Iron J SQL-I	**23.3**	**7.50**	15.0	25.0	1	J	SW6010C	4E14023	05/20/14 14:13
7439-95-4	Magnesium	**6120**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:13
7439-96-5	Manganese J SQL-I	**3.00**	**0.750**	1.50	3.75	1	J	SW6010C	4E14023	05/20/14 14:13
7440-09-7	Potassium	**1970**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:13
7440-23-5	Sodium	**21400**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:13

KA 9/10/14

ANALYSIS DATA SHEET

ST105-30043

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-03
Sampled:	05/01/14 10:51	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**43600**	**250**	500	1250	1		SW6010C	4E14023	05/20/14 14:17
7439-89-6	Iron	**164**	**7.50**	15.0	25.0	1		SW6010C	4E14023	05/20/14 14:17
7439-95-4	Magnesium	**9480**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:17
7439-96-5	Manganese	**5.53**	**0.750**	1.50	3.75	1		SW6010C	4E14023	05/20/14 14:17
7440-09-7	Potassium	**2290**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:17
7440-23-5	Sodium	**32800**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:17

KA 9/10/14

ANALYSIS DATA SHEET

ST105-30048

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/30/14 12:18

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 1405013-05
Received: 05/02/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**64300**	**250**	500	1250	1		SW6010C	4E14023	05/20/14 14:22
7439-89-6	Iron		7.50	15.0	25.0	1	U	SW6010C	4E14023	05/20/14 14:22
7439-95-4	Magnesium	**12800**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:22
7439-96-5	Manganese		0.750	1.50	3.75	1	U	SW6010C	4E14023	05/20/14 14:22
7440-09-7	Potassium	**3150**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:22
7440-23-5	Sodium	**24500**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:22

KA 9/10/14

ANALYSIS DATA SHEET

ST105-30049

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/30/14 12:18

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 1405013-07
Received: 05/02/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**65800**	**250**	500	1250	1		SW6010C	4E14023	05/20/14 14:26
7439-89-6	Iron		7.50	15.0	25.0	1	U	SW6010C	4E14023	05/20/14 14:26
7439-95-4	Magnesium	**13000**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:26
7439-96-5	Manganese		0.750	1.50	3.75	1	U	SW6010C	4E14023	05/20/14 14:26
7440-09-7	Potassium	**3220**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:26
7440-23-5	Sodium	**25000**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:26

LA 5/10/14

ANALYSIS DATA SHEET

ST105-30050

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-09
Sampled:	04/30/14 15:11	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-70-2	Calcium	**79300**	**250**	500	1250	1		SW6010C	4E14023	05/20/14 14:31
7439-89-6	Iron	**46.0**	**7.50**	15.0	25.0	1		SW6010C	4E14023	05/20/14 14:31
7439-95-4	Magnesium	**14400**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:31
7439-96-5	Manganese J SQL-I	**1.72**	**0.750**	1.50	3.75	1	J	SW6010C	4E14023	05/20/14 14:31
7440-09-7	Potassium	**2000**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:31
7440-23-5	Sodium	**23100**	**250**	750	1250	1		SW6010C	4E14023	05/20/14 14:31

KA 9/10/14

ANALYSIS DATA SHEET

ST105-30047

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/28/14 15:29

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404205-01
Received: 04/30/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N		0.100	0.150	0.300	1	U	SM4500NH3BG	4E20006	05/20/14 18:05
24959-67-9	Bromide	**0.665**	**0.0420**	0.125	0.250	1		SW9056A	4E13320	05/13/14 22:37
TDS	Total Dissolved Solids	**368**	20.0	20.0	20.0	1		SM2540C	4D30008	04/30/14 17:20
NA	Total Kjeldahl Nitrogen UJ MS, MB-L		4.00	4.00	4.00	1	MUQ N	E351.2	4E08007	05/09/14 09:40
7440-44-0	Total Organic Carbon		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 18:42
16887-00-6	Chloride	**65.6**	0.170	0.330	0.500	1		SW9056A	4E13320	05/13/14 22:37
NA	Nitrate/Nitrite as N	**11.4**	**0.500**	1.50	3.00	2	D	E353.2	4E15013	05/15/14 15:14
16984-48-8	Fluoride	**0.298**	**0.0330**	0.100	0.250	1		SW9056A	4E13320	05/13/14 22:37
471-34-1	Alkalinity, Total (as CACO3)	**106**	**1.00**	1.00	1.00	1		SM2320B	4E08017	05/08/14 16:54
14808-79-8	Sulfate as SO4	**53.1**	0.330	1.00	2.50	1		SW9056A	4E13320	05/13/14 22:37
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 18:42
7440-44-0	TOC-MAX		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 18:42

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ANALYSIS DATA SHEET

ST105-30047

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/28/14 15:29

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 1404205-02
Received: 04/30/14 08:50

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 19:05
7440-44-0	TOC-MAX (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 19:05
7440-44-0	TOC-MIN (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E01024	05/02/14 19:05

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ANALYSIS DATA SHEET

ST105-30029

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-01
Sampled:	05/01/14 13:15	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N		0.100	0.150	0.300	1	U	SM4500NH3BG	4E20006	05/20/14 18:21
24959-67-9	Bromide J SQL-I	**0.0740**	**0.0420**	0.125	0.250	1	J	SW9056A	4E13321	05/14/14 04:08
TDS	Total Dissolved Solids	**186**	20.0	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14
NA	Total Kjeldahl Nitrogen VJ MS+K MB-L		2.00	2.00	2.00	1	MUQ N	E351.2	4E08007	05/09/14 09:42
7440-44-0	Total Organic Carbon J SQL-I	**1.39**	**1.25**	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 16:58
16887-00-6	Chloride	**9.98**	**0.170**	0.330	0.500	1		SW9056A	4E13321	05/14/14 04:08
NA	Nitrate/Nitrite as N	**3.61**	**0.250**	0.750	1.50	1		E353.2	4E16013	05/16/14 13:24
16984-48-8	Fluoride	**0.427**	**0.0330**	0.100	0.250	1		SW9056A	4E13321	05/14/14 04:08
471-34-1	Alkalinity, Total (as CACO3)	**126**	**1.00**	1.00	1.00	1		SM2320B	4E14026	05/15/14 08:42
14808-79-8	Sulfate as SO4	**27.0**	**0.330**	1.00	2.50	1		SW9056A	4E13321	05/14/14 04:08
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 16:58
7440-44-0	TOC-MAX J SQL-I	**1.85**	**1.25**	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 16:58

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ANALYSIS DATA SHEET

ST105-30029

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-02
Sampled:	05/01/14 13:15	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved) J SOW P-I	1.75	1.25	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 17:21
7440-44-0	TOC-MAX (dissolved)	2.11	1.25	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 17:21
7440-44-0	TOC-MIN (dissolved)	1.57	1.25	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 17:21

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ANALYSIS DATA SHEET

ST105-30043

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 05/01/14 10:51

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 1405013-03
Received: 05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N		0.100	0.150	0.300	1	U	SM4500NH3BG	4E20012	05/20/14 18:24
24959-67-9	Bromide J SQL-I	**0.248**	**0.0420**	0.125	0.250	1	J	SW9056A	4E13321	05/14/14 04:26
TDS	Total Dissolved Solids	**264**	**20.0**	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14
NA	Total Kjeldahl Nitrogen UJ MS,K-MB-L		3.00	3.00	3.00	1	MUQ N	E351.2	4E08007	05/09/14 09:43
7440-44-0	Total Organic Carbon		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 17:44
16887-00-6	Chloride	**23.6**	**0.170**	0.330	0.500	1		SW9056A	4E13321	05/14/14 04:26
NA	Nitrate/Nitrite as N	**7.51**	**0.250**	0.750	1.50	1		E353.2	4E16013	05/16/14 13:25
16984-48-8	Fluoride	**0.632**	**0.0330**	0.100	0.250	1		SW9056A	4E13321	05/14/14 04:26
471-34-1	Alkalinity, Total (as CACO3)	**132**	**1.00**	1.00	1.00	1		SM2320B	4E14026	05/15/14 08:54
14808-79-8	Sulfate as SO4	**35.5**	**0.330**	1.00	2.50	1		SW9056A	4E13321	05/14/14 04:26
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 17:44
7440-44-0	TOC-MAX		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 17:44

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ANALYSIS DATA SHEET

ST105-30043

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-04
Sampled:	05/01/14 13:15	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 18:06
7440-44-0	TOC-MAX (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 18:06
7440-44-0	TOC-MIN (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 18:06

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ANALYSIS DATA SHEET

ST105-30048

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/30/14 12:18

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 1405013-05
Received: 05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N		0.100	0.150	0.300	1	U	SM4500NH3BG	4E20012	05/20/14 18:25
24959-67-9	Bromide J SQL-I	**0.239**	**0.0420**	0.125	0.250	1	J	SW9056A	4E13321	05/14/14 04:43
TDS	Total Dissolved Solids	**344**	**20.0**	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14
NA	Total Kjeldahl Nitrogen UJ MSrK MB-L		4.00	4.00	4.00	1	MUQ N	E351.2	4E08007	05/09/14 09:45
7440-44-0	Total Organic Carbon		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:25
16887-00-6	Chloride	**21.7**	**0.170**	0.330	0.500	1		SW9056A	4E13321	05/14/14 04:43
NA	Nitrate/Nitrite as N	**30.8**	**1.25**	3.75	7.50	5	D	E353.2	4E16013	05/16/14 14:02
16984-48-8	Fluoride	**0.340**	**0.0330**	0.100	0.250	1		SW9056A	4E13321	05/14/14 04:43
471-34-1	Alkalinity, Total (as CACO3)	**124**	**1.00**	1.00	1.00	1		SM2320B	4E12929	05/12/14 15:08
14808-79-8	Sulfate as SO4	**16.6**	**0.330**	1.00	2.50	1		SW9056A	4E13321	05/14/14 04:43
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:25
7440-44-0	TOC-MAX		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:25

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ANALYSIS DATA SHEET

ST105-30048

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 05/01/14 12:18

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 1405013-06
Received: 05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:48
7440-44-0	TOC-MAX (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:48
7440-44-0	TOC-MIN (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 19:48

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ANALYSIS DATA SHEET

ST105-30049

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/30/14 12:18

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 1405013-07
Received: 05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N J SQL-I	**0.252**	**0.100**	0.150	0.300	1	J	SM4500NH3BG	4E20012	05/20/14 18:26
24959-67-9	Bromide J SQL-I	**0.245**	**0.0420**	0.125	0.250	1	J	SW9056A	4E13321	05/14/14 05:01
TDS	Total Dissolved Solids	**369**	**20.0**	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14
NA	Total Kjeldahl Nitrogen UJ MS,K MB-L		4.00	4.00	4.00	1	MUQ N	E351.2	4E08007	05/09/14 09:46
7440-44-0	Total Organic Carbon		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:11
16887-00-6	Chloride	**22.1**	**0.170**	0.330	0.500	1		SW9056A	4E13321	05/14/14 05:01
NA	Nitrate/Nitrite as N	**30.6**	**1.25**	3.75	7.50	5	D	E353.2	4E16013	05/16/14 14:03
16984-48-8	Fluoride	**0.346**	**0.0330**	0.100	0.250	1		SW9056A	4E13321	05/14/14 05:01
471-34-1	Alkalinity, Total (as CACO3)	**133**	**1.00**	1.00	1.00	1		SM2320B	4E12929	05/12/14 15:16
14808-79-8	Sulfate as SO4	**16.9**	**0.330**	1.00	2.50	1		SW9056A	4E13321	05/14/14 05:01
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:11
7440-44-0	TOC-MAX J SQL-I	**1.34**	**1.25**	2.50	3.00	1	J	SW9060A	4E16007	05/16/14 20:11

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ANALYSIS DATA SHEET

ST105-30049

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 05/01/14 12:18

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 1405013-08
Received: 05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:34
7440-44-0	TOC-MAX (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:34
7440-44-0	TOC-MIN (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:34

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ANALYSIS DATA SHEET

ST105-30050

Laboratory: Empirical Laboratories, LLC
Client: Shaw Environmental, Inc.
Matrix: Water
Sampled: 04/30/14 15:11

SDG: KirtlandECOS_014
Project: Kirtland AFB (ECOS)
Laboratory ID: 1405013-09
Received: 05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7664-41-7	Ammonia as N		0.100	0.150	0.300	1	U	SM4500NH3BG	4E20012	05/20/14 18:27
24959-67-9	Bromide	**0.318**	**0.0420**	0.125	0.250	1		SW9056A	4E13321	05/14/14 05:18
TDS	Total Dissolved Solids	**392**	**20.0**	20.0	20.0	1		SM2540C	4E07008	05/07/14 13:14
NA	Total Kjeldahl Nitrogen UJ MSpK MB-L		2.00	2.00	2.00	1	MUQ N	E351.2	4E08007	05/14/14 13:23
7440-44-0	Total Organic Carbon		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:57
16887-00-6	Chloride	**29.1**	**0.170**	0.330	0.500	1		SW9056A	4E13321	05/14/14 05:18
NA	Nitrate/Nitrite as N	**28.2**	**1.25**	3.75	7.50	5	D	E353.2	4E16013	05/16/14 14:04
16984-48-8	Fluoride	**0.302**	**0.0330**	0.100	0.250	1		SW9056A	4E13321	05/14/14 05:18
471-34-1	Alkalinity, Total (as CACO3)	**110**	**1.00**	1.00	1.00	1		SM2320B	4E12929	05/12/14 15:28
14808-79-8	Sulfate as SO4	**70.1**	**0.330**	1.00	2.50	1		SW9056A	4E13321	05/14/14 05:18
7440-44-0	TOC-MIN		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:57
7440-44-0	TOC-MAX		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 20:57

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ANALYSIS DATA SHEET

ST105-30050

Laboratory:	Empirical Laboratories, LLC	SDG:	KirtlandECOS_014
Client:	Shaw Environmental, Inc.	Project:	Kirtland AFB (ECOS)
Matrix:	Water	Laboratory ID:	1405013-10
Sampled:	04/30/14 15:11	Received:	05/02/14 08:40

CAS NO.	Analyte	Conc. (mg/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7440-44-0	Total Organic Carbon (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 21:21
7440-44-0	TOC-MAX (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 21:21
7440-44-0	TOC-MIN (dissolved)		1.25	2.50	3.00	1	U	SW9060A	4E16007	05/16/14 21:21

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APPENDIX D

Field Inspection Reports

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URS

July 9, 2014

Mr. Cole Crosgrove
Project Manager
377 MSG/CEIR
2050 Wyoming Blvd. SE, Bldg. 20685
Kirtland AFB, NM 87117-5270

Subject: **June 2014 Monthly Landfill Inspection Report for Remedial Action Operations at Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001); SWMU 6-2 (LF-002); and SWMU 6-4, Landfills 4, 5, and 6 (LF-008) at Kirtland Air Force Base, New Mexico Contract No. Contract FA8903-13-C-0008**

Dear Mr. Crosgrove:

URS Group Inc. (URS) is submitting the June 2014 Landfill Inspection in compliance with the Long-Term Monitoring and Maintenance Plan for Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001), SWMU 6-2, Landfill 2 (LF-002), and SWMU 6-4, Landfills 4, 5, and 6 (LF-008) (USAF, 2006). The June 2014 Inspection Report consists of inspection summary tables, photograph attachments, and figures. Details regarding the results of the inspection and tasks performed are discussed in the tables and/or photographs pertaining to each landfill.

On June 6, 2014, URS conducted an inspection of LF-001, LF-002, and LF-008. The observed conditions and recommended corrective actions are provided in Tables 1 through 3. The major landfill features are shown in Figures 1 through 3. For ease of geo-referencing, the major landfill features have been named and a 200-foot grid has been laid over each landfill. Photographs of areas with erosional features are presented as an attachment and location references are provided on Figures 1 through 3. There has been no significant precipitation event since the last inspection.

The following issues were observed during the inspection:

LF-001

- Minor rilling on the western and southern slopes of the cap;
- Channels and catch basins have varying degrees vegetation; and
- Moderate piping (6 to 12 inches deep) near channel 3.

LF-002

- Fiber roll displacement and sediment overbanking fiber rolls near channel 2; and
- Major rilling (>12 inches deep) on southeastern slope.

URS Corporation
7720 North 16th Street, Suite 100
Phoenix, AZ 85020
Tel: 602.371.1100
Fax: 602.371.1615

LF-008

- Minor piping (<6 inches deep) near instrumentation station on landfill cap;
- Moderate to major rilling (>12 inches deep) on northern and western slopes;
- Major rilling and fiber roll displacement in catch basin 4;
- Construction and repair is taking place on channel 3; and
- Large open bare spot is present where construction is taking place.

If you have any questions or comments, please feel free to contact me at 602.861.7409.

Sincerely,

URS Group, Inc.

Richard P. Wells

Richard Wells
Project Manager

Attachments: Table 1 – Inspection Summary, LF-001
Table 2 – Inspection Summary, LF-002
Table 3 – Inspection Summary, LF-008
Figure 1 – LF-001 Site Inspection, June 2014
Figure 2 – LF-002 Site Inspection, June 2014
Figure 3 – LF-008 Site Inspection, June 2014
LF-001 Inspection Photographs, June 2014
LF-002 Inspection Photographs, June 2014
LF-008 Inspection Photographs, June 2014

TABLE 1 – INSPECTION SUMMARY, LF-001

Item	Feature	Status	Notes/Description	3/19/14 Rating	4/17/14 Rating	5/14/14 Rating	6/6/14 Rating	Recommended Corrective Action
1	Gate 1	good						
2	Gate 2	See Notes	Gate footer broken, chain used to lock				Slight	Repair gate
3	Gate 3	good						
4	Gate 4	good						
5	Channel 1	good	Tumbleweed accumulation				Slight	Monitor
6	Channel 2	good	Tumbleweed accumulation at fence				Slight	Monitor
7	Channel 3	good	Moderate rilling. Photo from south end on channel 3, grid E-9; Photo 2				Slight	Monitor
8	Channel 4	good	Tumbleweed accumulated at fence				Slight	Monitor
9	Run on Channel 1	good	Tumbleweed accumulated at fence				Slight	Monitor
10	Eastern Cap	good	Grid H-3 animal burrow to 9-inches: Photo 3				Slight	Remove tumbleweeds
11	Eastern Cap	See Notes	Piping lineation, N-S bearing				Moderate	Repair piping
12	Eastern Cap	good						
13	Eastern Cap	good						
14	Eastern Cap	See Notes	Piping lineation, N-S bearing				Moderate	Repair piping
15	Central Cap	See Notes	Minor rilling on south-central slope, grids F-7, G-7, and H7				Slight	Repair rilling
16	Central Cap	See Notes	Minor rilling on west-central slope, grids A-5 and A-6				Moderate	Repair rilling
17	Central Cap	good						
18	Central Cap	See Notes	Piping N-S, ~50' long				Slight	Repair piping
19	Central Cap	See Notes	Area between Rock Berm 10 and Rock Berm 12 (K-10 - L-12) piping ~75' long				High	Repair piping
20	Central Cap	good						
21	Central Cap	See Notes	Piping lineation, N-S bearing				High	Repair piping
22	Central Cap	good						
23	Central Cap	good	Isolated areas with no vegetative cover				High	Repair piping
24	Central Cap	good	Isolated areas with no vegetative cover				High	Repair piping
25	Central Cap	good	Isolated areas with no vegetative cover				Moderate	Repair piping
26	Central Cap	good	Isolated areas with no vegetative cover				Moderate	Repair piping
27	Central Cap	good	Isolated areas with no vegetative cover				Moderate	Repair piping
28	Western Cap	See Notes	Grid cells B-10 to B-13, C-13 to C-15 Rilling 3-8" deep; piping lineation				Moderate	Repair rilling
29	Western Cap	See Notes	Minor rilling: grid C-8: Photo 1				Moderate	Repair rilling
30	Western Cap	See Notes	Minor rilling; 4-8" deep; various throughout slope				Moderate	Repair rilling
31	Western Cap	good					Slight	Monitor rilling
32	Western Cap	good						
33	Western Cap	good						
34	Corrugated Metal Pipe (CMP) Culvert	See Notes	Riprap blowout at the discharge, tumbleweed accumulation at intake				Moderate-High	Repair riprap blowout - grouted or wire enclosed riprap may be warranted. Remove tumbleweeds.
35	Five Reinforced Concrete Pipe (RCP) Culverts	good						
36	Catch Basin 4	See Notes	Vegetation accumulation				Slight	Monitor
37	Instrumentation Station (Lysimeter/Tipping Bucket)	good	Repaired instrumentation station in December 2013					

Rating

Slight
Moderate
High
Immediate

TABLE 2 – INSPECTION SUMMARY, LF-002

Item	Feature	Status	Notes/Description	3/19/14 Rating	4/17/14 Rating	5/14/14 Rating	6/6/14 Rating	Recommended Corrective Action
1	Gate 1	See Notes	Culvert west of gate 1 not shown on map				Slight	Repair to allow easy gate opening; chain used to lock
2	Gate 2	good						
3	Gate 3	good						
4	Fence line	good						
5	Channel 1	See Notes	Sediment/vegetation accumulation; various locations throughout channel				Moderate	Remove vegetation and sediment
6	Channel 1- north side	See Notes	Minor vegetation growth					Monitor
7	Channel 1	See Notes					Slight	Monitor
8	Channel 2- run-on riprap	See Notes	Photo 1 showing growth vegetation growth in Channel 2				Slight	Monitor
9	Channel 3- run-on riprap	See Notes	Vegetation/sediment accumulation				Slight	Monitor
10	Access Road	See Notes	Minor vegetation accumulation				Slight	Monitor
11	Manholes	good						
12	Sedimentation Basin	See Notes	grid B-2, Photo 2 looking south showing vegetation growth in sedimentation basin				Slight	Monitor
13	Overflow Basin	good						
14	30" CMP Intake 1	See Notes	Vegetation accumulation				Slight	Monitor
15	30" CMP Intake 2	See Notes	Vegetation accumulation				Slight	Monitor
16	North slope	See Notes	Minor rilling grids K-1 and L-1				High	Repair rilling
17	South Slope	See Notes	Rilling 6-12" deep, some areas >12" deep				High	Repair rilling caused by heavy rainfall
18	Southeastern Boundary	See Notes	Animal burrows/holes				Slight	Monitor
19	Instrumentation Station (Lysimeter/Tipping Bucket)	good						

Rating

Slight
Moderate
High
Immediate

TABLE 3 – INSPECTION SUMMARY, LF-008

Item	Feature	Status	Notes/Description	3/19/14 Rating	4/17/14 Rating	5/14/14 Rating	06/06/14 Rating	Recommended Corrective Action
1	Gate 1	See Notes	Sign removed by high winds				Slight	Reinstall sign
2	Gate 2	good						
3	Gate 3	good						
4	Gate 4	good						
5	Pipe Intake 1	good						
6	Pipe Intake 2	See Notes	Repaired rilling leading to pipe intake (12/16/13)				Slight	Monitor
7	Pipe Intake 3	good						
8	Catch Basin 1	See Notes	Moderate vegetation growth throughout channel				Slight	Monitor
9	Sediment Pond 1	See Notes	Sediment/vegetation accumulation				Moderate-High	Remove sediment and vegetation
10	Catch Basin 2	See Notes	Rills on SE corner of basin. Moderate vegetation growth				Moderate	Remove sediment and vegetation; repair rilling
11	Sediment Pond 2	See Notes	Sediment accumulation; vegetation				Moderate	Remove sediment and vegetation
12	Catch Basin 3	See Notes	Sediment accumulation; vegetation				Moderate	Remove sediment and vegetation
13	Sediment Pond 3	See Notes	Sediment accumulation; vegetation				Slight	Monitor
14	Catch Basin 4	See Notes	Rilling; fiber roll displacement				Moderate-High	Repair rills and reinstall fiber rolls
15	Catch Basin 5	See Notes	Sediment/vegetation accumulation; rilling				Slight-Moderate	Remove sediment and vegetation; repair rilling
16	Catch Basin 6	See Notes	Sediment accumulation and rilling on the head wall				Slight	Monitor
17	Channel 1	See Notes	Moderate vegetation growth				Slight-Moderate	Remove sediment and vegetation
18	Channel 2	See Notes	Rilling at Cell G-14.				Slight	Repair rills. Remove tree.
19	Channel 3	See Notes	Repairs and reconstruction in progress Photo 2, Photo 3 showing unrepaired section				Slight	Confirm construction is complete
20	Channel 4	See Notes	Sediment accumulation; bank rilling; heavy vegetation and growth				Slight	Remove sediment
21	Rock Berm 3	See Notes	Rills 4" to <12"				Moderate	Repair rilling/Monitor
22	Rock Berm 3	See Notes	Piping east of berm				Slight	Repair rilling/Monitor
23	Rock Berm 5	See Notes	Rills ~4", south of berm				Slight	Repair rilling/Monitor
24	Rock Berm 8	See Notes	Minor rills and piping west of berm				Slight	Repair piping and rilling
25	Rock Berm 10	See Notes	Rills to 6" east of berm				Slight	Repair rilling/Monitor
26	Rock Berm 11	See Notes	Rills to 6"; South of berm				Slight	Repair rilling/Monitor
27	Slope - Channel 1, Cell T-3	See Notes	Dry tumbleweeds - high density				Slight	Remove tumbleweeds (appears to be within the active landfill slope)
28	Northeastern Slope	See Notes	Significant rilling <12" deep				Moderate	Repair rilling
29	Northwest Slope	See Notes	Significant rilling <12" deep, Photo 1				Moderate	Repair rilling
30	Western Slope	See Notes	Significant rilling , large bare area due to construction in encompassing grids E-8 and E-9				High	Repair rilling, reseed bare area
31	Top, Northern	See Notes	Piping ~12" deep, lineated N/S;				High	Repair piping
32	Top, Eastern	See Notes	Piping ~12" deep, lineated N/S;				High	Repair piping
33	Top- Grid Location R-7 through R-9	See Notes	Piping ~12" deep, lineated N/S				High	Repair piping
34	Top- Grid Location Q-14 Through Q-17	See Notes	Piping ~12" deep, lineated N/S				High	Repair piping
35	Instrumentation Station (Lysimeter/Tipping Bucket)	good						

Rating
Slight
Moderate
High
Immediate

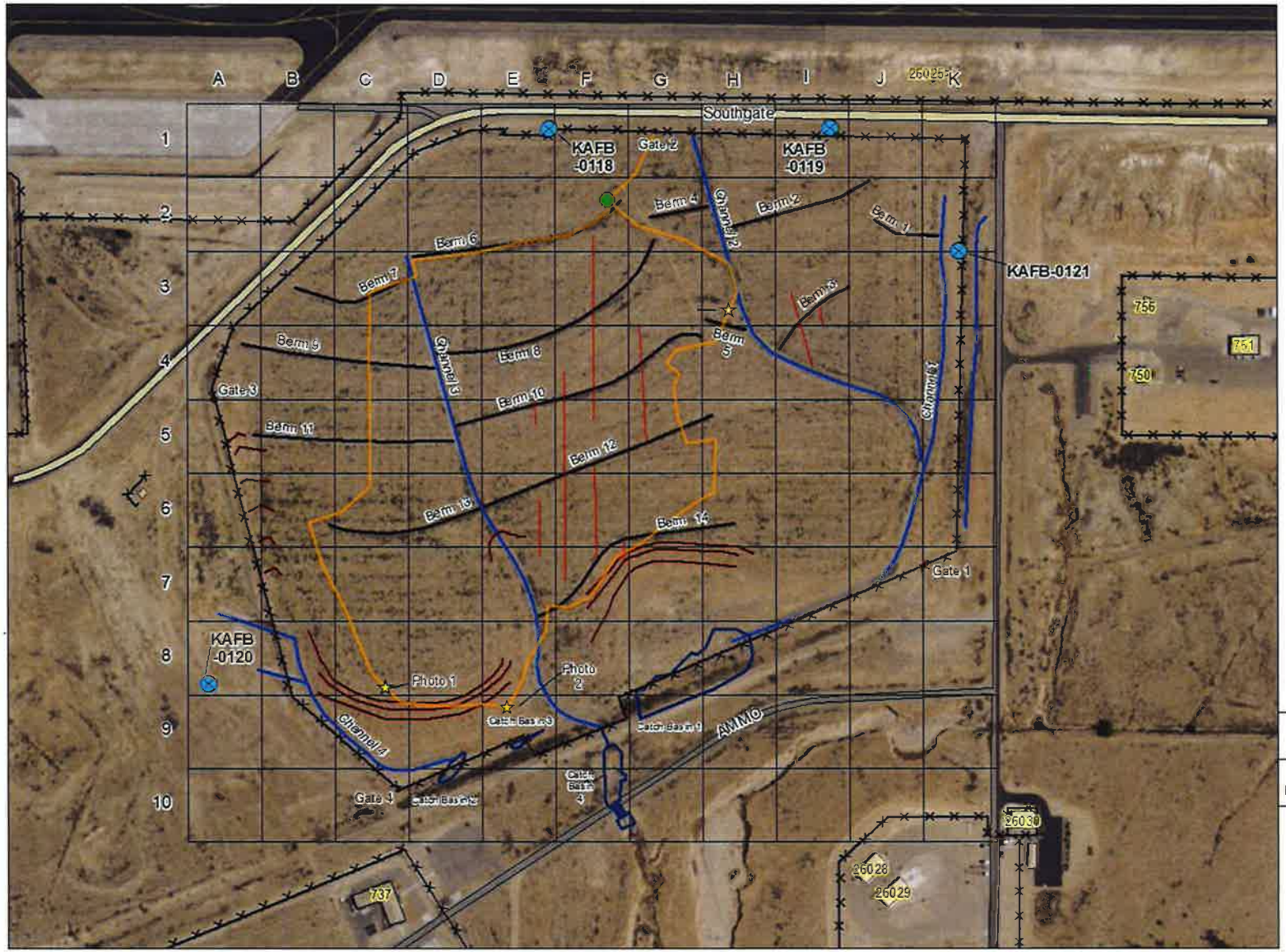


Photo Locations
Instrumentation Station
Monitor Well
Gate
Inspection Route
Fence
Soil Piping
Basin
Fiber Roll
Channel
Berm
Grid
Existing Structure
Installation Boundary
1
2

FIGURE 1

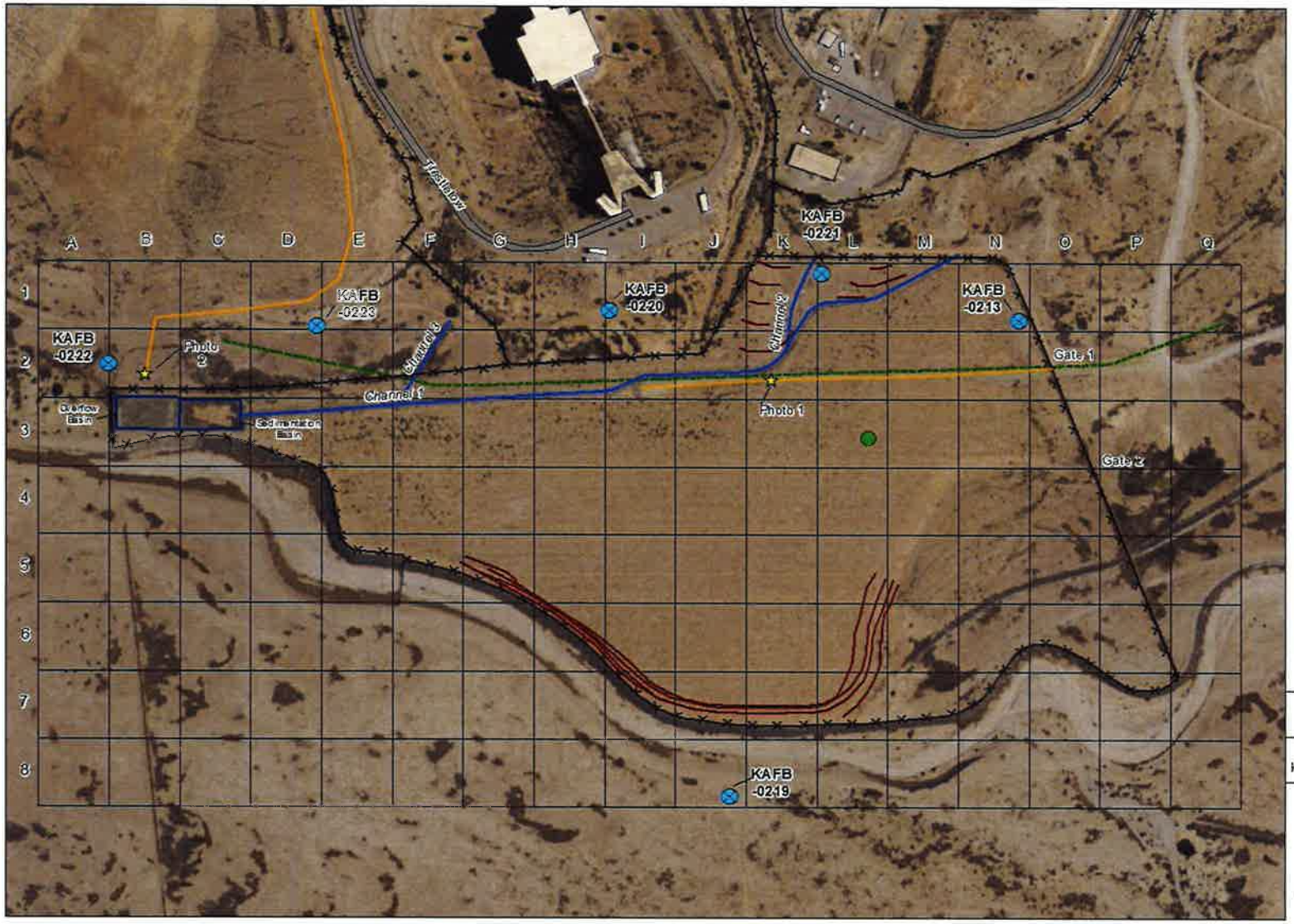
LF-001 SITE INSPECTION
JUNE 6, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE, NEW MEXICO

N

1:3,074

0 62.525 250 375 500
Feet



- Photo Locations
- Inspection Route
- Instrumentation Station
- Monitor Well
- Gate
- Fence
- Basin
- Fiber Roll
- Channel
- Storm Sewer
- Grid
- Existing Structure
- Installation Boundary

FIGURE 2

LF-002 SITE INSPECTION
JUNE 6, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE, NEW MEXICO

N

1:3,215

0 75 150 300 450 600 Feet

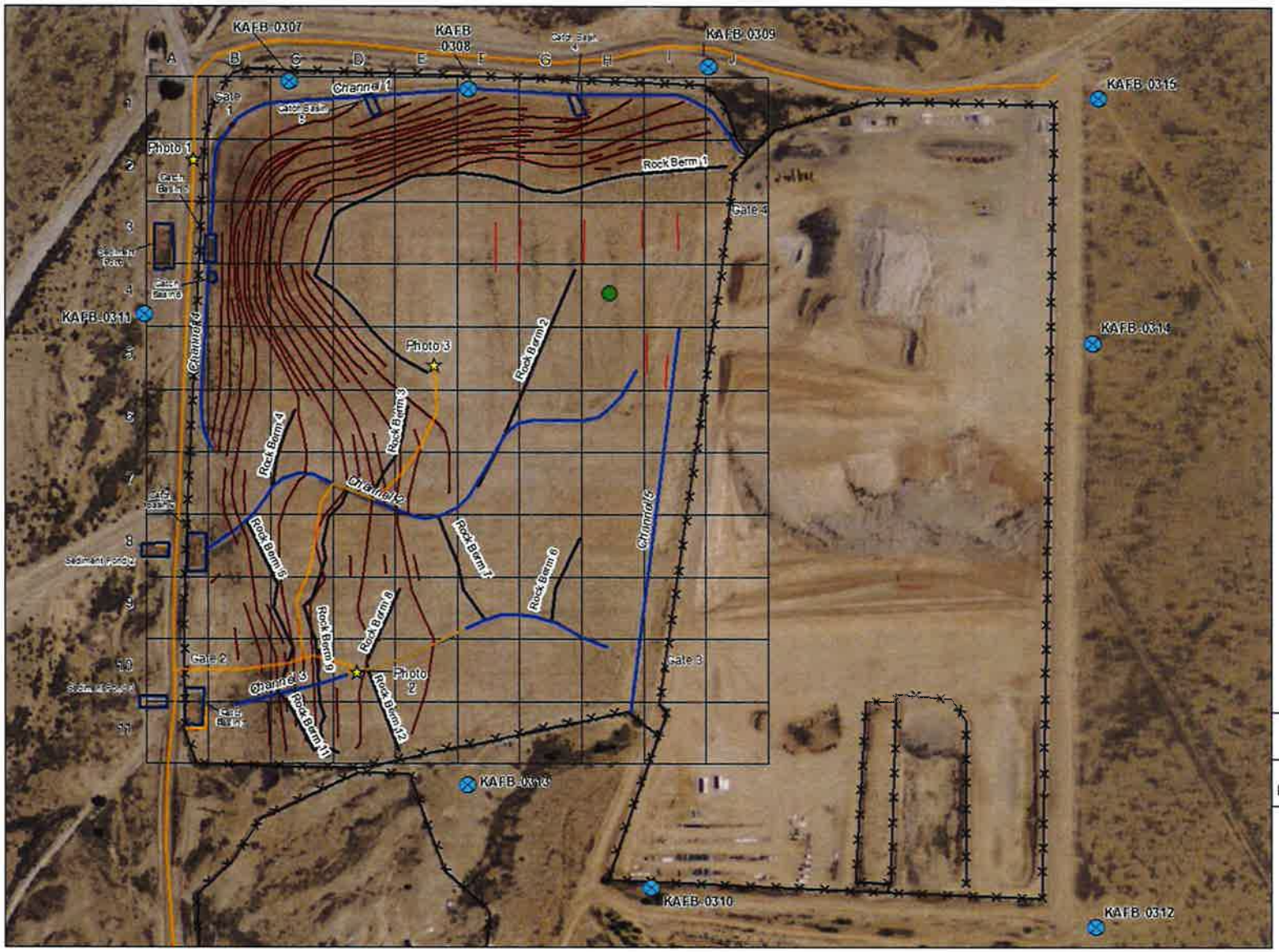


Photo Locations
Instrumentation Station
Monitor Well
Gate
Inspection Route
Fence
Soil Piping
Piping
Basin
Vegetation (Sediment)
Roll Soil
Channel
Berm
Grid

FIGURE 3

LF-008 SITE INSPECTION
JUNE 6, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE, NEW MEXICO

N

1:3,621

0 75 150 300 450 600 Feet

Photograph No. 1
Channel 3 (Grid C -8); Photo facing southeast,
minor rilling.
June 6, 2014

Photograph No. 2
Minor rilling (Grid E-9);

June 6, 2014

Photograph No. 3
Animal burrow (Grid H -3)

June 6, 2014

LF-002 Inspection Photographs – Kirtland Air Force Base, New Mexico
June 2014

Photograph No. 1
Channel 2 (Grid K-2);
Photo facing north east.
June 6, 2014

Photograph No. 2
Sedimentation Basin (Grid B-2);
Photo facing south.

June 6, 2014

Photograph No. 1
Roll Soil (Grid A-2);
Photo facing east.

June 6, 2014

Photograph No. 2
Construction on Channel 3 (Grid D-10);

June 6, 2014

Photograph No. 3
Rock Berm 1 rolls (Grid E-5);

June 6, 2014

August 12, 2014

Mr. Cole Crosgrove
Project Manager
377 MSG/CEIR
2050 Wyoming Blvd. SE, Bldg. 20685
Kirtland AFB, NM 87117-5270

Subject: **July 2014 Monthly Landfill Inspection Report for Remedial Action Operations at Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001); SWMU 6-2 (LF-002); and SWMU 6-4, Landfills 4, 5, and 6 (LF-008) at Kirtland Air Force Base, New Mexico Contract No. Contract FA8903-13-C-0008**

Dear Mr. Crosgrove:

URS Group Inc. (URS) is submitting the June 2014 Landfill Inspection in compliance with the Long-Term Monitoring and Maintenance Plan for Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001), SWMU 6-2, Landfill 2 (LF-002), and SWMU 6-4, Landfills 4, 5, and 6 (LF-008) (USAF, 2006). The June 2014 Inspection Report consists of inspection summary tables, photograph attachments, and figures. Details regarding the results of the inspection and tasks performed are discussed in the tables and/or photographs pertaining to each landfill.

On July 28 and 29, 2014, URS conducted an inspection of LF-001, LF-002, and LF-008. The observed conditions and recommended corrective actions are provided in Tables 1 through 3. The major landfill features are shown in Figures 1 through 3. For ease of geo-referencing, the major landfill features have been named and a 200-foot grid has been laid over each landfill. Photographs of areas with erosional and other features are presented as an attachment and location references are provided on Figures 1 through 3. As of July 28th there was 2.28 inches of measured rainfall for the month of July in Albuquerque, according to the National Weather Service Forecast Office.

The following issues were observed during the inspection:

LF-001

- Minor rilling on the western and southern slopes of the cap;
- Channels and catch basins have varying degrees vegetation; and
- Moderate piping (6 to 12 inches deep) near channel 3.

LF-002

- Fiber roll displacement and sediment overbanking fiber rolls near channel 2; and
- Major rilling (>12 inches deep) on southeastern slope.

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LF-008

- Minor piping (<6 inches deep) near instrumentation station on landfill cap;
- Moderate to major rilling (>12 inches deep) on northern and western slopes;
- Major rilling and fiber roll displacement in catch basin 4;
- Construction and repair has been completed for upgrading Channel #3
- Large open graded bare spot is present where construction is took place
- Low spot in cap potential ponding area (See Figure POI #2) and
- Sediment covering trap Intake #1.

If you have any questions or comments, please feel free to contact me at 602.861.7409.

Sincerely,

URS Group, Inc.

Richard Wells
Project Manager

Attachments: Table 1 – Inspection Summary, LF-001
Table 2 – Inspection Summary, LF-002
Table 3 – Inspection Summary, LF-008
Figure 1 – LF-001 Site Inspection, July 28, 2014
Figure 2 – LF-002 Site Inspection, July 28, 2014
Figure 3 – LF-008 Site Inspection, July 29, 2014
LF-001 Inspection Photographs, July 2014
LF-002 Inspection Photographs, July 2014
LF-008 Inspection Photographs, July 2014

TABLE 1 – INSPECTION SUMMARY, LF-001

Item	Feature	Status	Notes/Description	4/17/14 Rating	5/14/14 Rating	6/6/14 Rating	7/29/14 Rating	Recommended Corrective Action
1	Gate 1	good	(No change since previous inspection)				NR*	
2	Gate 2	See Notes	Gate footer broken, chain used to lock (No Change since previous inspection)			Slight	Slight	Repair gate
3	Gate 3	good	(No change since previous inspection)				NR	
4	Gate 4	good	(No change since previous inspection)				NR	
5	Channel 1	good	Tumbleweed accumulation (No change since previous inspection)			Slight	Slight	Monitor
6	Channel 2	good	Tumbleweed accumulation at fence (No change since previous inspection)			Slight	Slight	Monitor
7	Channel 3	good	Moderate rilling, Photo from south end on channel 3, grid E-9; (No change since previous inspection)			Slight	Slight	Monitor
8	Channel 4	good	Tumbleweed accumulated at fence (No change since previous inspection) See photo LF-001-04.			Slight	Slight	Monitor
9	Run on Channel 1	good	Tumbleweed accumulated at fence (No change since previous inspection)			Slight	Slight	Monitor
10	Eastern Cap	good	Grid H-3 animal burrow to 9-inches (No change since previous inspection)			Slight	Slight	Remove tumbleweeds
11	Eastern Cap	See Notes	Piping lineation, N-S bearing (No change since previous inspection)			Moderate	Moderate	Repair piping
12	Eastern Cap	good	(No change since previous inspection)				NR	
13	Eastern Cap	good	(No change since previous inspection)				NR	
14	Eastern Cap	See Notes	Piping lineation, N-S bearing (No change since previous inspection)			Moderate	Moderate	Repair piping
15	Central Cap	See Notes	Minor rilling on south-central slope, grids F-7, G-7, and H7 (No change since previous inspection) Location POI#1, See Photos LF-001-01, LF-001-04			Slight	Slight	Repair rilling
16	Central Cap	See Notes	Minor rilling on west-central and southwest slope, grids A-5 and A-6 (No change since previous inspection) Location POI#2 ; See Photo LF-001-02			Moderate	Moderate	Repair rilling
17	Central Cap	good	(No change since previous inspection)				NR	
18	Central Cap	See Notes	Piping N-S, ~50' long (No change since previous inspection)			Slight	Slight	Repair piping
19	Central Cap	See Notes	Area between Rock Berm 10 and Rock Berm 12 (K-10 - L-12) piping ~75' long (No change since previous inspection)			High	High	Repair piping
20	Central Cap	good	(No change since previous inspection)				NR	
21	Central Cap	See Notes	Piping lineation, N-S bearing (No change since previous inspection)			High	High	Repair piping
22	Central Cap	good	(No change since previous inspection)				NR	
23	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)			High	High	Repair piping
24	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)			High	High	Repair piping
25	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)			Moderate	Moderate	Repair piping
26	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)			Moderate	Moderate	Repair piping
27	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)			Moderate	Moderate	Repair piping
28	Western Cap	See Notes	Grid cells B-10 to B-13, C-13 to C-15 Rilling 3-8" deep; piping lineation (No change since previous inspection)			Moderate	Moderate	Repair rilling
29	Western Cap	See Notes	Minor rilling; grid C-8 (No change since previous inspection)			Moderate	Moderate	Repair rilling
30	Western Cap	See Notes	Minor rilling; 4-8" deep; various throughout slope (No change since previous inspection)			Moderate	Moderate	Repair rilling
31	Western Cap	good	(No change since previous inspection)			Slight	Slight	Monitor rilling
32	Western Cap	good	(No change since previous inspection)				NR	
33	Western Cap	good	(No change since previous inspection)				NR	
34	Corrugated Metal Pipe (CMP) Culvert	See Notes	Riprap blowout at the discharge, tumbleweed accumulation at intake (No change since previous inspection)			Moderate-High	Moderate-High	Repair riprap blowout - grouted or wire enclosed riprap may be warranted. Remove tumbleweeds.
35	Five Reinforced Concrete Pipe (RCP) Culverts	good	(No change since previous inspection)				NR	
36	Catch Basin 4	See Notes	Vegetation accumulation (No change since previous inspection)			Slight	Slight	Monitor
37	Instrumentation Station (Lysimeter/Tipping Bucket)	good	Repaired instrumentation station in December 2013 (No change since previous inspection)				NR	

Rating

Slight
Moderate
High
Immediate

*NR- No Rating (See "Status" column)

TABLE 2 – INSPECTION SUMMARY, LF-002

Item	Feature	Status	Notes/Description	4/17/14 Rating	5/14/14 Rating	6/6/14 Rating	7/29/14 Rating	Recommended Corrective Action
1	Gate 1	See Notes	Culvert west of gate 1 not shown on map			Slight	Slight	Repair to allow easy gate opening; chain used to lock
2	Gate 2	good					NR*	
3	Gate 3	good					NR	
4	Fence line	good					NR	
5	Channel 1	See Notes	Sediment/vegetation accumulation; various locations throughout channel (No change since previous inspection)			Moderate	Moderate	Remove vegetation and sediment
6	Channel 1- north side	See Notes	Minor vegetation growth (No change since previous inspection)				Slight	Monitor
7	Channel 1 Catch Basin	See Notes	Intake to overflow basin is blocked by vegetation and sediment (See Photo LF-002-1				High	Remove Vegetation and sediment
8	Channel 1	See Notes				Slight	Slight	Monitor
9	Channel 2- run-on riprap	See Notes	Photo1 showing growth vegetation growth in Channel 2 (No change since previous inspection)			Slight	Slight	Monitor
10	Channel 3- run-on riprap	See Notes	Vegetation/sediment accumulation (No change since previous inspection)			Slight	Slight	Monitor
11	Access Road	See Notes	Minor vegetation accumulation (No change since previous inspection)			Slight	Slight	Monitor
2	Manholes	good					NR	
13	Sedimentation Basin	See Notes	grid B-2, vegetation growth in sedimentation basin (No change since previous inspection)			Slight	Slight	Monitor
14	Overflow Basin	good					NR	
15	30" CMP Intake 1	See Notes	Vegetation accumulation (No change since previous inspection)			Slight	Slight	Monitor
16	30" CMP Intake 2	See Notes	Vegetation accumulation (No change since previous inspection)			Slight	Slight	Monitor
17	North slope	See Notes	Minor rilling grids K-1 and L-1 (No change since previous inspection)			High	High	Repair rilling
18	South Slope	See Notes	Rilling 6-12" deep, some areas >12" deep POI#1 Fig 2 (See photo LF-002-2)			High	High	Repair rilling caused by heavy rainfall
19	Southeastern Boundary	See Notes	Animal burrows/holes (No change since previous inspection) (Some areas Rilling increased to 24 in. deep (See Photo LF002-3).			Slight	High	Repair Rilling
20	Instrumentation Station (Lysimeter/Tipping Bucket)	good					NR	

Rating

Slight
Moderate
High
Immediate

*NR- No rating (See Status Column)

"

TABLE 3 – INSPECTION SUMMARY, LF-008

Item	Feature	Status	Notes/Description	4/17/14 Rating	5/14/14 Rating	06/06/14 Rating	07/29/14 Rating	Recommended Corrective Action
1	Gate 1	See Notes	Sign removed by high winds			Slight		Sign reinstalled
2	Gate 2	good					*NR	
3	Gate 3	good					NR	
4	Gate 4	good					NR	
5	Pipe Intake 1	See notes	Sediment accumulating around intake diverts water downhill , creates rilling See photos LF-008-02, LF-008-03				High	Remove sediment at intake. Construct Channel behind berm
6	Pipe Intake 2	See *Notes*	Repaired rilling leading to pipe intake (12/16/13)			Slight		Monitor
7	Pipe Intake 3	good					NR	
8	Catch Basin 1	See Notes	Moderate vegetation growth throughout channel (No change since previous inspection)			Slight	Slight	Monitor
9	Sediment Pond 1	See Notes	Sediment/vegetation accumulation (No Change since previous inspection)			Moderate-High	Moderate-High	Remove sediment and vegetation
10	Catch Basin 2	See Notes	Rills on SE corner of basin, Moderate vegetation growth (No Change since previous inspection)			Moderate	Moderate	Remove sediment and vegetation; repair rilling
11	Landfill cap Grid G-10:	See Notes	Depression in Cap potential ponding and Leakage				Moderate	Backfill depression
12	Landfill Cap Grid I-3 – I-5	See Notes	Fissures in Cap (POI #1)					
13	Sediment Pond 2	See Notes	Sediment accumulation; vegetation (No change since previous inspection)			Moderate	Moderate	Remove sediment and vegetation
14	Catch Basin 3	See Notes	Sediment accumulation; vegetation (No Change since previous inspection)			Moderate	Moderate	Remove sediment and vegetation
15	Sediment Pond 3	See Notes	Sediment accumulation; vegetation (No change since previous inspection)			Slight	Slight	Monitor
16	Catch Basin 4	See Notes	Rilling; fiber roll displacement			Moderate-High	Moderate-High	Repair rills and reinstall fiber rolls
17	Catch Basin 5	See Notes	Sediment/vegetation accumulation; rilling (No change since previous inspection)			Slight-Moderate	Slight-Moderate	Remove sediment and vegetation; repair rilling
18	Catch Basin 6	See Notes	Sediment accumulation and rilling on the head wall (No change since previous inspection)			Slight	Slight	Monitor
19	Channel 1	See Notes	Moderate vegetation growth (No change since previous inspection)			Slight-Moderate	Slight-Moderate	Remove sediment and vegetation
20	Channel 2	See Notes	Rilling at Cell G-14. (No change since previous inspection)			Slight	Slight	Repair rills. Remove tree.
21	Channel 3	See Notes	Sediment and vegetation in channel (Grid Cell G-9) Photo LF-008-04				Moderate	Remove sediment and vegetation
22	Channel 3	See Notes	Repairs and reconstruction completed (See Photo #5)			Slight	Slight	Construction is complete
23	Channel 4	See Notes	Sediment accumulation; bank rilling; heavy vegetation and growth (No change since Previous inspection)			Slight	Slight	Remove sediment
24	Rock Berm 3	See Notes	Rills 4" to <12" (No Change since previous inspection)			Moderate	Moderate	Repair rilling/Monitor
25	Rock Berm 3	See Notes	Piping east of berm (No change since previous inspection)			Slight	Slight	Repair rilling/Monitor
26	Rock Berm 5	See Notes	Rills ~4", south of berm (No change since previous inspection)			Slight	Slight	Repair rilling/Monitor
27	Rock Berm 8	See Notes	Minor rills and piping west of berm (No change since previous inspection)			Slight	Slight	Repair piping and rilling
28	Rock Berm 10	See Notes	Rills to 6" east of berm (No change since previous inspection)			Slight	Slight	Repair rilling/Monitor
30	Rock Berm 11	See Notes	Rills to 6"; South of berm (No change since previous inspection)			Slight	Slight	Repair rilling/Monitor
31	Slope - Channel 1, Cell T-3	See Notes	Dry tumbleweeds - high density (No Change since previous inspection)			Slight	Slight	Remove tumbleweeds (appears to be within the active landfill slope)
32	Northeastern Slope	See Notes	Significant rilling <12" deep (No change since previous inspection)			Moderate	Moderate	Repair rilling
33	Northwest Slope	See Notes	Significant rilling <12" deep (No change since previous inspection)			Moderate	Moderate	Repair rilling
34	Western Slope	See Notes	Significant rilling , large bare area due to construction in encompassing grids E-8 and E-9			High	High	Repair rilling, reseed bare area
35	Western Slope	See Notes	Significant Rilling , Grid B-10 (See Photo LF-008-06)				High	Repair Rilling
36	Top, Northern	See Notes	Fissures ~12" deep, lineated N/S; (No Change since previous inspection)			High	High	Repair piping
37	Top, Eastern	See Notes	Fissures ~12" deep, lineated N/S; (No change since previous inspection)			High	High	Repair piping

TABLE 4 – INSPECTION SUMMARY, LF-008

38	Top- Grid Location R-7 through R-9	See Notes	Fissures ~12" deep, lineated N/S (No change since previous inspection)			High	High	Repair piping
39	Top- Grid Location Q-14 Through Q-17	See Notes	Fissures ~12" deep, lineated N/S (No change since previous inspections)			High	High	Repair piping
40	Instrumentation Station (Lysimeter/Tipping Bucket)	good					NR	

Rating

Slight

Moderate

High

Immediate

*NR-No Rating- See "Status" Column

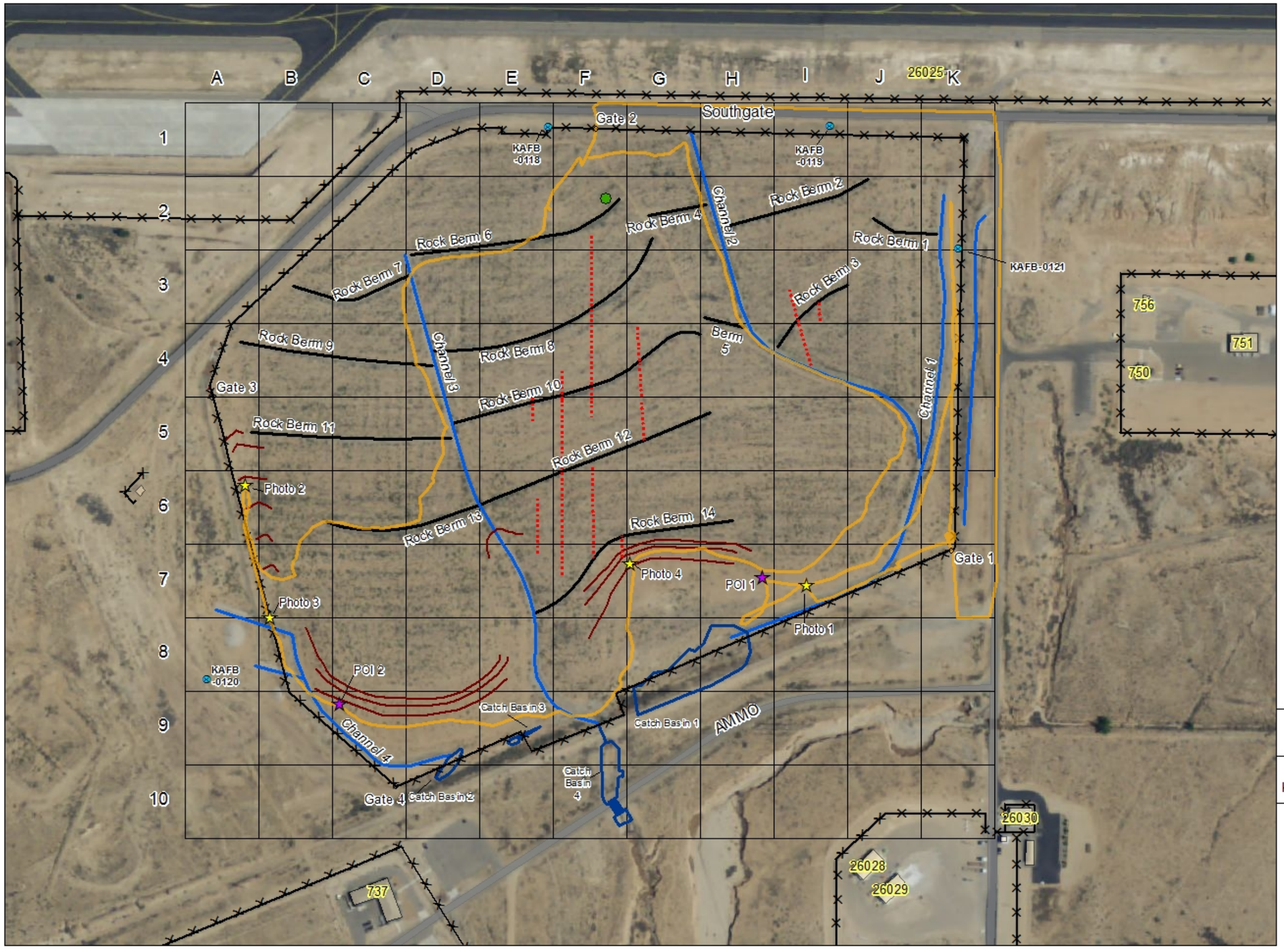


Photo
Point of Interest
Instrumentation Station
Monitor Well
Gate
Inspection Route
Fence
Fissure
Catch Basin
Fiber Roll
Channel
Rock Berm
CatchBasin

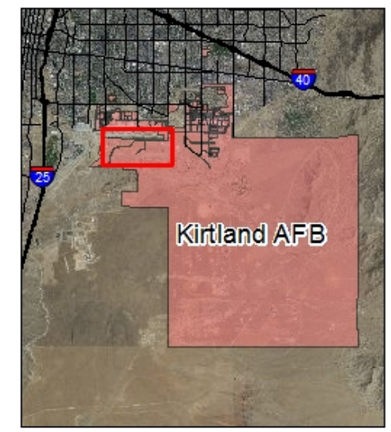


FIGURE 1

LF-001 SITE INSPECTION
JUIY 28, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE, NEW MEXICO

N

1:3,074

0 62.5 125 250 375 500
Feet

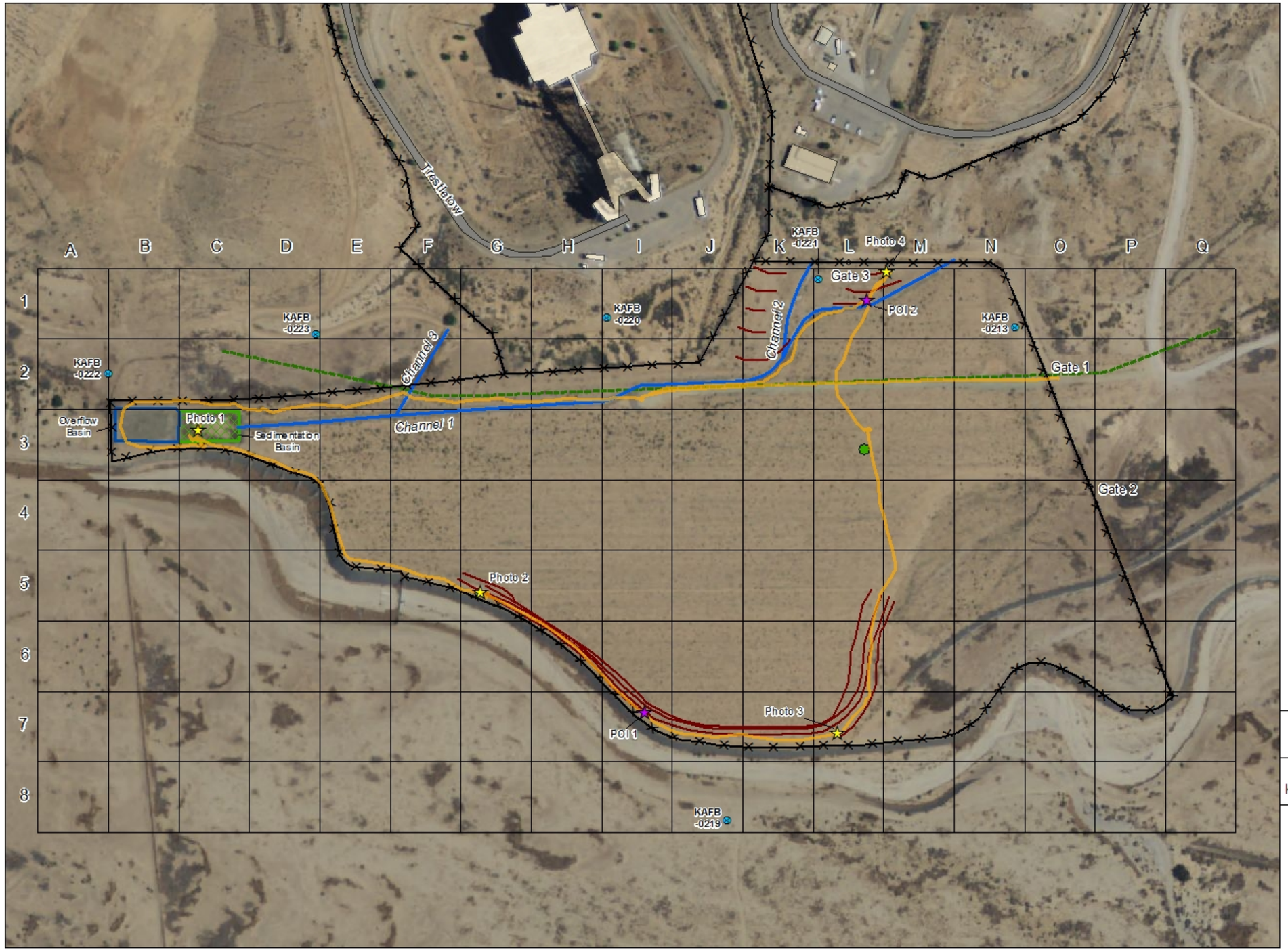


Photo
Point of Interest
Instrumentation Station
Monitor Well
Gate
Inspection Route
Fence
Roll Soil
Channel
Storm Sewer
CatchBasin
Sediment Pond

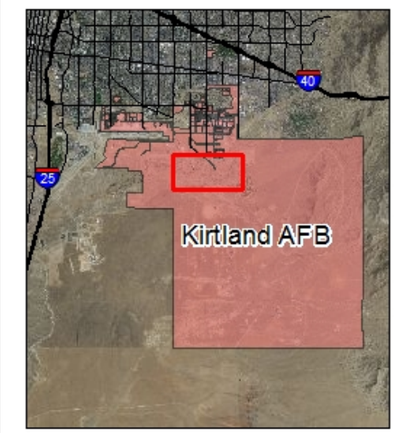


FIGURE 2

LF-002 SITE INSPECTION
JULY 28, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE, NEW MEXICO

N

1:3,215

0 75 150 300 450 600
Feet

Photo
Point of Interest
Pipe Intake
Instrumentation Station
Monitor Well
Gate
Inspection Route
Fence
Fissure
Fiber Roll
Channel
Rock Berm
Catch Basin
Sediment Pond

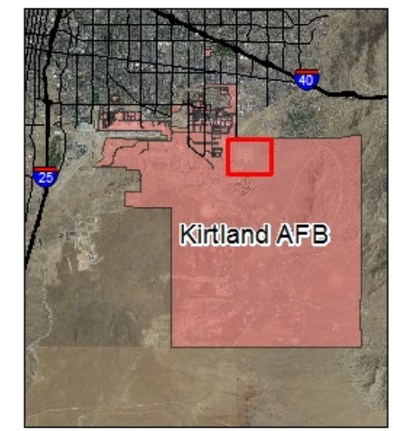


FIGURE 3

LF-008 SITE INSPECTION
JULY 29, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE, NEW MEXICO

N

1:3,621

0 75 150 300 450 600
Feet

LF-001 Inspection Photographs – Kirtland Air Force Base, New Mexico
July 2014

LF-001-1: Minor rilling near Channel 1 Southeast	LF-001-2: Minor erosion along wattles West side
July 28, 2014	July 28, 2014

LF-001 Inspection Photographs – Kirtland Air Force Base, New Mexico
July 2014

LF-001-3: Channel #4 at Grid B-8. Sediment infilling. Tumbleweeds blocking channel at fence

July 28, 2014

LF-001 Inspection Photographs – Kirtland Air Force Base, New Mexico
July 2014

LF-001-4: Rilling under wattle at Grid G-7

July 28, 2014

LF-002 Inspection Photographs – Kirtland Air Force Base, New Mexico
July 2014

LF-002-1: Sedimentation Basin vegetation/tumbleweeds in basin intake	LF-002-2: South Slope rilling 6”-12” deep.
July 28, 2014	July 28, 2014

LF-002 Inspection Photographs – Kirtland Air Force Base, New Mexico
July 2014

LF-002-3: Rilling 12”-24” deep. Washout

July 28, 2014

LF-008 Inspection Photographs – Kirtland Air Force Base, New Mexico
June 2014

LF-008-1: Minor erosion (rilling) at toe of landfill near Gate #1	LF-008-2: Sediment covering Trash Trap at Intake #1
July 29, 2014	July 29, 2014

LF-008 Inspection Photographs – Kirtland Air Force Base, New Mexico
June 2014

LF-008-3: Intake #1 Erosion on Berm	LF-008-4: Channel #3 Looking west. Sediment and Vegetation
July 29, 2014	July 29, 2014

LF-008-5: Channel #3, Reconstructed at Berm #8

July 29, 2014

LF-008-6: Rilling on West slope near Channel #3

July 29, 2014

September 17, 2014

Mr. Cole Crosgrove
Project Manager
377 MSG/CEIR
2050 Wyoming Blvd. SE, Bldg. 20685
Kirtland AFB, NM 87117-5270

Subject: **August 2014 Monthly Landfill Inspection Report for Remedial Action Operations at Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001); SWMU 6-2 (LF-002); and SWMU 6-4, Landfills 4, 5, and 6 (LF-008) at Kirtland Air Force Base, New Mexico Contract No. Contract FA8903-13-C-0008**

Dear Mr. Crosgrove:

URS Group Inc. (URS) is submitting the August 2014 Landfill Inspection in compliance with the Long-Term Monitoring and Maintenance Plan for Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001), SWMU 6-2, Landfill 2 (LF-002), and SWMU 6-4, Landfills 4, 5, and 6 (LF-008) (USAF, 2006). The August 2014 Inspection Report consists of inspection summary tables, photograph attachments, and figures. Details regarding the results of the inspection and tasks performed are discussed in the tables and/or photographs pertaining to each landfill.

On August 26 and 28, 2014, URS conducted an inspection of LF-001, LF-002, and LF-008. The observed conditions and recommended corrective actions are provided in Tables 1 through 3. The major landfill features are shown in Figures 1 through 3. For ease of geo-referencing, the major landfill features have been named and a 200-foot grid has been laid over each landfill. Photographs of areas with erosional and other features are presented as an attachment and location references are provided on Figures 1 through 3. As of August 28 there has been 1.46 inches of measured rainfall for the month of August at the Albuquerque International Airport (Kirtland AFB), according to the National Weather Service Forecast Office ttp://www.wunderground.com/history/airport/KABQ/2014/8/28/DailyHistory.html?req_city=Albuquerque+International+Sunport&req_state=NM&req_statename=New+Mexico).

The following issues were observed during the inspection:

LF-001

- Minor rilling on the western and southern slopes of the cap;
- Channels and catch basins have varying degrees of vegetation;
- Moderate fissures (6 to 12 inches deep) near channel 3; and
- Recent seasonal rains have increased erosional features along landfill slopes and has increased sedimentation and vegetation growth in channels and catch basins.

LF-002

- Fiber roll displacement and sediment overbanking fiber rolls near channel 2

URS Corporation
7720 North 16th Street, Suite 100
Phoenix, AZ 85020
Tel: 602.371.1100
Fax: 602.371.1615

- Major rilling (>12 inches deep) on southeastern slope; and
- Recent seasonal rains have increased erosional features along landfill slopes and has increased sedimentation and vegetation growth in channels and catch basins.

LF-008

- Minor fissures (<6 inches deep) near instrumentation station on landfill cap. Many fissures have been in filled by sediments resulting from recent seasonal rain events;
- Moderate to major rilling (>12 inches deep) on northern and western slopes;
- Major rilling and fiber roll displacement observed in catch basin 4;
- Construction and repair of upgrades to channel #3 have been completed;
- Large open graded bare spot is present where construction took place;
- Low spot in cap potential ponding area near the North Central area of the Cap;
- Sediment covering trap Intake #1; and
- Recent seasonal rains have increased erosional features along landfill slopes and has increased sedimentation and vegetation growth in channels and catch basins.

If you have any questions or comments, please feel free to contact me at 602.861.7409.

Sincerely,

URS Group, Inc.

Richard Wells,
Project Manager

Attachments: Table 1 – Inspection Summary, LF-001
Table 2 – Inspection Summary, LF-002
Table 3 – Inspection Summary, LF-008
Figure 1 – LF-001 Site Inspection, August 27, 2014
Figure 2 – LF-002 Site Inspection, August 27, 2014
Figure 3 – LF-008 Site Inspection, August 29, 2014
LF-001 Inspection Photographs, August 2014
LF-002 Inspection Photographs, August 2014
LF-008 Inspection Photographs, August 2014

TABLE 1 – INSPECTION SUMMARY, LF-001

Item	Feature	Status	Notes/Description	4/17/14 Rating	5/14/14 Rating	6/6/14 Rating	7/25/14 Rating	Recommended Corrective Action
1	Gate 1	good	(No change since previous inspection)				*NR	No Corrective Action
2	Gate 2	See Notes	Gate footer broken, chain used to lock (No Change since previous inspection)			Slight	Slight	Repair gate
3	Gate 3	good	(No change since previous inspection)				NR	No Corrective Action
4	Gate 4	good	(No change since previous inspection)				NR	No Corrective Action
5	Channel 1	good	Tumbleweed accumulation (No change since previous inspection). Vegetation in Channel (See Photo LF-001-01)			Slight	Slight	Monitor
6	Southeast slope	See notes	Minor to moderate rilling			Slight	Slight	Monitor
7	Channel 2	good	Tumbleweed accumulation at fence (No change since previous inspection)			Slight	Slight	Monitor
8	Channel 3	good	Moderate rilling,, grid E-9; (No change since previous inspection). Minor vegetation and sediment in channel			Slight	Slight	Monitor
9	Channel 4	good	Tumbleweed accumulated at fence (No change since previous inspection)			Slight	Slight	Monitor
10	Run on Channel 1	good	Tumbleweed and sediment accumulated at fence. Slight rilling (No change since previous inspection)			Slight	Slight	Monitor
11	Eastern Cap	good	Grid H-3 animal burrow to 9-inches (No change since previous inspection)			Slight	Slight	Remove tumbleweeds
12	Eastern Cap	See Notes	Fissure lineation, N-S bearing (No change since previous inspection) (See photo LF-001-03)			Moderate	Moderate	Repair fissures
13	Eastern Cap	good	(No change since previous inspection)				NR	No Corrective Action
14	Eastern Cap	good	(No change since previous inspection)				NR	No Corrective Action
15	Eastern Cap	See Notes	Fissure lineation, N-S bearing (No change since previous inspection)			Moderate	Moderate	Repair fissures
16	Central Cap	See Notes	Minor rilling on south-central slope, grids F-7, G-7, and H7 (No change since previous inspection)			Slight	Slight	Repair rilling
17	Central Cap	See Notes	Minor rilling on west-central and southwest slope, grids A-5 and A-6 (No change since previous inspection)			Moderate	Moderate	Repair rilling
18	Central Cap	good	(No change since previous inspection)				NR	No Corrective Action
19	Central Cap	See Notes	Fissure N-S, ~50' long. Also miscellaneous fissures at Grids F2-F7 and I3. (See Photo LF001-03) No change since previous inspection)			Slight	Slight	Repair fissures
20	Central Cap	See Notes	Area between Rock Berm 10 and Rock Berm 12 (K-10 - L-12) fissures ~75' long (No change since previous inspection)			High	High	Repair fissures
21	Central Cap	good	(No change since previous inspection)				NR	No Corrective Action
22	Central Cap	See Notes	Fissure lineation, N-S bearing (No change since previous inspection)			High	High	Repair fissures
23	Central Cap	good	(No change since previous inspection)				NR	No Corrective Action
24	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)			High	High	Repair fissures
25	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)			High	High	Repair fissures
26	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)			Moderate	Moderate	Repair fissures
27	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)			Moderate	Moderate	Repair fissures
28	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)			Moderate	Moderate	Repair fissures
29	Western Cap	See Notes	Grid cells B-10 to B-13, C-13 to C-15 Rilling 3-8" deep; fissure lineation (No change since previous inspection)			Moderate	Moderate	Repair rilling
30	Western Cap	See Notes	Minor rilling; grid A5, A6 , A7 (No change since previous inspection) (See photo LF-001-02)			Moderate	Moderate	Repair rilling
31	Western Cap	See Notes	Minor rilling; 4-8" deep; various throughout slope (Grids B8-C9-D9) (No change since previous inspection)			Moderate	Moderate	Repair rilling
32	Western Cap	good	(No change since previous inspection)			Slight	Slight	Monitor rilling
33	Western Cap	good	(No change since previous inspection)				NR	No Corrective Action
34	Western Cap	good	(No change since previous inspection)				NR	No Corrective Action
35	South Slope	See Notes	Rilling > 24" deep in places (Grid G-9)				moderate	Repair Rilling
35	Corrugated Metal Pipe (CMP) Culvert	See Notes	Riprap blowout at the discharge, tumbleweed accumulation at intake (No change since previous inspection)			Moderate-High	Moderate-High	Repair riprap blowout - grouted or wire enclosed riprap may be warranted. Remove tumbleweeds.
36	Five Reinforced Concrete Pipe (RCP) Culverts	good	(No change since previous inspection)				NR	No Corrective Action
37	Catch Basin 4	See Notes	Vegetation accumulation (No change since previous inspection)			Slight	Slight	Monitor
38	Catch Basin #2	See Notes	Catch Basin full of sediment				High	Excavate sediment
39	Catch Basin #1	See Notes	Catch Basin full of sediment				High	Excavate Sediment
40	Instrumentation Station (Lysimeter/Tipping Bucket)	good	Repaired instrumentation station in December 2013 (No change since previous inspection)				NR	No Corrective Action

Rating

Slight
Moderate
High
Immediate

*NR –Not Rated,
See Status Column

TABLE 2 – INSPECTION SUMMARY, LF-002

Item	Feat ure	Status	Notes/Description	5/14/14 Rating	6/6/14 Rating	7/25/14 Rating	8/26/14 Rating	Recommended Corrective Action
1	Gate 1	See Notes	Culvert west of gate 1 not shown on map		Slight	Slight		the culvert will be surveyed during Augrst inspwction
2	Gate 2	See Notes	Weeds Growing in front of gate			NR*		No Corrective Action
3	Gate 3	good	(No change since previous inspection)			NR		No Corrective Action
4	Fence line	good	(No change since previous inspection)			NR		No Corrective Action
5	Channel 1	See Notes	Sediment/vegetation accumulation; various locations throughout channel (No change since previous inspection) (See photo LF-0002-01)		Moderate	Moderate		Remove vegetation and sediment
6	Channel 1- north side	See Notes	Minor vegetation growth (No change since previous inspection) (See photo LF-002 03)			NR		Monitor
7	Channel 1 North Side	See Notes	Run on erosion (See Photo LF-002-04)				Moderate	Monitor
	Channel 1	See Notes	(No change since previous inspection)		Slight	Slight		Monitor
8	Channel 1 Catch basin	See Notes	Intake to overflow basin is blocked by vegetation and sediment (See Photo LF-002-02)			High		Remove vegetation and sediment from intake
9	Channel 2- run-on riprap	See Notes	Vegetation growth in Channel 2 (No change since previous inspection)		Slight	Slight		Monitor
	Channel 2 North	See Notes	Minor rilling at Wattles (Grid K1, K2)				Slight	Monitor
10	Channel 3- run-on riprap	See Notes	Vegetation/sediment accumulation (No change since previous inspection)		Slight	Slight		Monitor
11	Access Road	See Notes	Minor vegetation accumulation (No change since previous inspection)		Slight	Slight		Monitor
12	Manholes	good	(No change since previous inspection)			NR		No Corrective Action
13	Sedimentation Basin	See Notes	grid B-2, vegetation growth in sedimentation basin (No change since previous inspection)		Slight	Slight		Monitor
	Sedimentation Basin	See Notes	Intake blocked by vegetation and soil				High	Unblock intake
14	Overflow Basin	good	(No change since previous inspection)			NR		No Corrective Action
15	30" CMP Intake 1	See Notes	Vegetation accumulation (No change since previous inspection)		Slight	Slight		Monitor
16	30" CMP Intake 2	See Notes	Vegetation accumulation (No change since previous inspection)		Slight	Slight		Monitor
17	North slope	See Notes	Minor rilling grids K-1, L-1, L-5 and L-6 (No change since previous inspection)		High	High		Repair rilling
18	South Slope	See Notes	Rilling 6-12" deep, some areas >12" deep Figure 2 POI #1, (See Photo LF-002-2)		High	High		Repair rilling caused by heavy rainfall
19	Southeastern Boundary	See Notes	Animal burrows/holes (No change since previous inspection) (Some areas Rilling increased to 24 " deep (See Photo LF002-31).		Slight	Slight		Repair Rilling
20	Instrumentation Station (Lysimeter/Tipping Bucket)	good	(No change since previous inspection)			NR		No Corrective Action

Rating

Slight
Moderate
High
Immediate

*NR- Not Rated (See Status Column)

TABLE 3 – INSPECTION SUMMARY, LF-008

Item	Featu re	Status	Notes/Descrip tion	5/14/14 Rating	06/06/14 Rating	07/29/14 Rating	08/28/2014 Rating	Recommended Corrective Action
1	Gate 1	See Notes	Good		Slight	NR*	NR	Sign reinstalled
2	Gate 2	good	(No change since previous inspection)			NR	NR	No Corrective Action
3	Gate 3	good	(No change since previous inspection)			NR	NR	No Corrective Action
4	Gate 4	good	(No change since previous inspection)			NR	NR	No Corrective Action
5	Pipe Intake 1	See notes	Sediment accumulating around intake diverts water downhill , creates rilling. ((No change since previous inspection)			High	High	Remove sediment at intake. Construct Channel behind berm
6	Pipe Intake 2	See *Notes*	Repaired rilling leading to pipe intake (12/16/13)		Slight	Slight	Slight	Monitor
7	Pipe Intake 3	good	(No change since previous inspection)			NR	NR	No Corrective Action
8	Catch Basin 1	See Notes	Moderate vegetation growth throughout channel (No change since previous inspection)		Slight	Slight	Slight	Monitor
9	Sediment Pond 1	See Notes	Sediment/vegetation accumulation (No Change since previous inspection)		Moderate-High	Moderate-High	Moderate-High	Remove sediment and vegetation
10	Catch Basin 2	See Notes	Rills on SE corner of basin, Moderate vegetation growth (No Change since previous inspection)		Moderate	Moderate	Moderate	Remove sediment and vegetation; repair rilling
11	Landfill Cap Grid G-10	See Notes	Depression in cap , potential ponding and leakage No change since previous inspection)			Moderate	Moderate	Backfill Depression
12	Landfill Cap Grid I-3- I-5	See Notes	Fissures in Cap Fissures filled with sediments from recent rains.			Moderate	Moderate	Repair Fissures
13	Sediment Pond 2	See Notes	Sediment accumulation; vegetation (No change since previous inspection)		Moderate	Moderate	Moderate	Remove sediment and vegetation
14	Catch Basin 3	See Notes	Sediment accumulation; vegetation (No Change since previous inspection) (Photo LF-008-03).		Moderate	Moderate	Moderate	Remove sediment and vegetation
15	Sediment Pond 3	See Notes	Sediment accumulation; vegetation (No change since previous inspection)		Slight	Slight	Slight	Monitor
16	Catch Basin 4	See Notes	Rilling; fiber roll displacement,. Rilling on bank near intake. Blocked outlet, weeds and sediment (See photo LF-008-02).		Moderate-High	Moderate-High	Moderate-High	Repair rills and reinstall fiber rolls
17	Catch Basin 5	See Notes	Sediment/vegetation accumulation; rilling (No change since previous inspection)		Slight-Moderate	Slight-Moderate	Slight-Moderate	Remove sediment and vegetation; repair rilling
18	Catch Basin 6	See Notes	Sediment accumulation and rilling on the head wall (No change since previous inspection)		Slight	Slight	Slight	Monitor
19	Channel 1	See Notes	Vegetation growth and sediment in channel ((No change since previous inspection) (See photo LF-008-01)		Slight-Moderate	Slight-Moderate	Slight-Moderate	Remove sediment and vegetation
20	Channel 2	See Notes	Rilling at Cell G-14. (No change since previous inspection)		Slight	Slight	Slight	Repair rills. Remove tree.
21	Channel 3	See Notes	Sediment and vegetation in Channel (Figure 3 Grid Cell G-9) (No change since previous inspection)			Moder ate	Moderate	Remove sediment and vegetation
22	Channel 3	See Notes	Repairs and reconstruction completed		Slight	Slight	Slight	Construction is complete
23	Channel 4	See Notes	Sediment accumulation; bank rilling; heavy vegetation and growth (No change since Previous inspection)		Slight	Slight	Slight	Remove sediment
24	Rock Berm 3	See Notes	Rills 4" to <12" (No change since previous inspection)		Moderate	Moderate	Moderate	Repair rilling/Monitor
25	Rock Berm 3	See Notes	Fissures east of berm (No change since previous inspection)		Slight	Slight	Slight	Repair rilling/Monitor
26	Rock Berm 5	See Notes	Rills ~4", south of berm (No change since previous inspection)		Slight	Slight	Slight	Repair rilling/Monitor
27	Rock Berm 8	See Notes	Minor rills and piping west of berm (No change since previous inspection)		Slight	Slight	Slight	Repair piping and rilling
28	Rock Berm 10	See Notes	Rills to 6" east of berm (No change since previous inspection)		Slight	Slight	Slight	Repair rilling/Monitor
29	Rock Berm 11	See Notes	Rills to 6"; South of berm (No change since previous inspection)		Slight	Slight	Slight	Repair rilling/Monitor
30	Slope - Channel 1, Cell T-3	See Notes	Dry tumbleweeds - high density (No change since previous inspection)		Slight	Slight	Slight	Remove tumbleweeds (appears to be within the active landfill slope)
31	Northeastern Slope	See Notes	Significant rilling <12" deep (No change since previous inspection)		Moderate	Moderate	Moderate	Repair rilling
32	Northwest Slope	See Notes	Significant rilling <12" deep (No change since previous inspection)		Moderate	Moderate	Moderate	Repair rilling
33	Western Slope	See Notes	Significant rilling, large bare area due to construction in encompassing grids E-8 and E-9 (No change since previous inspection)		High	High	High	Repair rilling, reseed bare area
34	Western Slope	See Notes	Significant rilling, Grid B-10 (No change since previous inspection)			High	High	Repair Rilling
35	Top, Northern	See Notes	Fissures ~12" deep, lineated N/S; (No Change since previous inspection)		High	High	High	Repair piping
36	Top, Eastern	See Notes	Fissures ~12" deep, lineated N/S; (No change since previous inspection)		High	High	High	Repair piping

TABLE 4 – INSPECTION SUMMARY, LF-008

37	Top- Grid Location R-7 through R-9	See Notes	Fissures ~12" deep, lineated N/S (No change since previous inspection)		High	High	High	Repair piping
38	Top- Grid Location Q-14 Through Q-17	See Notes	Fissures ~12" deep, lineated N/S (No change since previous inspections)		High	High	High	Repair piping
39	Instrumentation Station (Lysimeter/Tipping Bucket)	good	(No change since previous inspection)			NR	NR	No Corrective Action

Rating

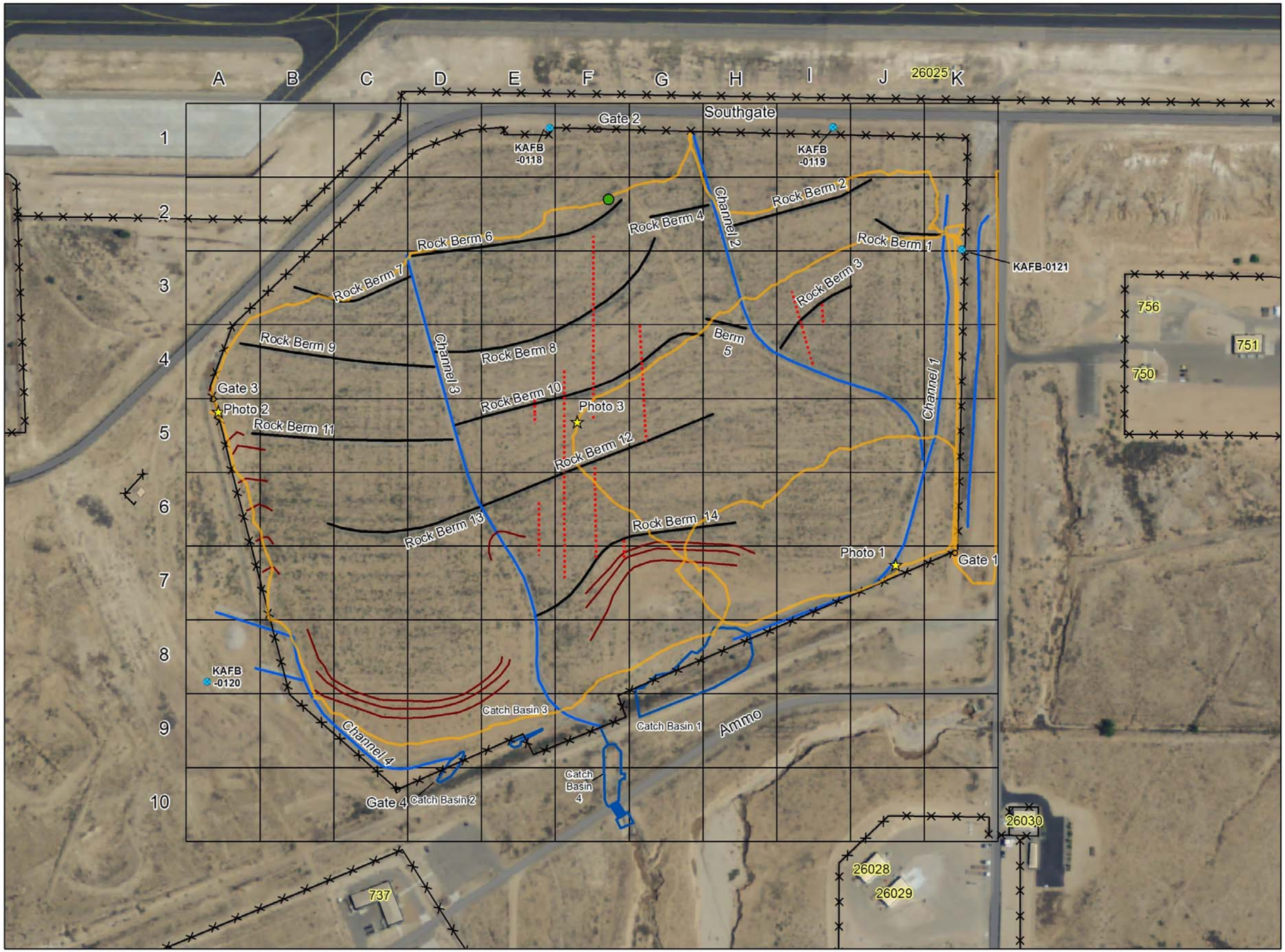
Slight

Moderate

High

Immediate

*NR Not rated (See Status Column)



- Photo Locations
- Instrumentation Station
- Monitor Well
- Gate
- Inspection Route
- Fence
- Fissure
- Fiber Roll
- Channel
- Rock Berm
- Catch Basin

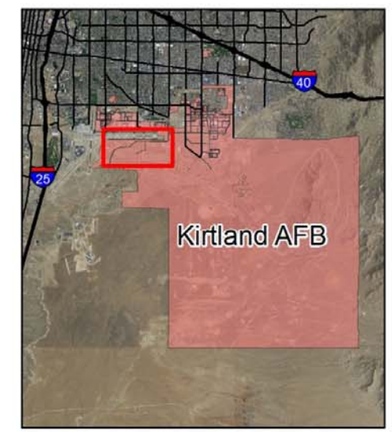


FIGURE 1

LF-001 SITE INSPECTION
AUGUST 26, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE,
NEW MEXICO

N

1:3,074

0 125 250 375 500 Feet

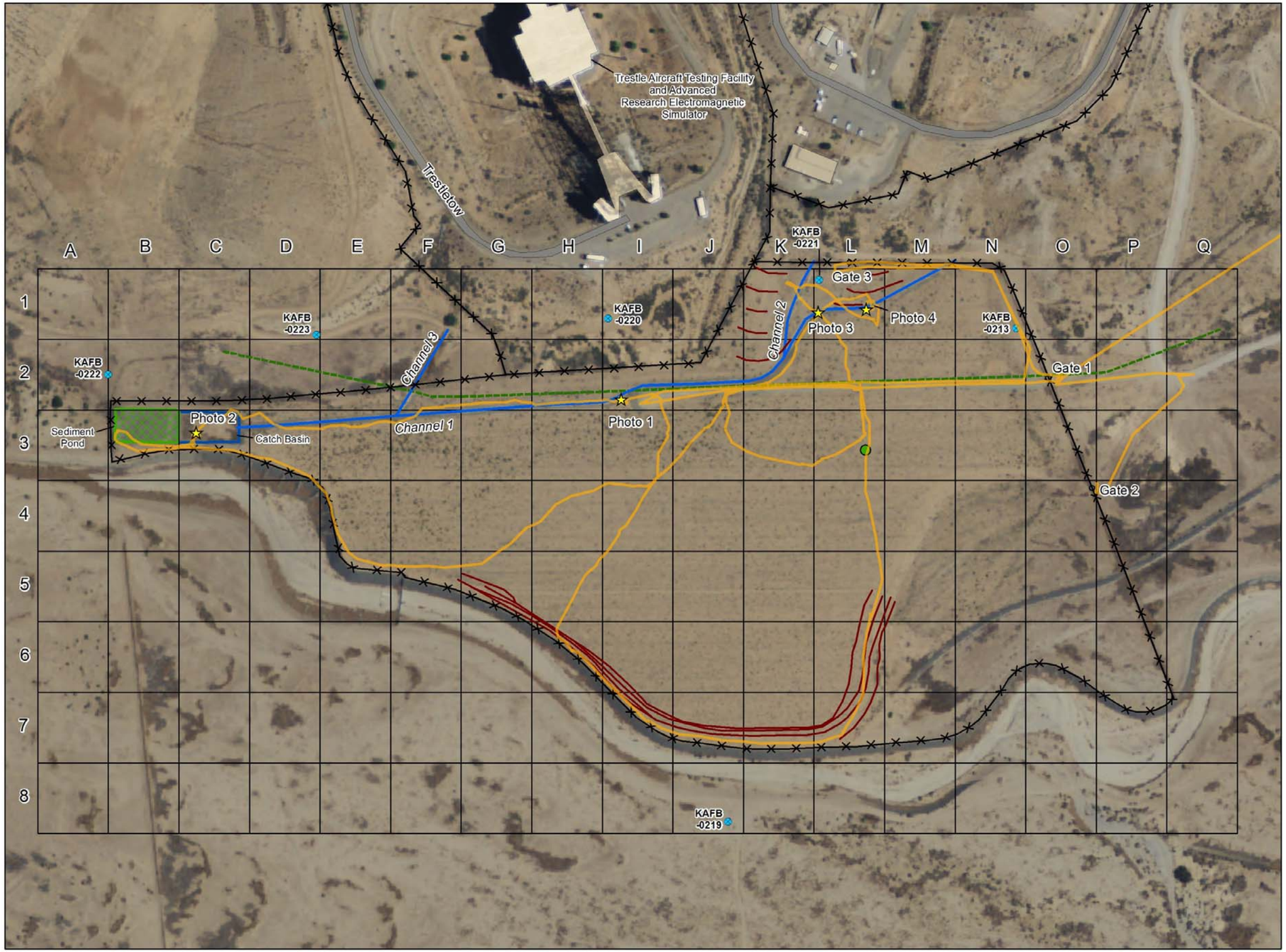


Photo Locations
Instrumentation Station
Monitor Well
Gate
Inspection Route
Fence
Roll Soil
Channel
Sanitation Sewer
Sediment Pond
Catch Basin

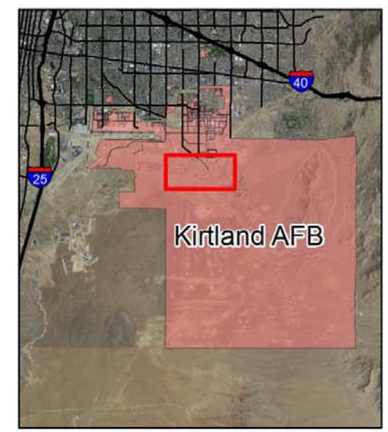


FIGURE 2

LF-002 SITE INSPECTION
AUGUST 26, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE,
NEW MEXICO

N

1:3,215

0 120 240 360 480 Feet

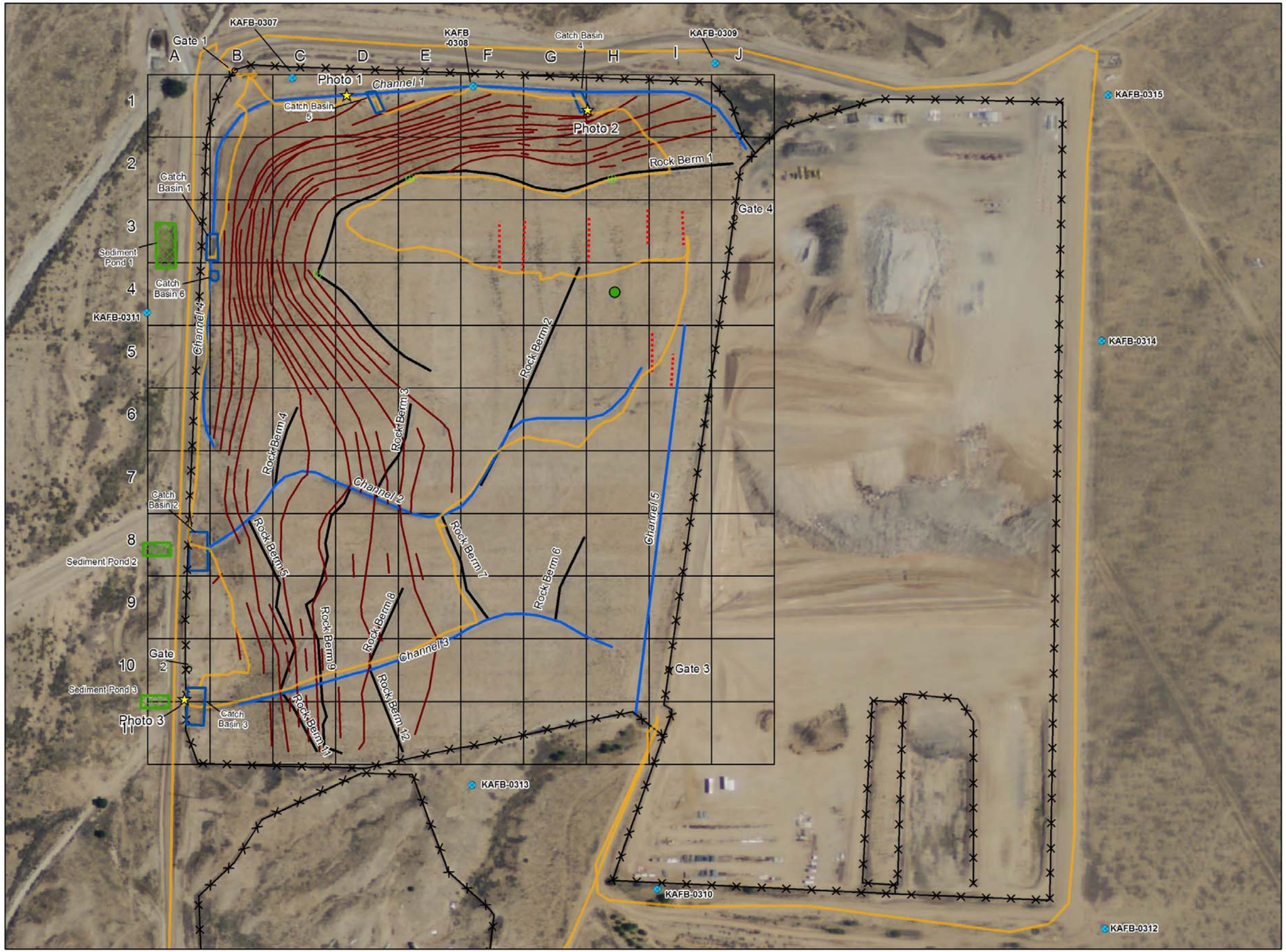


Photo Locations
Pipe Intake
Instrumentation Station
Monitor Well
Gate
Inspection Route
Fence
Fissure
Fiber Roll
Channel
Rock Berm
Sediment Pond
Catch Basin

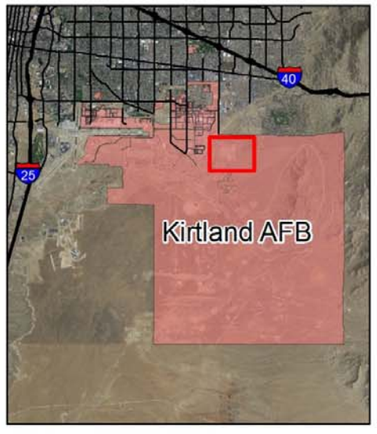


FIGURE 3

LF-008 SITE INSPECTION
AUGUST 28, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE,
NEW MEXICO

N

1:3,621

0 125 250 375 500 Feet

LF-002 Inspection Photographs – Kirtland Air Force Base, New Mexico
August201

LF-001-1: Channel 1 Looking West, vegetation in Channel	LF-001-2: Minor Rilling Western Boundary Near Fence
August 26, 2014	August 26, 2014

LF-002 Inspection Photographs – Kirtland Air Force Base, New Mexico
August201

LF-001-3: Fissure, Grid F-6

August 26, 2014

LF-002 Inspection Photographs – Kirtland Air Force Base, New Mexico
August201

LF-002-1: Channel 1 Lookig West. Sediment and Vegetation in Channel	LF-002-2: Sediment Basin Intake
August 26, 2014	August 26 2014

LF-002 Inspection Photographs – Kirtland Air Force Base, New Mexico
August201

LF-002-3: Vegetation in Channel 1, North	LF-002-04 Rilling near top of Channel 1 North
August 26, 2014	August 26 2014

LF-008 Inspection Photographs – Kirtland Air Force Base, New Mexico
June 2014

LF-008-1:	LF-008-2:
August 28, 2014	August 28, 2014

LF-008-3:

August 28, 2014

October 10, 2014

Mr. Cole Crosgrove
Project Manager
377 MSG/CEIR
2050 Wyoming Blvd. SE, Bldg. 20685
Kirtland AFB, NM 87117-5270

Subject: **September 2014 Monthly Landfill Inspection Report for Remedial Action Operations at Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001); SWMU 6-2 (LF-002); and SWMU 6-4, Landfills 4, 5, and 6 (LF-008) at Kirtland Air Force Base, New Mexico**
Contract No. Contract FA8903-13-C-0008

Dear Mr. Crosgrove:

URS Group Inc. (URS) is submitting the September 2014 Landfill Inspection in compliance with the Long-Term Monitoring and Maintenance Plan for Solid Waste Management Unit (SWMU) 6-1, Landfill 1 (LF-001), SWMU 6-2, Landfill 2 (LF-002), and SWMU 6-4, Landfills 4, 5, and 6 (LF-008) (USAF, 2006). The September2014 Inspection Report consists of inspection summary tables, photograph attachments, and figures. Details regarding the results of the inspection and tasks performed are discussed in the tables and/or photographs pertaining to each landfill.

On September 23, 2014, URS conducted an inspection of LF-001, LF-002, and LF-008. The observed conditions and recommended corrective actions are provided in Tables 1 through 3. The major landfill features are shown in Figures 1 through 3. For ease of geo-referencing, the major landfill features have been named and a 200-foot grid has been laid over each landfill. Photographs of areas with erosional and other features are presented as an attachment and location references are provided on Figures 1 through 3. As of September 23 there has been 0.82 inches of measured rainfall for the month of September at the Albuquerque International Airport (Kirtland AFB), according to the National Weather Service Forecast Office
ttp://www.wunderground.com/history/airport/KABQ/2014/8/28/DailyHistory.html?req_city=Albuquerque+International+Sunport&req_state=NM&req_statename=New+Mexico).

The following issues were observed during the inspection:

LF-001

- Minor rilling on the western and southern slopes of the cap;
- Channels and catch basins have varying degrees of vegetation;
- Moderate fissures (6 to 12 inches deep) near channel 3; and
- Seasonal rains have resulted in increased erosional features along landfill slopes, and sedimentation and vegetation growth in channels and catch basins.

LF-002

- Fiber roll displacement and sediment overbanking fiber rolls near channel 2;

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- Major rilling (>12 inches deep) on southeastern slope; and
- Seasonal rains have resulted in increased erosional features along landfill slopes and sedimentation and vegetation growth in channels and catch basins.

LF-008

- Minor fissures (<6 inches deep) near instrumentation station on landfill cap. Many fissures have been in filled by sediments as a result of seasonal rain events;
- Moderate to major rilling (>12 inches deep) on northern and western slopes;
- Major rilling and fiber roll displacement observed in catch basin 4;
- Construction and repair of upgrades to channel #3 have been completed;
- Large open graded bare spot is present where construction took place;
- Low spot in cap potential ponding area near the North Central area of the Cap;
- Sediment covering trap Intake #1;
- Seasonal rains have resulted in increased erosional features along landfill slopes and sedimentation and vegetation growth in channels and catch basins; and
- Significant erosion along headwall of Catch basin #4.

If you have any questions or comments, please feel free to contact me at 602.861.7409.

Sincerely,

URS Group, Inc.

Richard Wells,
Project Manager

Attachments: Table 1 – Inspection Summary, LF-001
Table 2 – Inspection Summary, LF-002
Table 3 – Inspection Summary, LF-008
Figure 1 – LF-001 Site Inspection, September 23, 2014
Figure 2 – LF-002 Site Inspection, September 23, 2014
Figure 3 – LF-008 Site Inspection, September 23, 2014
LF-001 Inspection Photographs, September 2014
LF-002 Inspection Photographs, September 2014
LF-008 Inspection Photographs, August 2014

TABLE 1 – INSPECTION SUMMARY, LF-001

Item	Feature	Status	Notes/Description	6/6/14 Rating	7/25/14 Rating	8/26/14 Rating	9/23/14 Rating	Recommended Corrective Action
1	Gate 1	good	(No change since previous inspection)		*NR	NR	NR	No Corrective Action
2	Gate 2	See Notes	Gate footer broken, chain used to lock (No Change since previous inspection)	Slight	Slight	Slight	Slight	Repair gate
3	Gate 3	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
4	Gate 4	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
5	Channel 1	good	Tumbleweed accumulation (No change since previous inspection). Vegetation in Channel Grid K-5 (See Photo LF-001-01 and Figure 1)	Slight	Slight	Slight	Slight	Monitor
6	Southeast slope	See notes	Minor to moderate rilling	Slight	Slight	Slight	Slight	Monitor
7	Channel 2	good	Tumbleweed accumulation at fence (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
8	Channel 3	good	Moderate rilling,, grid E-9; (No change since previous inspection). Minor vegetation and sediment in channel. Also rilling along channel bank (approx. 24") at grid E-7 (See Photo LF-001-04 and Figure 1)	Slight	Slight	Slight	Moderate	Monitor
9	Channel 4	good	Tumbleweed accumulated at fence (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
10	Run on Channel 1	good	Tumbleweed and sediment accumulated at fence. Slight rilling (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
11	Eastern Cap	good	Grid H-3 animal burrow to 9-inches (No change since previous inspection)	Slight	Slight	Slight	Slight	Remove tumbleweeds
12	Eastern Cap	See Notes	Fissure lineation, N-S bearing (No change since previous inspection. Fissures at Grid E-3 (See Photo LF-001-03 and Figure 1))	Moderate	Moderate	Moderate	Moderate	Repair fissures
13	Eastern Cap	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
14	Eastern Cap	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
15	Eastern Cap	See Notes	Fissure lineation, N-S bearing (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Repair fissures
16	Central Cap	See Notes	Minor rilling on south-central slope, grids F-7, G-7, and H7 (No change since previous inspection).	Slight	Slight	Slight	Slight	Repair rilling
17	Central Cap	See Notes	Minor rilling on west-central and southwest slope, grids A-5 and A-6 (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Repair rilling
18	Central Cap	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
19	Central Cap	See Notes	Fissure N-S, ~50' long. Also miscellaneous fissures at Grids F2-F7 and I3. No change since previous inspection)	Slight	Slight	Slight	Slight	Repair fissures
20	Central Cap	See Notes	Area between Rock Berm 10 and Rock Berm 12 (K-10 - L-12) fissures ~75' long (No change since previous inspection)	High	High	High	High	Repair fissures
21	Central Cap	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
22	Central Cap	See Notes	Fissure lineation, N-S bearing (No change since previous inspection)	High	High	High	High	Repair fissures
23	Central Cap	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
24	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)	High	High	High	High	Repair fissures
25	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)	High	High	High	High	Repair fissures
26	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Repair fissures
27	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Repair fissures
28	Central Cap	good	Isolated areas with no vegetative cover (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Repair fissures
29	Western Cap	See Notes	Grid cells B-10 to B-13, C-13 to C-15 Rilling 3-8" deep; fissure lineation (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Repair rilling
30	Western Cap	See Notes	Minor rilling; grid A5, A6 , A7 (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Repair rilling
31	Western Cap	See Notes	Minor rilling; 4-8" deep; various throughout slope (Grids B8-C9-D9) (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Repair rilling
32	Western Cap	good	(No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor rilling
33	Western Cap	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
34	Western Cap	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
35	South Slope	See Notes	Rilling > 24" deep in places (Grid G-9)		Moderate	Moderate	Moderate	Repair Rilling
35	Corrugated Metal Pipe (CMP) Culvert	See Notes	Riprap blowout at the discharge, tumbleweed accumulation at intake (No change since previous inspection)	Moderate-High	Moderate-High	Moderate-High		Repair riprap blowout - grouted or wire enclosed riprap may be warranted. Remove tumbleweeds.
36	Five Reinforced Concrete Pipe (RCP) Culverts	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
37	Catch Basin 4	See Notes	Vegetation accumulation (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
38	Catch Basin #2	See Notes	Catch Basin full of sediment		High	High	High	Excavate sediment
39	Catch Basin #1	See Notes	Catch Basin full of sediment		High	High	High	Excavate Sediment
40	Instrumentation Station (Lysimeter/Tipping Bucket)	good	Repaired instrumentation station in December 2013 (No change since previous inspection). See figure LF-001-02		NR	NR	NR	No Corrective Action

Rating

Slight
Moderate
High
Immediate

*NR –Not Rated, See Status column

TABLE 2 – INSPECTION SUMMARY, LF-002

Item	Feat ure	Status	Notes/Description	6/6/14 Rating	7/25/14 Rating	8/26/14 Rating	9/23/14 Rating	Recommended Corrective Action
1	Gate 1	See Notes	Culvert west of gate 1 not shown on map	Slight	Slight	Slight	Slight	the culvert will be surveyed during October inspection
2	Gate 2	See Notes	Weeds Growing in front of gate (See Photo LF-002-03 and Figure 2)		NR*	NR	NR	No Corrective Action
3	Gate 3	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
4	Fence line	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
5	Channel 1	See Notes	Sediment/vegetation accumulation; various locations throughout channel (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Remove vegetation and sediment
6	Channel 1- north side	See Notes	Minor vegetation growth (No change since previous inspection)		NR	NR	NR	Monitor
7	Channel 1 North Side	See Notes	Run on erosion			Moderate	Moderate	Monitor
	Channel 1	See Notes	(No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
8	Channel 1 Catch basin	See Notes	Intake to overflow basin is blocked by vegetation and		High	High	High	Remove vegetation and sediment from intake
9	Channel 2- run-on riprap	See Notes	Vegetation growth in Channel 2 (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
	Channel 2 North	See Notes	Minor rilling at Wattles (Grid K1, K2)			Slight	Slight	Monitor
10	Channel 3- run-on riprap	See Notes	Vegetation/sediment accumulation (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
11	Access Road	See Notes	Minor vegetation accumulation (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
12	Manholes	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
13	Sedimentation Basin	See Notes	grid B-2, vegetation growth in sedimentation basin (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
	Sedimentation Basin	See Notes	Intake blocked by vegetation and soil			High	High	Unblock intake
14	Overflow Basin	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
15	30" CMP Intake 1	See Notes	Vegetation accumulation (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
16	30" CMP Intake 2	See Notes	Vegetation accumulation (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
17	North slope	See Notes	Minor rilling grids K-1, L-1, L-5, L-6 , N-4, M-4(No change since previous inspection)	High	High	High	High	Repair rilling
18	South Slope	See Notes	Rilling 6-12" deep, some areas >12" deep Rilling at Grid G-5 to H-6 (See Photo LF002-01 and Figure 2)	High	High	High	High	Repair rilling caused by heavy rainfall
19	Southeastern Boundary	See Notes	Animal burrows/holes Grid L-7 (See Photo LF02-004 and Figure 2) (No change since previous inspection) (Some areas Rilling increased to 24“ deep Grid L-7 (See Photo LF-002-05 and Figure 2)	Slight	Slight	Slight	Slight	Repair Rilling
20	Instrumentation Station (Lysimeter/Tipping Bucket)	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
21	Central Cap	See Note	Areas of Sparse vegetation Grid H-5(See Photo LF-002-02and Figure 2)				Slight	Monitor

Rating

Slight
Moderate
High
Immediate

*NR- Not Rated (See Status Column)

TABLE 3 – INSPECTION SUMMARY, LF-008

Item	Feature	Status	Notes/Description	06/06/14 Rating	07/29/14 Rating	08/28/2014 Rating	09/23/2014 Rating	Recommended Corrective Action
1	Gate 1	See Notes	Good	Slight	NR*	NR	NR	Sign reinstalled
2	Gate 2	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
3	Gate 3	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
4	Gate 4	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
5	Pipe Intake 1	See notes	Sediment accumulating around intake diverts water downhill, creates rilling. ((No change since previous inspection)		High	High	High	Remove sediment at intake. Construct Channel behind berm
6	Pipe Intake 2	See *Notes*	Repaired rilling leading to pipe intake (12/16/13)	Slight	Slight	Slight	Slight	Monitor
7	Pipe Intake 3	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action
8	Catch Basin 1	See Notes	Moderate vegetation growth throughout channel (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
9	Sediment Pond 1	See Notes	Sediment/vegetation accumulation (No Change since previous inspection)	Moderate-High	Moderate-High	Moderate-High	Moderate-High	Remove sediment and vegetation
10	Catch Basin 2	See Notes	Rills on SE corner of basin, Moderate vegetation growth (No Change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Remove sediment and vegetation; repair rilling
11	Landfill Cap Grid G-10	See Notes	Depression in cap , potential ponding and leakage No change since previous inspection)		Moderate	Moderate	Moderate	Backfill Depression
12	Landfill Cap Grid I-3- I-5	See Notes	Fissures in Cap Fissures filled with sediments from recent rains.		Moderate	Moderate	Moderate	Repair Fissures
13	Sediment Pond 2	See Notes	Sediment accumulation; vegetation (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Remove sediment and vegetation
14	Catch Basin 3	See Notes	Sediment accumulation; vegetation (No Change since previous inspection) (Photo LF-008-03).	Moderate	Moderate	Moderate	Moderate	Remove sediment and vegetation
15	Sediment Pond 3	See Notes	Sediment accumulation; vegetation (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
16	Catch Basin 4	See Notes	Rilling; fiber roll displacement,. Rilling on bank near intake. Blocked outlet, weeds and sediment. Severe rilling at headwall. Grid H-1 (See Photo LF-0008-01 and Figure 3)	Moderate-High	Moderate-High	Moderate-High	Moderate-High	Repair rills and reinstall fiber rolls
17	Catch Basin 5	See Notes	Sediment/vegetation accumulation; rilling (No change since previous inspection)	Slight-Moderate	Slight-Moderate	Slight-Moderate	Moderate	Remove sediment and vegetation; repair rilling
18	Catch Basin 6	See Notes	Sediment accumulation and rilling on the head wall (No change since previous inspection)	Slight	Slight	Slight	Slight	Monitor
19	Channel 1	See Notes	Vegetation growth and sediment in channel ((No change since previous inspection) (See photo LF-008-01)	Slight-Moderate	Slight-Moderate	Slight-Moderate	Moderate	Remove sediment and vegetation
20	Channel 2	See Notes	Rilling at Cell G-14. (No change since previous inspection)	Slight	Slight	Slight	Slight	Repair rills. Remove tree.
21	Channel 3	See Notes	Sediment and vegetation in Channel (Figure 3 Grid Cell G-9) (No change since previous inspection)		Moderate	Moderate		Remove sediment and vegetation
22	Channel 3	See Notes	Repairs and reconstruction completed. Sparse vegetation in repair area (See Photo LF-008-02and Figure 3)	Slight	Slight	Slight	Slight	Construction is complete. However repaired area should be revegetated. Monitor
23	Channel 4	See Notes	Sediment accumulation; bank rilling; heavy vegetation and growth (No change since Previous inspection)	Slight	Slight	Slight	Slight	Remove sediment
24	Rock Berm 3	See Notes	Rills 4" to <12" (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Repair rilling/Monitor
25	Rock Berm 3	See Notes	Fissures east of berm (No change since previous inspection)	Slight	Slight	Slight	Slight	Repair rilling/Monitor
26	Rock Berm 5	See Notes	Rills ~4", south of berm (No change since previous inspection)	Slight	Slight	Slight	Slight	Repair rilling/Monitor
27	Rock Berm 8	See Notes	Minor rills and piping west of berm (No change since previous inspection)	Slight	Slight	Slight	Slight	Repair piping and rilling
28	Rock Berm 10	See Notes	Rills to 6" east of berm (No change since previous inspection)	Slight	Slight	Slight	Slight	Repair rilling/Monitor
29	Rock Berm 11	See Notes	Rills to 6"; South of berm (No change since previous inspection)	Slight	Slight	Slight	Slight	Repair rilling/Monitor
30	Slope - Channel 1, Cell T-3	See Notes	Dry tumbleweeds - high density (No change since previous inspection)	Slight	Slight	Slight	Slight	Remove tumbleweeds (appears to be within the active landfill slope)
31	Northeastern Slope	See Notes	Significant rilling <12" deep (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Repair rilling
32	Northwest Slope	See Notes	Significant rilling <12" deep (No change since previous inspection)	Moderate	Moderate	Moderate	Moderate	Repair rilling
33	Western Slope	See Notes	Significant rilling, large bare area due to construction in encompassing grids E-8 and E-9 (No change since previous inspection)	High	High	High	High	Repair rilling, reseed bare area
34	Western Slope	See Notes	Significant rilling, Grid B-10 (No change since previous inspection)		High	High	High	Repair Rilling
35	Top, Northern	See Notes	Fissures ~12" deep, lineated N/S; (No Change since previous inspection)	High	High	High	High	Repair piping
36	Top, Eastern	See Notes	Fissures ~12" deep, lineated N/S; (No change since previous inspection)	High	High	High	High	Repair piping

TABLE 3 – INSPECTION SUMMARY, LF-008

37	Top- Grid Location R-7 through R-9	See Notes	Fissures ~12" deep, lineated N/S (No change since previous inspection)	High	High	High	High	Repair piping
38	Top- Grid Location Q-14 Through Q-17	See Notes	Fissures ~12" deep, lineated N/S (No change since previous inspections)	High	High	High	High	Repair piping
39	Instrumentation Station (Lysimeter/Tipping Bucket)	good	(No change since previous inspection)		NR	NR	NR	No Corrective Action

Rating

Slight

Moderate

High

Immediate

*NR Not rated (See Status Column)

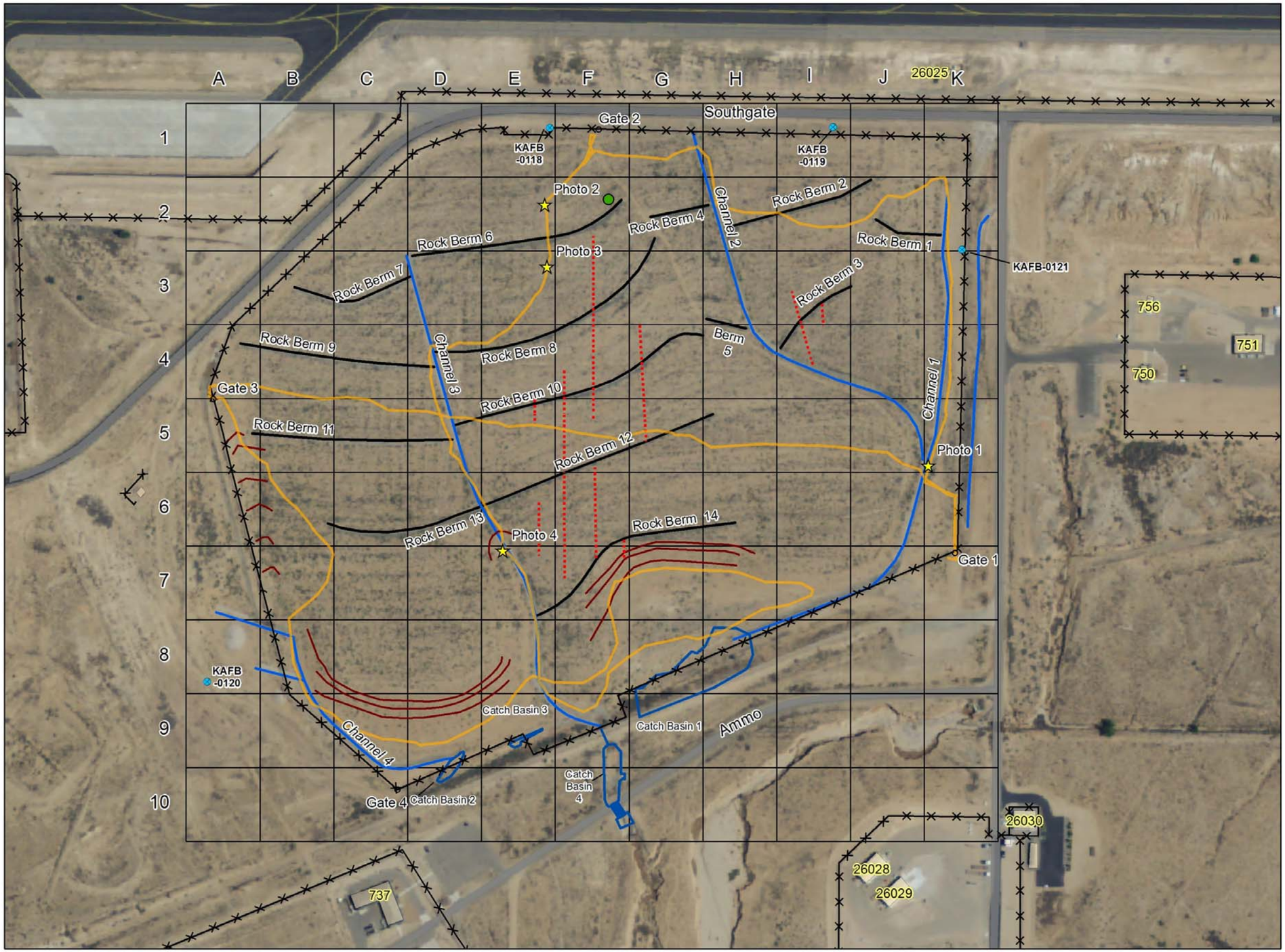


Photo Locations
Instrumentation Station
Monitor Well
Gate
Inspection Route
Fence
Fissure
Fiber Roll
Channel
Rock Berm
Catch Basin

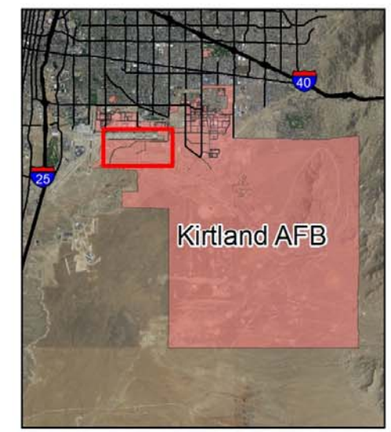


FIGURE 1

LF-001 SITE INSPECTION
SEPTEMBER 23, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE,
NEW MEXICO

N

1:3,074

0 125 250 375 500 Feet

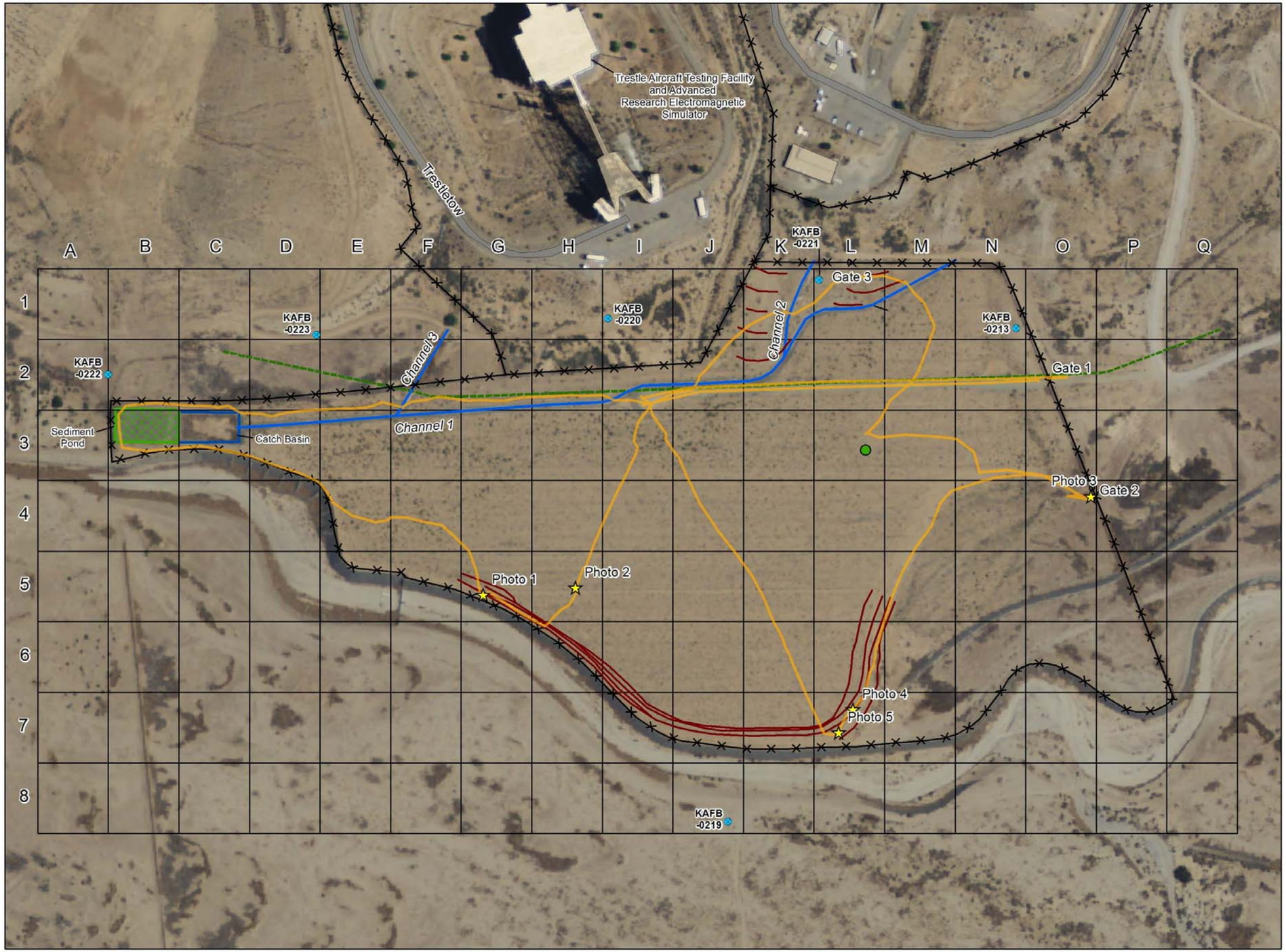


Photo Locations
Instrumentation Station
Monitor Well
Gate
Inspection Route
Fence
Roll Soil
Channel
Sanitation Sewer
Sediment Pond
Catch Basin

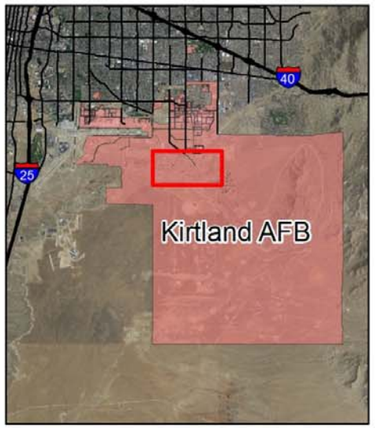


FIGURE 2

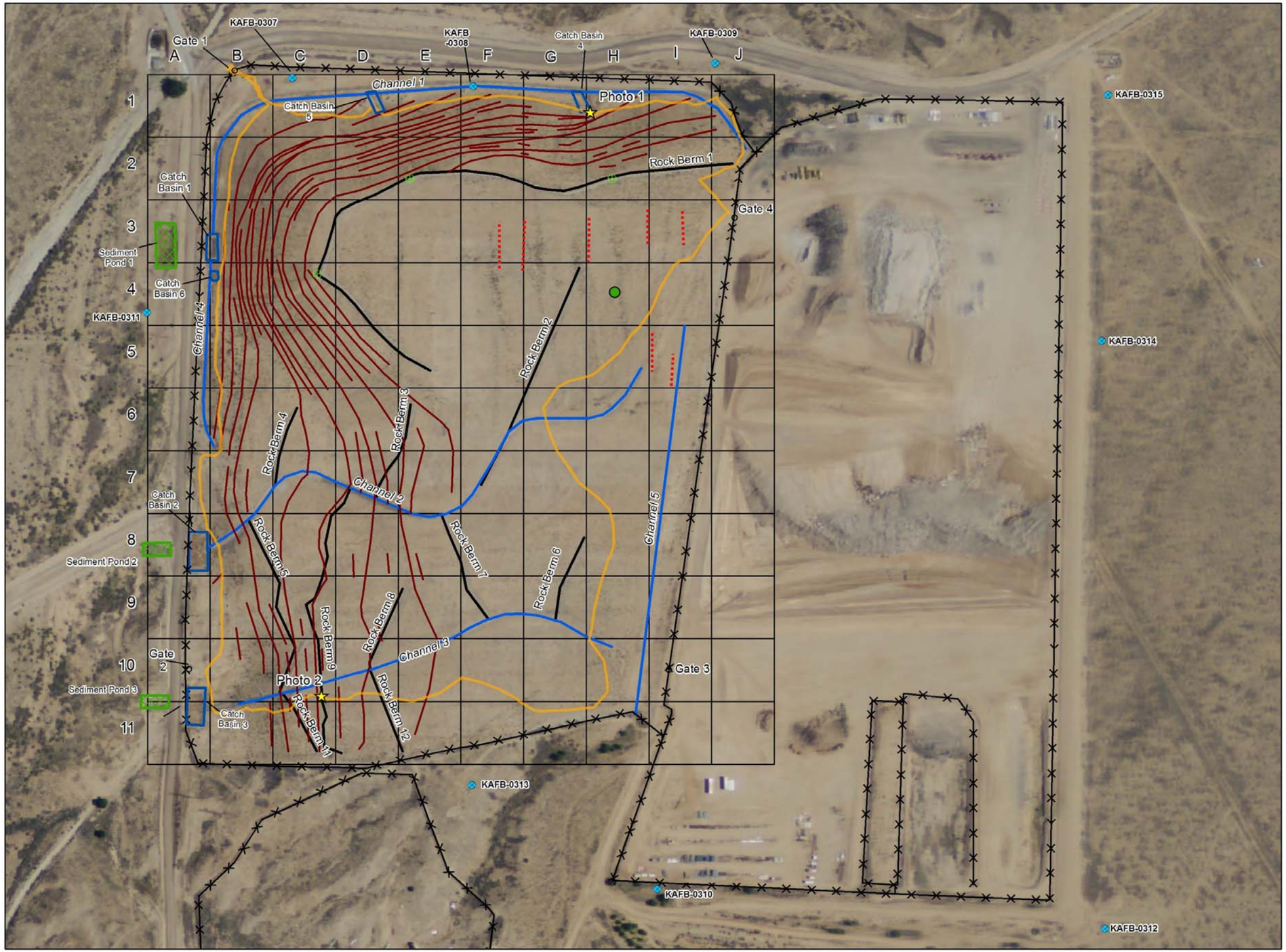
LF-002 SITE INSPECTION
SEPTEMBER 23, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE,
NEW MEXICO

N

1:3,215

0 125 250 375 500 Feet



- Photo Locations
- Pipe Intake
- Instrumentation Station
- Monitor Well
- Gate
- Inspection Route
- Fence
- Fissure
- Fiber Roll
- Channel
- Rock Berm
- Sediment Pond
- Catch Basin

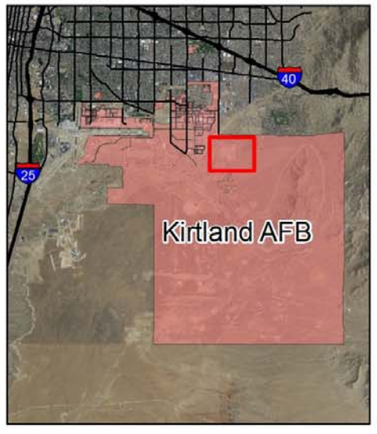


FIGURE 3

LF-008 SITE INSPECTION
SEPTEMBER 23, 2014

LONG TERM MONITORING
KIRTLAND AIR FORCE BASE,
NEW MEXICO

N

1:3,621

0 125 250 375 500 Feet

Inspection Photographs – Kirtland Air Force Base, New Mexico
September, 2014

LF-001-1: Vegetation , Channel 1	LF-001-2: Instrumentation Station
September 23, 2014	September 23, 2014

Inspection Photographs – Kirtland Air Force Base, New Mexico
September, 2014

LF-001-3: Fissures, Looking South	LF-001-4: Rilling along Channel 3
September 23, 2014	September 23, 2014

Inspection Photographs – Kirtland Air Force Base, New Mexico
September, 2014

LF-002-1: Rilling at South Fence , Grid G-5

September 23, 2014

Inspection Photographs – Kirtland Air Force Base, New Mexico
September, 2014

LF-002-2: Landfill Cap Looking North	LF-002-3: Gate #2 Weeds in Front of Gate
September 23, 2014	September 23, 2014

Inspection Photographs – Kirtland Air Force Base, New Mexico
September, 2014

LF-002-4: Animal Burrow Southeast Slope	LF-002-05: Southeast Slope Rilling
September 23, 2014	September 23, 2014

Inspection Photographs – Kirtland Air Force Base, New Mexico
September, 2014

LF-008-1: Catch Basin #4 Erosion at Head of Basin	LF-008-2: Channel 3, Looking North. Sparse vegetation in reconstructed area
September 23, 2014	September 23, 2014