



DEPARTMENT OF THE AIR FORCE
377TH AIR BASE WING (AFGSC)



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Ms. Michelle Hunter, Bureau Chief
Ground Water Quality Bureau
New Mexico Environment Department
1190 St. Francis Drive, Harold Runnels Building, Room N-2250
Santa Fe NM 87502

Dear Ms. Hunter

Attached please find replacement pages for the *Final Corrective Action Report for the KAFB-106239 Development Water Release* associated with the Bulk Fuels Facility Spill, Solid Waste Management Unit ST-106/SS-111, Kirtland Air Force Base (AFB), New Mexico that was originally submitted to your office electronically on February 17, 2017 and with hard copies on February 21, 2017. These replacement pages reflect the addition of soil background concentrations to Table 4 and revised text comparing analytical results for metals in soil to established background concentrations. These changes were made to address comments received by Ms. Diane Agnew on February 21, 2017 (via email).

If you have any questions or concerns, please contact Mr. Scott Clark at (505) 846-9017 or at scott.clark@us.af.mil or Dr. Adria Bodour at (210) 241-6276 or at adria.bodour.1@us.af.mil.

Sincerely,

ERIC H. FROEHLICH, Colonel, USAF
Commander

Attachment:

Replacement pages for the Final Corrective Action Report, KAFB-106239 Development Water Release

cc:

NMED-HWB (Kielsing)
NMED-RPD (McQuillan)
NMED-GWQB (Agnew, Pullen)
EPA Region 6 (King, Ellinger)
COA-EHD (Faris, Leonard)
AFCEC/CZ (Bodour, Clark, Devergie, O'Grady)
USACE-ABQ District Office (Simpler, Phaneuf, Dreeland; Sanchez; Salazar)
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GROUND WATER

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KIRTLAND AIR FORCE BASE ALBUQUERQUE, NEW MEXICO

CORRECTIVE ACTION REPORT FOR EXTRACTION WELL KAFB-106239 DEVELOPMENT WATER RELEASE AT SOLID WASTE MANAGEMENT UNIT ST-106/SS-111, BULK FUELS FACILITY

FINAL

February 2017



**377 MSG/CEANR
2050 Wyoming Blvd. SE
Kirtland AFB, New Mexico 87117-5270**

**KIRTLAND AIR FORCE BASE
ALBUQUERQUE, NEW MEXICO**

**FINAL CORRECTIVE ACTION REPORT
FOR EXTRACTION WELL KAFB-106239
DEVELOPMENT WATER RELEASE AT
SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
BULK FUELS FACILITY**

FEBRUARY 2017

Prepared for

U.S. Army Corps of Engineers
Albuquerque District
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109-3435

Prepared by

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Contract No. W912DR-12-D-0006/Delivery Order DM01

NOTICE

This Corrective Action Report was prepared for the U.S. Army Corps of Engineers by EA Engineering, Science, and Technology, Inc., PBC to summarize the response to a development water release associated with the Kirtland Air Force Base (AFB) Bulk Fuels Facility, Solid Waste Management Unit ST-106/SS-111. This work was performed under the U.S. Air Force Environmental Restoration Program under the requirements of the Resource Conservation and Recovery Act permit issued to Kirtland AFB, with the New Mexico Environment Department serving as the lead regulatory agency. This Corrective Action Report is submitted pursuant to 20.6.2.1203.A(6) NMAC, "Notification of Discharge-Removal" and addresses the activities related to the corrective actions taken after a release of development water on January 8, 2017.

Government agencies and their contractors registered with the Defense Technical Information Center should direct requests for copies of this report to: Defense Technical Information Center, Cameron Station, Alexandria, Virginia 22304-6145.

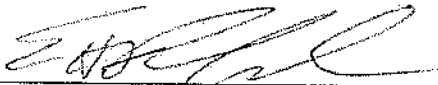
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14. ABSTRACT This report describes the corrective action response to the release of 150 gallons of water from well development activities at KAFB-106239 associated with Solid Waste Management Unit ST-106/SS-111 at Kirtland Air Force Base, New Mexico. Approximately 2 cubic yards of wetted soil was removed from the release area. Soil samples were collected before and after soil removal and analyzed for ethylene dibromide (EDB) and benzene, toluene, ethylbenzene, and xylenes (BTEX) using U.S. Environmental Protection Agency Methods 8021B and 8260B and Resource Conservation and Recovery Act (RCRA) metals by EPA Methods 6010B/7471A. No EDB or BTEX compounds were detected in any primary soil samples. A water sample collected from the storage tank source was analyzed for EDB, BTEX, and RCRA metals and contained 0.056 micrograms per liter of EDB and 3.9 micrograms per liter of toluene. No further corrective action is recommended.					
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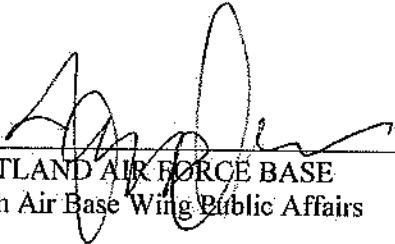
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FEBRUARY 2017**

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ERIC H. FROEHLICH, Colonel, USAF
Commander, 377th Air Base Wing

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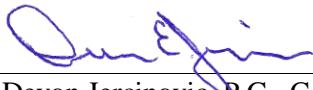


KIRTLAND AIR FORCE BASE
377th Air Base Wing Public Affairs

PREFACE

This Final Corrective Action Report for the extraction well KAFB-106239 development water release is prepared by EA Engineering, Science, and Technology, Inc., PBC (EA) for the U.S. Army Corps of Engineers (USACE), under Contract Number W912DR-12-D-0006, Delivery Order DM01 and describes the corrective action response to the release of 150 gallons of development water associated with Solid Waste Management Unit ST-106/SS-111, Bulk Fuels Facility at Kirtland Air Force Base (AFB), New Mexico. This report was prepared in accordance 20.6.2.1203.A(6) NMAC, "Notification of Discharge-Removal" and also satisfies the requirements in Part 1.27 of the Kirtland AFB 2010 Hazardous Waste Treatment Facility Operating Permit (Permit Number NM9570024423).

Mr. Trent Simpler, PE, is the USACE–Albuquerque District Project Manager. The Environmental Restoration Section Chief for this program is Mr. Scott Clark of Kirtland AFB. This report was prepared by Devon Jercinovic, PG, PMP as the EA Project Manager.



Devon Jercinovic, P.G., C.P.G., P.M.P.
EA Engineering, Science, and Technology, Inc., PBC
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ACRONYMS AND ABBREVIATIONS

µg/L	microgram(s) per liter
AFB	Air Force Base
BTEX	benzene, toluene, ethylbenzene, and xylenes
BFF	Bulk Fuels Facility
EA	EA Engineering, Science, and Technology, Inc., PBC
EPA	U.S. Environmental Protection Agency
EDB	ethylene dibromide
ft	foot/feet
MCL	Maximum Contaminant Level
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
RCRA	Resource Conservation and Recovery Act
SE	Southeast
SWMU	Solid Waste Management Unit
USACE	U.S. Army Corps of Engineers

EXECUTIVE SUMMARY

This Final Corrective Action Report for the extraction well KAFB-106239 development water release is prepared by EA Engineering, Science, and Technology, Inc., PBC (EA) to describe the development water release and corrective actions associated with KAFB-106239, at Solid Waste Management Unit (SWMU) ST-106/SS-111, Bulk Fuels Facility (BFF) at Kirtland Air Force Base (AFB), New Mexico. The release and corrective actions took place on January 8-9, 2017.

Approximately 2 cubic yards of wetted soil was removed from the release area. Soil samples were collected before and after soil removal and analyzed for ethylene dibromide (EDB) and benzene, toluene, ethylbenzene, and xylenes (BTEX) using U.S. Environmental Protection Agency (EPA) Methods 8021B and 8260B and Resource Conservation and Recovery Act (RCRA) metals by EPA Methods 6010B/7471A. No EDB or BTEX compounds were detected in any primary soil samples. A water sample collected from the storage tank source was analyzed for EDB, BTEX, and RCRA metals and contained 0.056 micrograms per liter ($\mu\text{g/L}$) of EDB and 3.9 $\mu\text{g/L}$ of toluene. Based on these soil analyses, no further corrective action is proposed. Waste profiles will be developed for the removed water and soil for final disposition.

1. INTRODUCTION

EA, under U.S. Army Corps of Engineers (USACE) Contract Number W912DR-12-D-0006, Delivery Order DM01, is performing installation and development of an extraction well at SWMU ST-106/SS-111, at Kirtland AFB, New Mexico. This SWMU is known as the BFF site. Environmental restoration efforts at the BFF site are being conducted under requirements set forth in the RCRA Hazardous Waste Treatment Facility Operating Permit (Number NM9570024423) (RCRA Permit) with the New Mexico Environment Department (NMED) serving as the lead regulatory agency (NMED 2010). An accidental release of water occurred from the storage tank and water was released onto the ground adjacent to the tank while performing development activities on January 8, 2017 from extraction well KAFB-106239. This report was prepared in accordance 20.6.2.1203.A(6) New Mexico Administrative Code, "Notification of Discharge-Removal," and also satisfies the requirements in Part 1.27 of the RCRA Permit.

1.1 Description of the Release

On January 8, 2017, Kirtland AFB was performing well development activities on extraction well KAFB-106239 located on Ridgecrest Drive Southeast (SE) just east of San Pedro Drive (Figure 1). KAFB-106239 is being constructed to extract dissolved-phase organic contaminated groundwater for treatment at the Kirtland AFB BFF groundwater treatment system. During well development, groundwater was pumped from the well as part of the well screen cleaning process to enhance well performance. All water pumped from the well was pumped directly into 21,000-gallon capacity, onsite storage tanks. The storage tanks were placed on portable, heavy duty vinyl, secondary containment structures with 1-foot (ft) high sides to capture leaks and small releases from the tank.

During pumping of the deepest portion of the well screen interval on January 8, 2017, the storage tank overflowed water from the top port of the tank (Appendix A, Photograph 1). The overflow began at 4:15 p.m. just as the pump was shut down to end the pumping cycle. The cover of the port was closed, but not locked down. Pressure in the pump line feeding the tank forced water to shoot outward from the port for approximately 15-20 seconds into the secondary containment structure and directly onto the ground (i.e., release was not direct overflow from the secondary containment structure). The secondary containment structure captured some of the overflow; however, due to the pumping pressure, it was limited to a few gallons that ran down the side of the tank. Most of the water overshot the edge of the secondary containment and was released onto the ground (Appendix A, Photograph 2). An estimated 150 gallons of water was released onto the soil adjacent to the tank. Water then flowed westward in the dirt right-of-way adjacent to the south side of Ridgecrest Drive SE, following the existing soil drainage contours for a measured distance of 170 ft to the west (toward San Pedro Drive SE). Figure 2 shows the approximate area of the impacted soil from the release. The width of the flow was contained in a 2- to 3-ft wide path for most of the flow length. At the spill point, water did cover a 9-ft wide area (Appendix A, Photograph 3; Figure 2). None of the released water reached any City of Albuquerque storm drains on either Ridgecrest Drive SE or San Pedro Drive SE. In addition, no private property was impacted.

1.2 Report Overview

This report describes the description of development water release and corrective actions taken immediately after the spill associated with well KAFB-106239 at ST-106/SS-111. The report consists of four sections:

- Section 1 includes an introduction, description of the water release from extraction well KAFB-106239, and this report overview.
- Section 2 describes the corrective actions taken immediately after the release, characterization sampling (pre-excavation and post-excavation), and soil removal procedure.
- Section 3 covers the water and soil sample analytical results.
- Section 4 provides a list of references cited.

Two appendices accompany this report. Photographs showing different steps of corrective actions are included as Appendix A, and laboratory analytical results of water and soil samples are included as Appendix B.

2. CORRECTIVE ACTIONS

Field personnel immediately responded by first ensuring the well pump was turned off. A small earthen berm was then constructed downslope of the flow near San Pedro Drive SE to prevent any water from leaving the dirt area south of Ridgecrest Drive SE or east of San Pedro Drive SE. Once the site spill was secured, Mr. Steve Pullen of the NMED Groundwater Quality Bureau was notified regarding the incident via email on January 8, 2017. Ms. Diane Agnew of the NMED Hazardous Waste Bureau was also notified by telephone and copied on the email notification.

One soil sample (SP-001) was collected on January 8, 2017 at the distal extent of the surface flow where water was ponding on the surface (Figure 2). The sample was collected within 2 hours of the release and analyzed for BTEX by EPA Method 8021bB, EDB by EPA Method 8011, and RCRA metals by EPA Methods 6010B/7471A at Hall Environmental Laboratories in Albuquerque, New Mexico. Soil sample results and project screening levels are provided in Table 1. Laboratory analytical reports are provided in Appendix B.

2.1 Characterization Sampling and Soil Removal on January 9, 2017

On the morning of January 9, 2017, the area of the surface release was first pin-flagged to clearly identify the impacted area in preparation for soil removal (Appendix A, Photograph 4). Two additional samples (pre-excavation) were then collected: one from the spill area near the storage tank (SP-002, Figure 2) and one liquid sample collected from the development water in tank (SP, Table 2). Samples were delivered to Hall Environmental Laboratories and analyzed for BTEX, EDB, and RCRA metals as described above for the soil sample. The water sample was analyzed for BTEX by EPA Method 8260B, EDB by EPA Method 8011, and RCRA metals by EPA Methods 6010B/7470A.

In order to determine how much soil should be removed in the release area, a shovel was used to dig into the soil to determine a visual depth of water infiltration. It was determined that along most of the primary flow path (approximately 150 linear ft) and at the base of the storage tank, the depth of water infiltration was within 1 inch of the surface. At the far distal (western) extent of the surface flow, previous snow melt infiltration combined with the release resulted in saturated soil approximately 2 inches in depth. Based on the saturation depth, a 2-inch depth of soil removal was initiated in this area (approximately 20 linear ft).

A buried utility line mark was observed along the path of the proposed excavation. Although the buried utility was deeper than 2 inches, to mitigate any risk, four, 2-inch deep trenches were hand-dug along the length of the proposed removal area and perpendicular to the utility trace. The trenches confirmed that the utility was not present at these depths.

Soil removal was performed using a Bobcat excavator with a 5-ft wide bucket (Appendix A, Photographs 5 and 6). A 1-inch deep cut was made into the soil the width of the bucket along the pathway of the spill. A second linear cut of approximately 3 ft was done to ensure capture of all the impacted area along the length of the spill. At the release point at the storage tank, an area of approximately 9 × 9 ft was removed to 1 inch deep. At the downslope end of the flow, an area 20 ft long ranging from 3 to 8 ft wide was removed to a depth of 2 inches. The soil removal area is shown on Figure 3.

All excavated soil was placed in a lined, 20-yard roll-off bin. Approximately 2 yards of soil was removed during the excavation. The soil was transported to the EA investigation-derived waste yard at Kirtland AFB for final waste disposition pending characterization.

2.2 Post-Excavation Confirmation Soil Sampling on January 9, 2017

Upon completion of the soil excavation activities, six soil samples were collected along the length of the excavated area on January 9, 2017 (Figure 4; and Appendix A, Photographs 7 and 8). The purpose of the post-excavation sampling was to confirm all impacted soil was removed and that no soil contamination remained at the site or was associated with the release. The samples were sent Eurofins Lancaster Laboratories Environmental, Lancaster, Pennsylvania for BTEX, EDB, and RCRA metals analysis.

3. SAMPLE ANALYTICAL RESULTS

Table 1 provides the analytical results for two pre-excavation soil samples. Table 2 presents the analytical results for the well development water collected from the storage tank. Table 3 provides a summary of all the samples collected as part of this soil removal activity. Table 4 presents the analytical results of six soil samples collected after soil removal.

3.1 Development Water

The data results from the development water released from the tank documented the sample to be non-hazardous. EDB was reported at 0.056 µg/L, which is slightly above the EPA Maximum Contaminant Level (MCL) of 0.05 µg/L. For the BTEX compounds analyzed, only toluene was detected at 3.9 µg/L, well below the New Mexico Water Quality Control Commission (NMWQCC) standard of 750 µg/L. The only metal detected in the development water was barium at 0.12 milligrams per liter, less than the EPA MCL. Water data were conservatively compared to EPA MCLs/NMWQCC Standards; however, no surface water, stormwater, or groundwater was impacted.

3.2 Pre-Removal Soil Samples

Laboratory results for the two soil samples (SP001 and SP002) collected prior to excavation activities indicated the soil did not contain EDB or BTEX compounds above the method detection limit as all results were non-detect for these compounds. Metals in soil showed detected concentrations of barium, chromium, and lead that were below NMED residential soil screening levels.

3.3 Post-Removal Soil Samples

Six soil samples (SP239-003 to SP239-008) were collected after excavation activities. No EDB or BTEX compounds were detected in any of the six primary soil samples. The field duplicate for location SP239-006 (Figure 4) contained an estimated toluene concentration of 2 micrograms per kilogram. Barium, cadmium, and chromium were detected in all six soil samples; however, the concentrations were below NMED residential soil screening levels (SSLs) and respective background concentrations for surface soil in the North Supergroup (Dinwiddie, 1997). Selenium was detected in two samples (SP239-006 [primary and field duplicate] and SP239-007) above the background concentration of less than 1 milligrams per kilogram (mg/kg), but was less than the NMED residential SSL of 391 mg/kg. Lead was detected above the background concentration of 39 mg/kg in two samples (SP239-003 and SP239-004), but below the NMED residential SSL of 400 mg/kg. Arsenic was detected above the NMED residential SSLs of 4.25 mg/kg in samples SP239-004 and SP-239-006 (field duplicate). The primary sample for SP239-006 contained arsenic at 3.74 mg/kg, below the NMED residential SSL. Arsenic concentrations in both samples are less than the arsenic background concentration of 5.6 mg/kg.

3.4 Summary and Recommendation

Soil samples contained no detectable hazardous constituents and indicated that the water released from the storage tank did not impact the surrounding soil media. No further corrective action is recommended.

4. REFERENCES

- Dinwiddie, R.S. 1997. New Mexico Environment Department. Letter to M.J. Zamorski (U.S. Department of Energy), "Request for Supplemental Information: Background Concentrations Report, SNL/KAFB." September.
- New Mexico Environment Department (NMED). 2010. Hazardous Waste Treatment Facility Operating Permit, EPA ID Number NM9570024423, Issued to U.S. Air Force for the Open Detonation Unit Located at Kirtland Air Force Base, Bernalillo County, New Mexico, by the NMED Hazardous Waste Bureau. July.

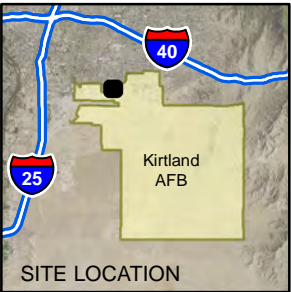
FIGURES



Notes:
Aerial Imagery from ESRI Online Map Service 2016

Legend

- Extraction Well
- Storage Tank



0 100 200 400
Feet

1 inch = 200 feet

Projection: NAD83 State Plane New Mexico Central FIPS3002 Feet

EXTRACTION WELL KAFB-106239
WATER STORAGE TANK RELEASE REPORT
BULK FUELS FACILITY
SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO

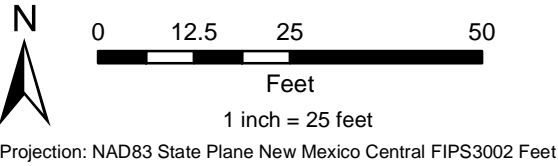
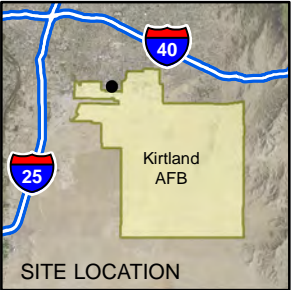
FIGURE 1

LOCATION OF EXTRACTION WELL
KAFB-106239



Legend

- Pre-Removal Soil Sample Location
January 8, 2017
- Development Water Sample
- ▲ Reference Point
- ▨ Impacted Soil Area



EXTRACTION WELL KAFB-106239
WATER STORAGE TANK RELEASE REPORT
BULK FUELS FACILITY
SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO

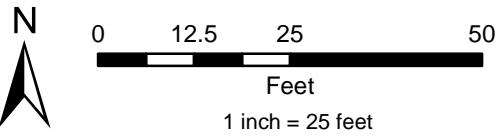
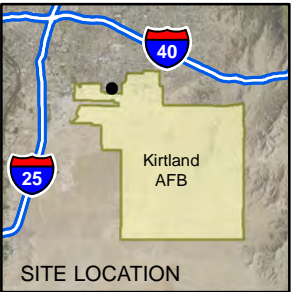
FIGURE 2

**EXTENT OF WATER RELEASE
AND LOCATION OF PRE-REMOVAL
SOIL SAMPLES**



Legend

- Area of 1" Soil Removal
January 9, 2017
- Area of 2" Soil Removal
January 9, 2017

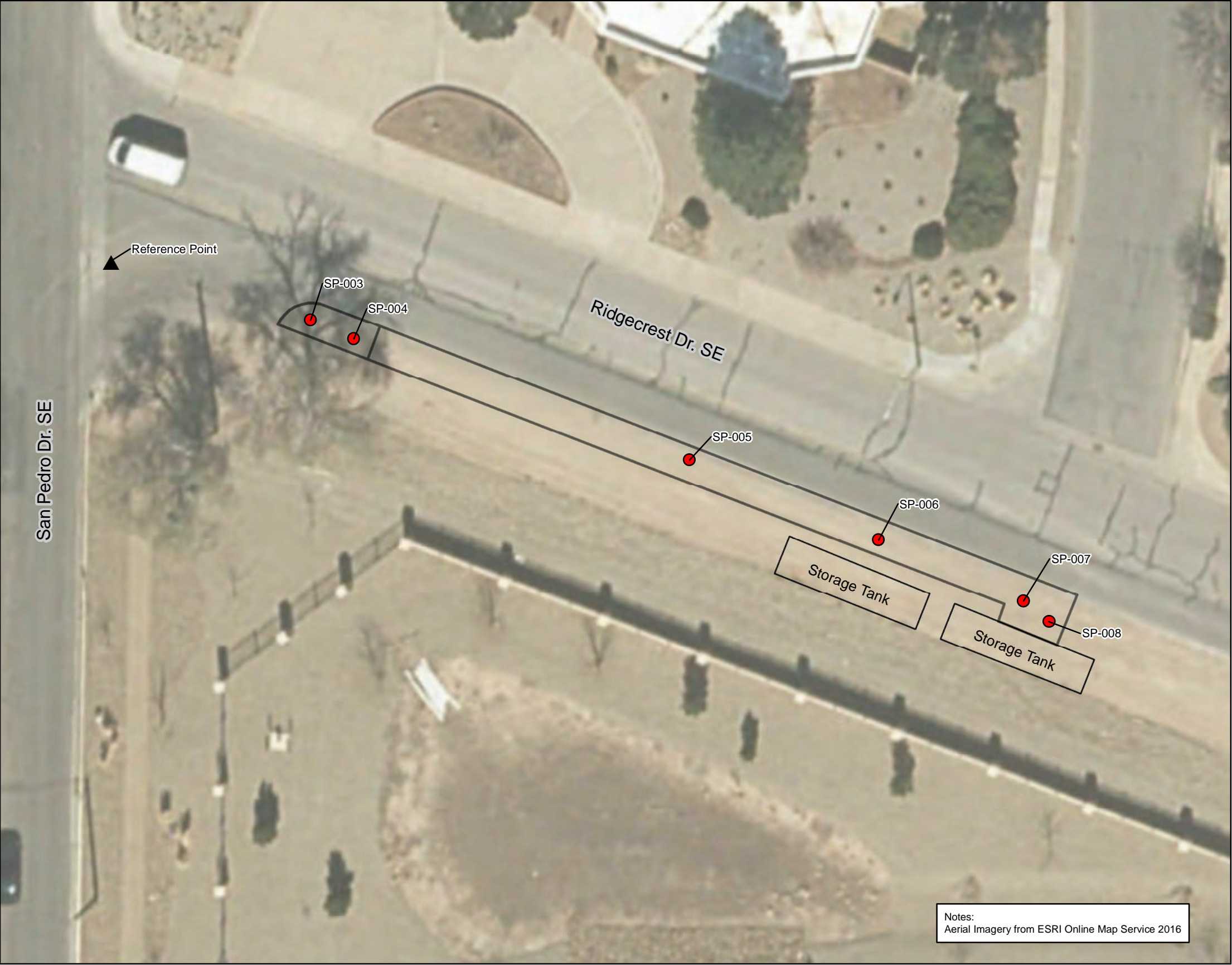


Projection: NAD83 State Plane New Mexico Central FIPS3002 Feet

EXTRACTION WELL KAFB-106239
WATER STORAGE TANK RELEASE REPORT
BULK FUELS FACILITY
SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO

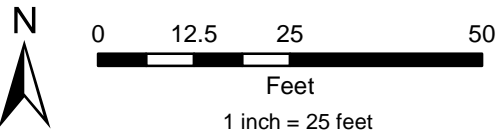
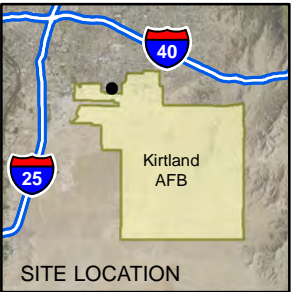
FIGURE 3

IMPACTED SOIL REMOVAL ACTION



Legend

- Post-Removal Soil Sample Location
January 9, 2017
- ▲ Reference Point
- Soil Removal Area



Projection: NAD83 State Plane New Mexico Central FIPS3002 Feet

EXTRACTION WELL KAFB-106239
WATER STORAGE TANK RELEASE REPORT
BULK FUELS FACILITY
SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 4

LOCATION OF POST-REMOVAL
ACTION SOIL SAMPLES

TABLES

Table 1
Pre-Excavation Soil Analytical Results, January 8-9, 2017

		Location ID:				KAFB-106239		KAFB-106239	
		Field Sample ID:				106239 SP-001		106239 SP-002	
		Sample Date:				1/8/2017		1/9/2017	
		Sample Type:				REG		REG	
		Sample Depth (ft bgs):				Surface		Surface	
		Notes				Soil Pre-Removal Action - Distal End		Soil Pre-Removal Action - Near Storage Tank	
Parameter	EPA Method	Analyte	CAS RN	NMED Residential SSL ^a	EPA Residential RSL ^b	Result (mg/kg)	PQL	Result (mg/kg)	PQL
EDB	SW8011	1,2-dibromoethane	106-93-4	0.672	0.36	ND	0.0001	ND	0.000096
						Result (mg/kg)	PQL	Result (mg/kg)	PQL
BTEX	SW8021B	Benzene	71-43-2	17.8	12	ND	0.024	ND	0.024
		Ethylbenzene	100-41-4	75.1	58	ND	0.048	ND	0.048
		Toluene	108-88-3	5,230	4900	ND	0.048	ND	0.048
		Xylenes, total	1330-20-7	871	650	ND	0.096	ND	0.096
						Result (mg/kg)	PQL	Result (mg/kg)	PQL
Total Metals	SW6010B	Arsenic	7440-38-2	4.25	6.8	ND	2.5	ND	2.5
		Barium	7440-39-3	15,600	15,000	71	0.10	95	0.098
		Cadmium	7440-43-9	70.5	71	ND	0.10	ND	0.098
		Chromium	7440-47-3	96.6	1,200,000	3.2	0.30	5.1	0.29
		Lead	7439-92-1	400	400	5.3	0.25	9.8	0.25
		Selenium	7782-49-2	391	390	ND	2.5	ND	2.5
		Silver	7440-22-4	391	390	ND	0.25	ND	0.25
	SW7471A	Mercury	7439-97-6	23.8	11	ND	0.031	ND	0.033

NOTES:

^a Residential land use SSLs from the NMED Risk Assessment Guidance for Site Investigations and Remediation, Appendix A, Table A-1, NMED SSLs. July 2015.

^b EPA RSLs for residential use scenario for hazard index = 1.0 for noncarcinogens and a 10⁻⁵ cancer risk level for carcinogens. May 2016.

mg/kg = Milligram(s) per kilogram.

CASRN = Chemical Abstracts Service Registry Number.

EPA = U.S. Environmental Protection Agency.

ND = Not detected above the method detection limit.

NMED = New Mexico Environment Department.

PQL = Practical quantification limit.

RSL = Regional Screening Level.

SSL = Soil Screening Level.

SW = EPA SW-846 Test Methods for Evaluating Solid Waste, Third Edition, 1986 and Updates.

Table 2
Development Water Analytical Results, January 9, 2017

		Well Location ID:				KAFB-106239			
		Field Sample ID:				106239 SP			
		Sample Date:				1/9/2017			
		Sample Type:				REG			
		Sample Depth (ft bgs):				Not Applicable			
						Notes		Development Water (Storage Tank)	
Parameter	EPA Method	Analyte	CAS RN	NMAC NMWQCC ^a (µg/L)	EPA MCL ^b	Result (µg/L)	PQL		
EDB	SW8011	1,2-dibromoethane	106-93-4	0.1	0.05	0.056	0.010		
BTEX	SW8260B	Benzene	71-43-2	10	5.0	Result (µg/L) ND	PQL 1.0		
		Ethylbenzene	100-41-4	750	700	ND	1.0		
		Toluene	108-88-3	750	1000	3.9	1.0		
		Xylenes, total	1330-20-7	620	10,000	ND	1.5		
				NMAC NMWQCC ^a (mg/L)	EPA MCL ^b (mg/L)	Results (mg/L)	PQL		
Total Metals	SW6010B	Arsenic	7440-38-2	0.1	0.01	ND	0.020		
		Barium	7440-39-3	1.0	2	0.12	0.020		
		Cadmium	7440-43-9	0.01	0.005	ND	0.0020		
		Chromium	7440-47-3	0.05	0.1	ND	0.0060		
		Lead	7439-92-1	0.05	0.015	ND	0.0050		
		Selenium	7782-49-2	0.05	0.05	ND	0.050		
		Silver	7440-22-4	0.05	NS	ND	0.0050		
	SW7470A	Mercury	7439-97-6	0.002	0.002	ND	0.00020		

NOTES:

^a New Mexico Administrative Code Title 20.6.2.3103, Standards for Ground Water of 10,000 mg/L Total Dissolved Solids Concentration or Less (NMAC 2004).

For metals, the NMWQCC applies to dissolved metals and total mercury.

^b USEPA National Primary Drinking Water Regulations, Maximum Contaminant Levels (MCLs) and Secondary MCLs, Title 40CFR Part 141, 143 (May 2009).

µg/L = microgram per liter.

mg/L = milligrams per liter.

CASRN = Chemical Abstracts Service Registry Number.

CFR = Code of Federal Regulations.

EDB = ethylene dibromide (1,2-dibromoethane).

EPA = U.S. Environmental Protection Agency.

MCL = maximum contaminant level.

ND = not detected above the method detection limit.

NMAC = New Mexico Administrative Code.

NMWQCC = New Mexico Water Quality Control Commission.

NS = not specified.

PQL = practical quantification limit.

Table 3
Sampling Locations, January 8-9, 2017

Sample ID	Date Collected	Collection Timing	Reference Location ^a	Type	Laboratory	Notes
106239 SP-001	1/8/2017	Pre-soil removal	52'/2'	Soil	Hall ^b	Initial post -spill sample
106239 SP-002	1/9/2017	Pre-soil removal	210'/8.5'	Soil	Hall	At spill point at storage tank
106239 SP-003	1/9/2017	Post-soil removal	50'/2'	Soil	Eurofins ^c	Western most point of release flow
106239 SP-004	1/9/2017	Post-soil removal	57.5'/3.5'	Soil	Eurofins	Observed water ponded area on 1-8-17
106239 SP-005	1/9/2017	Post-soil removal	132'/2'	Soil	Eurofins	Along flow path
106239 SP-006	1/9/2017	Post-soil removal	178'/3'	Soil	Eurofins	Along flow path
106239 SP-007	1/9/2017	Post-soil removal	210'/5.5'	Soil	Eurofins	Flow path from tank to Ridgecrest Dr.
106239 SP-008	1/9/2017	Post-soil removal	215.5'/5.5'	Soil	Eurofins	Flow path from tank to Ridgecrest Dr.
106239SP	1/9/2017	Pre-soil removal	na	Water	Hall	Water sample from the storage tank

NOTES:

^aReference location: Distance east from edge of concrete gutter strip on San Pedro/Distance south from edge of Ridgecrest Drive (see Figures 2 and 4)

^bHall Environmental Analysis Laboratory Inc., Albuquerque, NM

^cEurofins Lancaster Laboratories Environmental, LLC., Lancaster, Pennsylvania

Table 4
Post-Excavation Soil Analytical Results, January 9, 2017

				Well Location ID:			SP239-003			SP239-004			SP239-005			SP239-006			SP239-006			SP239-007			SP239-008		
				Field Sample ID:			SP239-003-171			SP239-004-171			SP239-005-171			SP239-006-171			SP239-006-571			SP239-007-171			SP239-008-171		
				Sample Date:			1/9/2017			1/9/2017			1/9/2017			1/9/2017			1/9/2017			1/9/2017			1/9/2017		
				Sample Type:			REG			REG			REG			REG			Field Duplicate			REG			REG		
Parameter	Analytical Method	Analyte	CAS RN	Background North Supergroup ^a	NMED Residential SSL ^b	EPA Residential RSL ^c	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
EDB	SW8011 (µg/kg)	1,2-dibromoethane	106-93-4	NA	0.672	0.36	ND	U	0.42	ND	U	0.42	ND	U	0.42	ND	UJ	0.43	ND	U	0.44	ND	U	0.44	ND	U	0.43
BTEx	SW8021B (µg/kg)	Benzene	71-43-2	NA	17.8	12	ND	U	2	ND	U	2	ND	U	2	ND	U	2	ND	U	2	ND	U	2	ND	U	2
		Ethylbenzene	100-41-4	NA	75.1	58	ND	U	2	ND	U	2	ND	U	2	ND	U	2	ND	U	2	ND	U	2	ND	U	2
		Toluene	108-88-3	NA	5,230	4900	ND	U	2	ND	U	2	ND	U	2	ND	U	2	2	J	2	ND	U	2	ND	U	2
		Xylenes, Total	1330-20-7	NA	871	650	ND	U	2	ND	U	2	ND	U	2	ND	U	2	ND	U	2	ND	U	2	ND	U	2
Total Metals	SW6010B (mg/kg)	Arsenic	7440-38-2	5.6	4.25	6.8	2.02	J	1.78	4.78		2.04	3.53	J	1.97	3.74	J	2.09	4.31		2.09	3.17		1.50	3.11	J	1.81
		Barium	7440-39-3	200	15,600	15,000	111	J-	0.111	101	J-	0.128	143	J-	0.123	138	J-	0.131	184	J-	0.131	101	J-	0.0939	89.8	J-	0.113
		Cadmium	7440-43-9	<1	70.5	71	0.151	J	0.111	0.184	J	0.128	0.0967	J	0.123	0.0837	J	0.131	0.108	J	0.131	0.0564	J	0.0939	0.0822	J	0.113
		Chromium	7440-47-3	17.3	96.6	1,200,000	7.94	J	0.334	10.6	J	0.383	8.46	J	0.370	12.4	J	0.392	9.76	J	0.392	10.7	J	0.282	9.84	J	0.339
		Lead	7439-92-1	39	400	400	83.5	J	1.34	139	J	1.53	8.52	J	1.48	23.6	J	1.57	24.2	J	1.57	16.8	J	1.13	11.1	J	1.35
		Selenium	7782-49-2	<1	391	390	ND	U	1.78	ND	U	2.04	ND	U	1.97	1.90	J	2.09	1.99	J	2.09	1.59	J	1.50	0.991	J	1.81
		Silver	7440-22-4	<1	391	390	ND	U	0.445	ND	U	0.511	ND	U	0.493	ND	U	0.523	ND	U	0.523	ND	U	0.376	ND	U	0.452
	SW7471A (mg/kg)	Mercury	7439-97-6	<0.25	23.8	11	ND	U	0.0181	ND	U	0.0178	ND	U	0.0179	ND	U	0.0187	ND	U	0.0172	ND	U	0.0175	ND	U	0.0179

NOTES:
^a Table 1 from Dinwiddie, R.S. (New Mexico Environment Department). Letter to M.J. Zamorski (U.S. Department of Energy), "Request for Supplemental Information: Background Concentrations Report, SNL/KAFB." September 24, 1997

^b Residential land use SSLs from the NMED Risk Assessment Guidance for Site Investigations and Remediation, Appendix A, Table A-1, NMED SSLs. July 2015.

^c EPA RSLs for residential use scenario for hazard index = 1.0 for noncarcinogens and a 10⁻⁵ cancer risk level for carcinogens. May 2016.

mg/kg = Milligram(s) per kilogram.

CASRN = Chemical Abstracts Service Registry Number.

EDB = ethylene dibromide (1,2-dibromoethane)

EPA = U.S. Environmental Protection Agency.

ID = identification

LOD = limit of detection

NA = not applicable

ND = not detected above the method detection limit.

NMED = New Mexico Environment Department.

REG = normal field sample

RSL = Regional Screening Level.

SSL = Soil Screening Level.

SW = EPA SW-846 Test Methods for Evaluating Solid Waste, Third Edition, 1986 and Updates.

Val Qual = validation qualifier

Shading = detected concentrations above the detection limit

Bold/Shading = reported concentrations exceed the project screening level

Val Quals based on independent data validation

J = Qualifier denotes the analyte was positively identified, but the associated numerical value is estimated.

J- = Qualifier denotes the analyte was positively identified, but the associated numerical value is estimated low.

U = Qualifier denotes the analyte was analyzed but not detected above the detection limit. The value associated with the U-qualifier is the LOD.

APPENDIX A

PHOTOGRAPHS



Photograph 1 – Storage Tank Port that Overflowed



Photograph 2 – Impacted Soil Immediately after Release, 8 January 2017



Photograph 3 – Impacted Soil Area near the Storage Tank, 9 January 2017



Photograph 4 – Flagged Impacted Soil Area, 9 January 2017



Photograph 5 – Soil Removal Activities – 1-Inch Layer, 9 January 2017



Photograph 6 – Soil Excavation in Progress, 9 January 2017



Photograph 7 – Post-Soil Removal Site Conditions, 9 January 2017



Photograph 8 – Impacted Soil Area after Removal Activities, 9 January 2017



Photograph 9 – Final Site Demobilization - January 2017

APPENDIX B

LABORATORY ANALYTICAL REPORTS



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 12, 2017

Devon Jercinovic

EA Engineering Science & Technology
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL:
FAX

RE: Kirtland BFF 106239

OrderNo.: 1701251

Dear Devon Jercinovic:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1701251

Date Reported: 1/12/2017

CLIENT: EA Engineering Science & Technology

Client Sample ID: 106239SP-001

Project: Kirtland BFF 106239

Collection Date: 1/8/2017 6:20:00 PM

Lab ID: 1701251-001

Matrix: SOIL

Received Date: 1/9/2017 9:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 7471: MERCURY							Analyst: pmf
Mercury	ND	0.031		mg/Kg	1	1/10/2017 5:46:17 PM	29617
EPA METHOD 6010B: SOIL METALS							Analyst: pmf
Arsenic	ND	2.5		mg/Kg	1	1/10/2017 2:50:48 PM	29595
Barium	71	0.10		mg/Kg	1	1/10/2017 2:50:48 PM	29595
Cadmium	ND	0.10		mg/Kg	1	1/10/2017 2:50:48 PM	29595
Chromium	3.2	0.30		mg/Kg	1	1/10/2017 2:50:48 PM	29595
Lead	5.3	0.25		mg/Kg	1	1/10/2017 2:50:48 PM	29595
Selenium	ND	2.5		mg/Kg	1	1/10/2017 2:50:48 PM	29595
Silver	ND	0.25		mg/Kg	1	1/10/2017 2:50:48 PM	29595
EPA METHOD 8011/504.1 MODIFIED: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.10		µg/Kg	1	1/9/2017 1:13:21 PM	29590
EPA METHOD 8021B: VOLATILES							Analyst: DJF
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	1/10/2017 12:53:23 PM	29591
Benzene	ND	0.024		mg/Kg	1	1/10/2017 12:53:23 PM	29591
Toluene	ND	0.048		mg/Kg	1	1/10/2017 12:53:23 PM	29591
Ethylbenzene	ND	0.048		mg/Kg	1	1/10/2017 12:53:23 PM	29591
Xylenes, Total	ND	0.096		mg/Kg	1	1/10/2017 12:53:23 PM	29591
Surr: 4-Bromofluorobenzene	93.7	80-120		%Rec	1	1/10/2017 12:53:23 PM	29591

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701251

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF 106239

Sample ID MB-29590	SampType: MBLK		TestCode: EPA Method 8011/504.1 Modified: EDB							
Client ID: PBS	Batch ID: 29590		RunNo: 39904							
Prep Date: 1/9/2017	Analysis Date: 1/9/2017		SeqNo: 1250677		Units: µg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.10								

Sample ID LCS-29590	SampType: LCS		TestCode: EPA Method 8011/504.1 Modified: EDB							
Client ID: LCSS	Batch ID: 29590		RunNo: 39904							
Prep Date: 1/9/2017	Analysis Date: 1/9/2017		SeqNo: 1250678		Units: µg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	1.2	0.10	1.000	0	119	70	130			

Sample ID 1701251-001AMS	SampType: MS		TestCode: EPA Method 8011/504.1 Modified: EDB							
Client ID: 106239SP-001	Batch ID: 29590		RunNo: 39904							
Prep Date: 1/9/2017	Analysis Date: 1/9/2017		SeqNo: 1250683		Units: µg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.74	0.10	1.042	0	71.1	46.2	169			

Sample ID 1701251-001AMSD	SampType: MSD		TestCode: EPA Method 8011/504.1 Modified: EDB							
Client ID: 106239SP-001	Batch ID: 29590		RunNo: 39904							
Prep Date: 1/9/2017	Analysis Date: 1/9/2017		SeqNo: 1250684		Units: µg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.87	0.098	0.9831	0	88.3	46.2	169	15.9	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701251

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF 106239

Sample ID MB-29591	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 29591		RunNo: 39932							
Prep Date: 1/9/2017	Analysis Date: 1/10/2017		SeqNo: 1251686		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		95.0	80	120			

Sample ID LCS-29591	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 29591		RunNo: 39932							
Prep Date: 1/9/2017	Analysis Date: 1/10/2017		SeqNo: 1251687		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.98	0.10	1.000	0	97.7	65.7	116			
Benzene	1.1	0.025	1.000	0	110	75.2	115			
Toluene	0.98	0.050	1.000	0	98.4	80.7	112			
Ethylbenzene	0.94	0.050	1.000	0	94.3	78.9	117			
Xylenes, Total	2.8	0.10	3.000	0	93.7	79.2	115			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.8	80	120			

Sample ID 1701251-001AMS	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: 106239SP-001	Batch ID: 29591		RunNo: 39932							
Prep Date: 1/9/2017	Analysis Date: 1/10/2017		SeqNo: 1251688		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.92	0.098	0.9823	0	93.8	42.5	143			
Benzene	1.0	0.025	0.9823	0	106	61.5	138			
Toluene	1.0	0.049	0.9823	0	105	71.4	127			
Ethylbenzene	1.0	0.049	0.9823	0	103	70.9	132			
Xylenes, Total	3.0	0.098	2.947	0	103	76.2	123			
Surr: 4-Bromofluorobenzene	1.0		0.9823		104	80	120			

Sample ID 1701251-001AMSD	SampType: MSD		TestCode: EPA Method 8021B: Volatiles							
Client ID: 106239SP-001	Batch ID: 29591		RunNo: 39932							
Prep Date: 1/9/2017	Analysis Date: 1/10/2017		SeqNo: 1251689		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.65	0.096	0.9634	0	67.8	42.5	143	34.1	20	R
Benzene	0.89	0.024	0.9634	0	92.4	61.5	138	15.4	20	
Toluene	0.96	0.048	0.9634	0	99.8	71.4	127	6.61	20	
Ethylbenzene	0.99	0.048	0.9634	0	102	70.9	132	2.92	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701251

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF 106239

Sample ID 1701251-001AMSD		SampType: MSD			TestCode: EPA Method 8021B: Volatiles					
Client ID:	106239SP-001	Batch ID: 29591			RunNo: 39932					
Prep Date:	1/9/2017	Analysis Date: 1/10/2017			SeqNo: 1251689		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	2.9	0.096	2.890	0	99.4	76.2	123	5.71	20	
Surr: 4-Bromofluorobenzene	0.99		0.9634		102	80	120	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701251

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF 106239

Sample ID	MB-29617	SampType:	MBLK	TestCode:	EPA Method 7471: Mercury					
Client ID:	PBS	Batch ID:	29617	RunNo:	39944					
Prep Date:	1/10/2017	Analysis Date:	1/10/2017	SeqNo:	1251601	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	LCS-29617	SampType:	LCS	TestCode:	EPA Method 7471: Mercury					
Client ID:	LCSS	Batch ID:	29617	RunNo:	39944					
Prep Date:	1/10/2017	Analysis Date:	1/10/2017	SeqNo:	1251602	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	100	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701251

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF 106239

Sample ID	LCS-29595		SampType: LCS		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	LCSS		Batch ID: 29595		RunNo: 39935					
Prep Date:	1/9/2017		Analysis Date: 1/10/2017		SeqNo: 1251459		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	24	2.5	25.00	0	95.9	80	120			
Barium	25	0.10	25.00	0	98.9	80	120			
Cadmium	25	0.10	25.00	0	98.3	80	120			
Chromium	25	0.30	25.00	0	98.2	80	120			
Lead	24	0.25	25.00	0	95.5	80	120			
Selenium	24	2.5	25.00	0	96.1	80	120			
Silver	5.1	0.25	5.000	0	102	80	120			

Sample ID	1701251-001AMS	SampType: MS		TestCode: EPA Method 6010B: Soil Metals						
Client ID:	106239SP-001	Batch ID: 29595		RunNo: 39935						
Prep Date:	1/9/2017	Analysis Date: 1/10/2017		SeqNo: 1251461		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	21	2.5	25.12	1.235	77.8	75	125			
Barium	85	0.10	25.12	70.73	57.2	75	125			S
Cadmium	21	0.10	25.12	0	82.6	75	125			
Chromium	24	0.30	25.12	3.220	82.8	75	125			
Lead	25	0.25	25.12	5.290	78.4	75	125			
Selenium	20	2.5	25.12	0	79.2	75	125			
Silver	4.3	0.25	5.024	0	84.8	75	125			

Sample ID	1701251-001AMSD		SampType: MSD		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	106239SP-001		Batch ID: 29595		RunNo: 39935					
Prep Date:	1/9/2017		Analysis Date: 1/10/2017		SeqNo: 1251462		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	20	2.6	25.51	1.235	74.8	75	125	2.15	20	S
Barium	70	0.10	25.51	70.73	-1.43	75	125	19.0	20	S
Cadmium	20	0.10	25.51	0	79.8	75	125	2.01	20	
Chromium	22	0.31	25.51	3.220	75.2	75	125	6.93	20	
Lead	24	0.26	25.51	5.290	72.1	75	125	5.33	20	S
Selenium	19	2.6	25.51	0	72.6	75	125	7.04	20	S
Silver	4.2	0.26	5.102	0	82.4	75	125	1.32	20	

Sample ID	1701251-001APS		SampType: PS		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	106239SP-001		Batch ID: 29595		RunNo: 39935					
Prep Date:			Analysis Date: 1/10/2017		SeqNo: 1251463		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	20	2.5	25.39	1.235	75.4	80	120			S

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701251

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF 106239

Sample ID	1701251-001APS	SampType:	PS	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	106239SP-001	Batch ID:	29595	RunNo:	39935					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251463	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	87	0.10	25.39	70.73	64.3	80	120			S
Lead	23	0.25	25.39	5.290	68.8	80	120			S
Selenium	18	2.5	25.39	0	69.4	80	120			S

Sample ID	MB-29595	SampType:	MBLK	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	PBS	Batch ID:	29595	RunNo:	39935					
Prep Date:	1/9/2017	Analysis Date:	1/10/2017	SeqNo:	1251479	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Lead	ND	0.25								
Selenium	ND	2.5								
Silver	ND	0.25								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: EA Engineering Alb

Work Order Number: 1701251

RcptNo: 1

Received by/date:	aj	1/9/17
Logged By:	Andy Jansson	1/9/2017 9:25:00 AM
Completed By:	Andy Jansson	1/9/17
Reviewed By:	LA	01/09/17

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

# of preserved bottles checked for pH:	_____
(<2 or >12 unless noted)	
Adjusted?	_____
Checked by:	_____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Not Present			



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 12, 2017

Devon Jercinovic

EA Engineering Science & Technology

320 Gold Ave SW Suite 1210

Albuquerque, NM 87102

TEL:

FAX

RE: Kirtland BFF

OrderNo.: 1701252

Dear Devon Jercinovic:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1701252

Date Reported: 1/12/2017

CLIENT: EA Engineering Science & Technology

Client Sample ID: 106239SP-002

Project: Kirtland BFF

Collection Date: 1/9/2017 7:50:00 AM

Lab ID: 1701252-001

Matrix: SOIL

Received Date: 1/9/2017 9:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 7471: MERCURY							Analyst: pmf
Mercury	ND	0.033		mg/Kg	1	1/10/2017 5:48:03 PM	29617
EPA METHOD 6010B: SOIL METALS							Analyst: pmf
Arsenic	ND	2.5		mg/Kg	1	1/10/2017 3:11:02 PM	29595
Barium	95	0.098		mg/Kg	1	1/10/2017 3:11:02 PM	29595
Cadmium	ND	0.098		mg/Kg	1	1/10/2017 3:11:02 PM	29595
Chromium	5.1	0.29		mg/Kg	1	1/10/2017 3:11:02 PM	29595
Lead	9.8	0.25		mg/Kg	1	1/10/2017 3:11:02 PM	29595
Selenium	ND	2.5		mg/Kg	1	1/10/2017 3:11:02 PM	29595
Silver	ND	0.25		mg/Kg	1	1/10/2017 3:11:02 PM	29595
EPA METHOD 8011/504.1 MODIFIED: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.096		µg/Kg	1	1/9/2017 1:28:24 PM	29590
EPA METHOD 8021B: VOLATILES							Analyst: DJF
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	1/10/2017 1:17:06 PM	29591
Benzene	ND	0.024		mg/Kg	1	1/10/2017 1:17:06 PM	29591
Toluene	ND	0.048		mg/Kg	1	1/10/2017 1:17:06 PM	29591
Ethylbenzene	ND	0.048		mg/Kg	1	1/10/2017 1:17:06 PM	29591
Xylenes, Total	ND	0.096		mg/Kg	1	1/10/2017 1:17:06 PM	29591
Surr: 4-Bromofluorobenzene	93.2	80-120		%Rec	1	1/10/2017 1:17:06 PM	29591

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 1 of 5
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701252

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF

Sample ID	MB-29590		SampType:	MBLK		TestCode:	EPA Method 8011/504.1 Modified: EDB				
Client ID:	PBS		Batch ID:	29590		RunNo:	39904				
Prep Date:	1/9/2017		Analysis Date:	1/9/2017		SeqNo:	1250677		Units:	µg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	ND	0.10									

Sample ID	LCS-29590		SampType:	LCS		TestCode:	EPA Method 8011/504.1 Modified: EDB				
Client ID:	LCSS		Batch ID:	29590		RunNo:	39904				
Prep Date:	1/9/2017		Analysis Date:	1/9/2017		SeqNo:	1250678		Units:	µg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	1.2	0.10	1.000	0	119	70	130				

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701252

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF

Sample ID	MB-29591	SampType:	MBLK		TestCode:	EPA Method 8021B: Volatiles				
Client ID:	PBS	Batch ID:	29591		RunNo:	39932				
Prep Date:	1/9/2017	Analysis Date:	1/10/2017		SeqNo:	1251686	Units:	mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		95.0	80	120			

Sample ID	LCS-29591		SampType: LCS		TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS		Batch ID: 29591		RunNo: 39932					
Prep Date:	1/9/2017		Analysis Date: 1/10/2017		SeqNo: 1251687		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.98	0.10	1.000	0	97.7	65.7	116			
Benzene	1.1	0.025	1.000	0	110	75.2	115			
Toluene	0.98	0.050	1.000	0	98.4	80.7	112			
Ethylbenzene	0.94	0.050	1.000	0	94.3	78.9	117			
Xylenes, Total	2.8	0.10	3.000	0	93.7	79.2	115			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.8	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701252

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF

Sample ID	MB-29617		SampType: MBLK		TestCode: EPA Method 7471: Mercury					
Client ID:	PBS		Batch ID: 29617		RunNo: 39944					
Prep Date:	1/10/2017		Analysis Date: 1/10/2017		SeqNo: 1251601		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	LCS-29617			SampType:	LCS		TestCode:	EPA Method 7471: Mercury			
Client ID:	LCSS			Batch ID:	29617		RunNo:	39944			
Prep Date:	1/10/2017			Analysis Date:	1/10/2017		SeqNo:	1251602		Units:	mg/Kg
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.17	0.033	0.1667	0	100	80	120				

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701252

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF

Sample ID	LCS-29595		SampType: LCS		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	LCSS		Batch ID: 29595		RunNo: 39935					
Prep Date:	1/9/2017		Analysis Date: 1/10/2017		SeqNo: 1251459		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	24	2.5	25.00	0	95.9	80	120			
Barium	25	0.10	25.00	0	98.9	80	120			
Cadmium	25	0.10	25.00	0	98.3	80	120			
Chromium	25	0.30	25.00	0	98.2	80	120			
Lead	24	0.25	25.00	0	95.5	80	120			
Selenium	24	2.5	25.00	0	96.1	80	120			
Silver	5.1	0.25	5.000	0	102	80	120			

Sample ID	MB-29595		SampType: MBLK		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	PBS		Batch ID: 29595		RunNo: 39935					
Prep Date:	1/9/2017		Analysis Date: 1/10/2017		SeqNo: 1251479		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Lead	ND	0.25								
Selenium	ND	2.5								
Silver	ND	0.25								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: EA Engineering Alb

Work Order Number: 1701252

RcptNo: 1

Received by/date: aj 1/9/17

Logged By: Andy Jansson 1/9/2017 9:25:00 AM aj

Completed By: Andy Jansson 1/9/17

Reviewed By: RA 01/09/17

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Not Present			



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 12, 2017

Devon Jercinovic

EA Engineering Science & Technology
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL:
FAX

RE: Kirtland BFF 106239

OrderNo.: 1701256

Dear Devon Jercinovic:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1701256

Date Reported: 1/12/2017

CLIENT: EA Engineering Science & Technology

Client Sample ID: KAFB-106239SP

Project: Kirtland BFF 106239

Collection Date: 1/9/2017 7:35:00 AM

Lab ID: 1701256-001

Matrix: AQUEOUS

Received Date: 1/9/2017 9:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 7470: MERCURY							Analyst: MED
Mercury	ND	0.00020		mg/L	1	1/10/2017 12:20:49 PM	29607
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: pmf
Arsenic	ND	0.020		mg/L	1	1/10/2017 6:25:50 PM	29596
Barium	0.12	0.020		mg/L	1	1/10/2017 6:25:50 PM	29596
Cadmium	ND	0.0020		mg/L	1	1/10/2017 6:25:50 PM	29596
Chromium	ND	0.0060		mg/L	1	1/10/2017 6:25:50 PM	29596
Lead	ND	0.0050		mg/L	1	1/10/2017 6:25:50 PM	29596
Selenium	ND	0.050		mg/L	1	1/10/2017 6:25:50 PM	29596
Silver	ND	0.0050		mg/L	1	1/10/2017 6:25:50 PM	29596
EPA METHOD 8011/504.1: EDB							Analyst: JME
1,2-Dibromoethane	0.056	0.010		µg/L	1	1/10/2017 10:40:55 AM	29609
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: BCN
Benzene	ND	1.0		µg/L	1	1/10/2017 12:13:00 PM	R39923
Toluene	3.9	1.0		µg/L	1	1/10/2017 12:13:00 PM	R39923
Ethylbenzene	ND	1.0		µg/L	1	1/10/2017 12:13:00 PM	R39923
Xylenes, Total	ND	1.5		µg/L	1	1/10/2017 12:13:00 PM	R39923
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	1/10/2017 12:13:00 PM	R39923
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	1/10/2017 12:13:00 PM	R39923
Surr: Dibromofluoromethane	102	70-130		%Rec	1	1/10/2017 12:13:00 PM	R39923
Surr: Toluene-d8	98.4	70-130		%Rec	1	1/10/2017 12:13:00 PM	R39923

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701256

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF 106239

Sample ID	MB-29609	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	29609	RunNo:	39918					
Prep Date:	1/10/2017	Analysis Date:	1/10/2017	SeqNo:	1251243	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID	LCS-29609	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	29609	RunNo:	39918					
Prep Date:	1/10/2017	Analysis Date:	1/10/2017	SeqNo:	1251245	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.094	0.010	0.1000	0	93.8	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701256

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF 106239

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R39923	RunNo:	39923					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251276	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.9	70	130			
Toluene	19	1.0	20.00	0	96.8	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.3	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.8		10.00		98.5	70	130			

Sample ID	vsb deli	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R39923	RunNo:	39923					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251277	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.3	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.9		10.00		98.6	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701256

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF 106239

Sample ID	MB-29607		SampType:	MBLK		TestCode:	EPA Method 7470: Mercury				
Client ID:	PBW		Batch ID:	29607		RunNo:	39928				
Prep Date:	1/9/2017		Analysis Date:	1/10/2017		SeqNo:	1251289		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.00020									

Sample ID	LCS-29607		SampType: LCS		TestCode: EPA Method 7470: Mercury					
Client ID:	LCSW		Batch ID: 29607		RunNo: 39928					
Prep Date:	1/9/2017		Analysis Date: 1/10/2017		SeqNo: 1251290		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Sample ID	1701256-001CMS		SampType: MS		TestCode: EPA Method 7470: Mercury					
Client ID:	KAFB-106239SP		Batch ID: 29607		RunNo: 39928					
Prep Date:	1/9/2017		Analysis Date: 1/10/2017		SeqNo: 1251294		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	.00006117	102	75	125			

Sample ID	1701256-001CMSD		SampType: MSD		TestCode: EPA Method 7470: Mercury					
Client ID:	KAFB-106239SP		Batch ID: 29607		RunNo: 39928					
Prep Date:	1/9/2017		Analysis Date: 1/10/2017		SeqNo: 1251295		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	.00006117	104	75	125	1.73	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701256

12-Jan-17

Client: EA Engineering Science & Technology

Project: Kirtland BFF 106239

Sample ID	MB-29596		SampType: MBLK		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW		Batch ID: 29596		RunNo: 39943					
Prep Date:	1/10/2017		Analysis Date: 1/10/2017		SeqNo: 1251576		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-29596		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 29596		RunNo: 39943					
Prep Date:	1/10/2017		Analysis Date: 1/10/2017		SeqNo: 1251577		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.45	0.020	0.5000	0	90.5	80	120			
Barium	0.46	0.020	0.5000	0	91.0	80	120			
Cadmium	0.45	0.0020	0.5000	0	90.0	80	120			
Chromium	0.45	0.0060	0.5000	0	90.7	80	120			
Lead	0.44	0.0050	0.5000	0	87.6	80	120			
Selenium	0.44	0.050	0.5000	0	87.9	80	120			
Silver	0.092	0.0050	0.1000	0	91.7	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: EA Engineering Alb

Work Order Number: 1701256

RcptNo: 1

Received by/date: AS 01/09/17

Logged By: Anne Thorne

1/9/2017 9:25:00 AM

Anne Thorne

Completed By: Anne Thorne

1/9/2017 10:08:08 AM

Anne Thorne

Reviewed By: RA 01/09/17

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Client

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

Yes ☒

No ☐

(If no, notify customer for authorization.)

of preserved bottles checked for pH: 1
(<2 or >12 unless noted)
Adjusted? No
Checked by: Re

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Not Present			

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

EA Engineering, Science & Tech
Building C, Suite 100
405 State Highway 121 Bypass
Lewisville TX 75067-8192

Report Date: February 01, 2017

Project: Kirtland AFB

Submittal Date: 01/10/2017

Group Number: 1752214

SDG: KR120

PO Number: 14800

State of Sample Origin: NM

Client Sample Description

	Lancaster Labs (LL) #
SP239-006-171 Soil	8778682
SP239-006-571 Soil	8778683
SP239-007-171 Soil	8778684
TB-171-01 Water	8778685
SP239-008-171 Soil	8778686
SP239-003-171 Soil	8778687
SP239-004-171 Soil	8778688
SP239-005-171 Soil	8778689
TB-171-02 Water	8778690

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	EA Science & Technology	Attn: Katie Morrison
Electronic Copy To	EA Science & Technology	Attn: Amanda Smith
Electronic Copy To	EA Science & Technology	Attn: Tara Lamond
Electronic Copy To	EA Engineering, Science & Tech	Attn: Pamela Moss

REVISED

Respectfully Submitted,



Kay Hower

(717) 556-7364

REVISED

Sample Description: SP239-006-171 Soil

LL Sample # SW 8778682

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:48 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass

Lewisville TX 75067-8192

23961 SDG#: KR120-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
GC/MS Volatiles							
11995	Benzene	71-43-2	2 U	0.6	2	6	1.01
11995	Ethylbenzene	100-41-4	2 U	1	2	6	1.01
11995	Toluene	108-88-3	2 U	1	2	6	1.01
11995	Xylene (Total)	1330-20-7	2 U	1	2	6	1.01
Volatiles by Extraction							
13214	Ethylene dibromide	106-93-4	0.43 U	0.22	0.43	0.54	1
Metals							
06935	Arsenic	7440-38-2	3.74 J	1.02	2.09	4.19	1
06946	Barium	7440-39-3	138	0.0345	0.131	1.05	1
06949	Cadmium	7440-43-9	0.0837 J	0.0513	0.131	1.05	1
06951	Chromium	7440-47-3	12.4	0.147	0.392	3.14	1
06955	Lead	7439-92-1	23.6	0.576	1.57	3.14	1
06936	Selenium	7782-49-2	1.90 J	0.942	2.09	4.19	1
06966	Silver	7440-22-4	0.523 U	0.157	0.523	1.05	1
SW-846 7471B							
00159	Mercury 7471B	7439-97-6	0.0187 U	0.0112	0.0187	0.112	1
Wet Chemistry							
00111	Moisture	n.a.	10.7	0.50	0.50	0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	BTEX 8260C Soil	SW-846 8260C	1	A170112AA	01/11/2017 22:55	Patrick T Herres	1.01
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 12:57	Katelyn C Shober	n.a.
13214	EDB Soil 8011	SW-846 8011	1	170120006A	01/16/2017 15:39	Heather M Miller	1
13218	EDB Soil Extraction	SW-846 8011	1	170120006A	01/13/2017 14:30	Shawn J McMullen	1
06935	Arsenic	SW-846 6010C	1	170110637001	01/12/2017 22:42	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SP239-006-171 Soil

LL Sample # SW 8778682

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:48 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass

Lewisville TX 75067-8192

23961 SDG#: KR120-01BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010C	1	170110637001	01/12/2017 22:42	Elaine F Stoltzfus	1
06949	Cadmium	SW-846 6010C	1	170110637001	01/12/2017 22:42	Elaine F Stoltzfus	1
06951	Chromium	SW-846 6010C	1	170110637001	01/12/2017 22:42	Elaine F Stoltzfus	1
06955	Lead	SW-846 6010C	1	170110637001	01/12/2017 22:42	Elaine F Stoltzfus	1
06936	Selenium	SW-846 6010C	1	170110637001	01/12/2017 22:42	Elaine F Stoltzfus	1
06966	Silver	SW-846 6010C	1	170110637001	01/12/2017 22:42	Elaine F Stoltzfus	1
00159	Mercury 7471B	SW-846 7471B	1	170110638001	01/12/2017 07:54	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	170110637001	01/11/2017 15:25	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	170110638001	01/11/2017 16:30	JoElla L Rice	1
00111	Moisture	SM 2540 G-1997	1	17012820005B	01/12/2017 18:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SP239-006-571 Soil

LL Sample # SW 8778683

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:48 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass

Lewisville TX 75067-8192

23965 SDG#: KR120-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
GC/MS Volatiles							
11995	Benzene	71-43-2	2 U	0.6	2	6	0.98
11995	Ethylbenzene	100-41-4	2 U	1	2	6	0.98
11995	Toluene	108-88-3	2 J	1	2	6	0.98
11995	Xylene (Total)	1330-20-7	2 U	1	2	6	0.98
Volatiles by Extraction							
13214	Ethylene dibromide	106-93-4	0.44 U	0.22	0.44	0.55	1
Metals							
06935	Arsenic	7440-38-2	4.31	1.01	2.09	4.18	1
06946	Barium	7440-39-3	184	0.0345	0.131	1.05	1
06949	Cadmium	7440-43-9	0.108 J	0.0512	0.131	1.05	1
06951	Chromium	7440-47-3	9.76	0.146	0.392	3.14	1
06955	Lead	7439-92-1	24.2	0.575	1.57	3.14	1
06936	Selenium	7782-49-2	1.99 J	0.941	2.09	4.18	1
06966	Silver	7440-22-4	0.523 U	0.157	0.523	1.05	1
SW-846 7471B							
00159	Mercury 7471B	7439-97-6	0.0172 U	0.0103	0.0172	0.103	1
Wet Chemistry							
00111	Moisture	n.a.	10.6	0.50	0.50	0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	BTEX 8260C Soil	SW-846 8260C	1	A170112AA	01/12/2017 00:03	Patrick T Herres	0.98
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 12:56	Katelyn C Shober	n.a.
13214	EDB Soil 8011	SW-846 8011	1	170120006A	01/16/2017 16:27	Heather M Miller	1
13218	EDB Soil Extraction	SW-846 8011	1	170120006A	01/13/2017 14:30	Shawn J McMullen	1
06935	Arsenic	SW-846 6010C	1	170110637001	01/12/2017 23:03	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SP239-006-571 Soil

LL Sample # SW 8778683

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:48 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass

Lewisville TX 75067-8192

23965 SDG#: KR120-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010C	1	170110637001	01/12/2017 23:03	Elaine F Stoltzfus	1
06949	Cadmium	SW-846 6010C	1	170110637001	01/12/2017 23:03	Elaine F Stoltzfus	1
06951	Chromium	SW-846 6010C	1	170110637001	01/12/2017 23:03	Elaine F Stoltzfus	1
06955	Lead	SW-846 6010C	1	170110637001	01/12/2017 23:03	Elaine F Stoltzfus	1
06936	Selenium	SW-846 6010C	1	170110637001	01/12/2017 23:03	Elaine F Stoltzfus	1
06966	Silver	SW-846 6010C	1	170110637001	01/12/2017 23:03	Elaine F Stoltzfus	1
00159	Mercury 7471B	SW-846 7471B	1	170110638001	01/12/2017 08:12	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	170110637001	01/11/2017 15:25	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	170110638001	01/11/2017 16:30	JoElla L Rice	1
00111	Moisture	SM 2540 G-1997	1	17012820005B	01/12/2017 18:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SP239-007-171 Soil

LL Sample # SW 8778684

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:57 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass

Lewisville TX 75067-8192

23971 SDG#: KR120-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
GC/MS Volatiles							
11995	Benzene	71-43-2	2 U	0.5	2	5	0.95
11995	Ethylbenzene	100-41-4	2 U	1	2	5	0.95
11995	Toluene	108-88-3	2 U	1	2	5	0.95
11995	Xylene (Total)	1330-20-7	2 U	1	2	5	0.95
Volatiles by Extraction							
13214	Ethylene dibromide	106-93-4	0.44 U	0.22	0.44	0.55	1
Metals							
06935	Arsenic	7440-38-2	3.17	0.729	1.50	3.01	1
06946	Barium	7440-39-3	101	0.0248	0.0939	0.752	1
06949	Cadmium	7440-43-9	0.0564 J	0.0368	0.0939	0.752	1
06951	Chromium	7440-47-3	10.7	0.105	0.282	2.25	1
06955	Lead	7439-92-1	16.8	0.413	1.13	2.25	1
06936	Selenium	7782-49-2	1.59 J	0.676	1.50	3.01	1
06966	Silver	7440-22-4	0.376 U	0.113	0.376	0.752	1
00159	Mercury 7471B	7439-97-6	0.0175 U	0.0105	0.0175	0.105	1
Wet Chemistry							
00111	Moisture	n.a.	10.7	0.50	0.50	0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	BTEX 8260C Soil	SW-846 8260C	1	B170161AA	01/16/2017 13:59	Jennifer K Howe	0.95
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201701043995	01/10/2017 13:05	Katelyn C Shober	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 12:46	Katelyn C Shober	n.a.
13214	EDB Soil 8011	SW-846 8011	1	170120006A	01/16/2017 16:43	Heather M Miller	1
13218	EDB Soil Extraction	SW-846 8011	1	170120006A	01/13/2017 14:30	Shawn J McMullen	1
06935	Arsenic	SW-846 6010C	1	170110637001	01/12/2017 23:06	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SP239-007-171 Soil

LL Sample # SW 8778684

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:57 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass

Lewisville TX 75067-8192

23971 SDG#: KR120-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010C	1	170110637001	01/12/2017 23:06	Elaine F Stoltzfus	1
06949	Cadmium	SW-846 6010C	1	170110637001	01/12/2017 23:06	Elaine F Stoltzfus	1
06951	Chromium	SW-846 6010C	1	170110637001	01/12/2017 23:06	Elaine F Stoltzfus	1
06955	Lead	SW-846 6010C	1	170110637001	01/12/2017 23:06	Elaine F Stoltzfus	1
06936	Selenium	SW-846 6010C	1	170110637001	01/12/2017 23:06	Elaine F Stoltzfus	1
06966	Silver	SW-846 6010C	1	170110637001	01/12/2017 23:06	Elaine F Stoltzfus	1
00159	Mercury 7471B	SW-846 7471B	1	170110638001	01/12/2017 08:15	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	170110637001	01/11/2017 15:25	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	170110638001	01/11/2017 16:30	JoElla L Rice	1
00111	Moisture	SM 2540 G-1997	1	17012820005B	01/12/2017 18:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: TB-171-01 Water

LL Sample # WW 8778685

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 16:12 by JB

EA Engineering, Science & Tech

Building C, Suite 100

Submitted: 01/10/2017 09:50

405 State Highway 121 Bypass

Reported: 02/01/2017 13:20

Lewisville TX 75067-8192

239T1 SDG#: KR120-04TB

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	ug/l	ug/l	
11997	Benzene	71-43-2	1 U	0.5	1	1	1
11997	Ethylbenzene	100-41-4	1 U	0.5	1	1	1
11997	Toluene	108-88-3	1 U	0.5	1	1	1
11997	Xylene (Total)	1330-20-7	1 U	0.5	1	1	1
Volatiles by Extraction	SW-846 8011	ug/l	ug/l	ug/l	ug/l	ug/l	
10398	Ethylene dibromide	106-93-4	0.019 U	0.0095	0.019	0.028	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	BTEX 8260C Water	SW-846 8260C	1	L170152AA	01/15/2017 14:12	Angela D Sneeringer	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L170152AA	01/15/2017 14:12	Angela D Sneeringer	1
10398	EDB 8011 Water	SW-846 8011	1	170100015A	01/17/2017 18:36	Heather M Miller	1
07786	EDB Extraction (8011)	SW-846 8011	1	170100015A	01/11/2017 08:00	Kayla A Yuditsky	1

*=This limit was used in the evaluation of the final result

Sample Description: SP239-008-171 Soil

LL Sample # SW 8778686

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 15:02 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass
Lewisville TX 75067-8192

23981 SDG#: KR120-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
GC/MS Volatiles							
11995	Benzene	71-43-2	2 U	0.5	2	5	0.98
11995	Ethylbenzene	100-41-4	2 U	1	2	5	0.98
11995	Toluene	108-88-3	2 U	1	2	5	0.98
11995	Xylene (Total)	1330-20-7	2 U	1	2	5	0.98
Volatiles by Extraction							
13214	Ethylene dibromide	106-93-4	0.43 U	0.22	0.43	0.54	1
Metals							
06935	Arsenic	7440-38-2	3.11 J	0.876	1.81	3.61	1
06946	Barium	7440-39-3	89.8	0.0298	0.113	0.903	1
06949	Cadmium	7440-43-9	0.0822 J	0.0443	0.113	0.903	1
06951	Chromium	7440-47-3	9.84	0.126	0.339	2.71	1
06955	Lead	7439-92-1	11.1	0.497	1.35	2.71	1
06936	Selenium	7782-49-2	0.991 J	0.813	1.81	3.61	1
06966	Silver	7440-22-4	0.452 U	0.135	0.452	0.903	1
00159	Mercury 7471B	7439-97-6	0.0179 U	0.0107	0.0179	0.107	1
Wet Chemistry							
00111	Moisture	n.a.	8.5	0.50	0.50	0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	BTEX 8260C Soil	SW-846 8260C	1	A170112AA	01/12/2017 00:48	Patrick T Herres	0.98
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 12:48	Katelyn C Shober	n.a.
13214	EDB Soil 8011	SW-846 8011	1	170120006A	01/16/2017 16:58	Heather M Miller	1
13218	EDB Soil Extraction	SW-846 8011	1	170120006A	01/13/2017 14:30	Shawn J McMullen	1
06935	Arsenic	SW-846 6010C	1	170110637001	01/12/2017 23:16	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SP239-008-171 Soil

LL Sample # SW 8778686

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 15:02 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass

Lewisville TX 75067-8192

23981 SDG#: KR120-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010C	1	170110637001	01/12/2017 23:16	Elaine F Stoltzfus	1
06949	Cadmium	SW-846 6010C	1	170110637001	01/12/2017 23:16	Elaine F Stoltzfus	1
06951	Chromium	SW-846 6010C	1	170110637001	01/12/2017 23:16	Elaine F Stoltzfus	1
06955	Lead	SW-846 6010C	1	170110637001	01/12/2017 23:16	Elaine F Stoltzfus	1
06936	Selenium	SW-846 6010C	1	170110637001	01/12/2017 23:16	Elaine F Stoltzfus	1
06966	Silver	SW-846 6010C	1	170110637001	01/12/2017 23:16	Elaine F Stoltzfus	1
00159	Mercury 7471B	SW-846 7471B	1	170110638001	01/12/2017 08:17	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	170110637001	01/11/2017 15:25	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	170110638001	01/11/2017 16:30	JoElla L Rice	1
00111	Moisture	SM 2540 G-1997	1	17012820005B	01/12/2017 18:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SP239-003-171 Soil

LL Sample # SW 8778687

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:25 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass
Lewisville TX 75067-8192

23935 SDG#: KR120-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
GC/MS Volatiles							
11995	Benzene	71-43-2	2 U	0.6	2	6	1.02
11995	Ethylbenzene	100-41-4	2 U	1	2	6	1.02
11995	Toluene	108-88-3	2 U	1	2	6	1.02
11995	Xylene (Total)	1330-20-7	2 U	1	2	6	1.02
Volatiles by Extraction							
13214	Ethylene dibromide	106-93-4	0.42 U	0.21	0.42	0.52	1
Metals							
06935	Arsenic	7440-38-2	2.02 J	0.864	1.78	3.56	1
06946	Barium	7440-39-3	111	0.0294	0.111	0.891	1
06949	Cadmium	7440-43-9	0.151 J	0.0437	0.111	0.891	1
06951	Chromium	7440-47-3	7.94	0.125	0.334	2.67	1
06955	Lead	7439-92-1	83.5	0.490	1.34	2.67	1
06936	Selenium	7782-49-2	1.78 U	0.802	1.78	3.56	1
06966	Silver	7440-22-4	0.445 U	0.134	0.445	0.891	1
SW-846 7471B							
00159	Mercury 7471B	7439-97-6	0.0181 U	0.0109	0.0181	0.109	1
Wet Chemistry							
00111	Moisture	n.a.	8.0	0.50	0.50	0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	BTEX 8260C Soil	SW-846 8260C	1	A170112AA	01/12/2017 01:11	Patrick T Herres	1.02
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 12:50	Katelyn C Shober	n.a.
13214	EDB Soil 8011	SW-846 8011	1	170120006A	01/16/2017 17:14	Heather M Miller	1
13218	EDB Soil Extraction	SW-846 8011	1	170120006A	01/13/2017 14:30	Shawn J McMullen	1
06935	Arsenic	SW-846 6010C	1	170110637001	01/12/2017 23:20	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SP239-003-171 Soil

LL Sample # SW 8778687

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:25 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass

Lewisville TX 75067-8192

23935 SDG#: KR120-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010C	1	170110637001	01/12/2017 23:20	Elaine F Stoltzfus	1
06949	Cadmium	SW-846 6010C	1	170110637001	01/12/2017 23:20	Elaine F Stoltzfus	1
06951	Chromium	SW-846 6010C	1	170110637001	01/12/2017 23:20	Elaine F Stoltzfus	1
06955	Lead	SW-846 6010C	1	170110637001	01/12/2017 23:20	Elaine F Stoltzfus	1
06936	Selenium	SW-846 6010C	1	170110637001	01/12/2017 23:20	Elaine F Stoltzfus	1
06966	Silver	SW-846 6010C	1	170110637001	01/12/2017 23:20	Elaine F Stoltzfus	1
00159	Mercury 7471B	SW-846 7471B	1	170110638001	01/12/2017 08:20	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	170110637001	01/11/2017 15:25	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	170110638001	01/11/2017 16:30	JoElla L Rice	1
00111	Moisture	SM 2540 G-1997	1	17012820005B	01/12/2017 18:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SP239-004-171 Soil

LL Sample # SW 8778688

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:35 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass
Lewisville TX 75067-8192

23941 SDG#: KR120-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
GC/MS Volatiles							
11995	Benzene	71-43-2	2 U	0.5	2	5	1
11995	Ethylbenzene	100-41-4	2 U	1	2	5	1
11995	Toluene	108-88-3	2 U	1	2	5	1
11995	Xylene (Total)	1330-20-7	2 U	1	2	5	1
Volatiles by Extraction							
13214	Ethylene dibromide	106-93-4	0.42 U	0.21	0.42	0.53	1
Metals							
06935	Arsenic	7440-38-2	4.78	0.991	2.04	4.09	1
06946	Barium	7440-39-3	101	0.0337	0.128	1.02	1
06949	Cadmium	7440-43-9	0.184 J	0.0501	0.128	1.02	1
06951	Chromium	7440-47-3	10.6	0.143	0.383	3.07	1
06955	Lead	7439-92-1	139	0.562	1.53	3.07	1
06936	Selenium	7782-49-2	2.04 U	0.920	2.04	4.09	1
06966	Silver	7440-22-4	0.511 U	0.153	0.511	1.02	1
SW-846 7471B							
00159	Mercury 7471B	7439-97-6	0.0178 U	0.0107	0.0178	0.107	1
Wet Chemistry							
00111	Moisture	n.a.	7.7	0.50	0.50	0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	BTEX 8260C Soil	SW-846 8260C	1	A170112AA	01/12/2017 01:33	Patrick T Herres	1
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 12:59	Katelyn C Shober	n.a.
13214	EDB Soil 8011	SW-846 8011	1	170120006A	01/16/2017 18:02	Heather M Miller	1
13218	EDB Soil Extraction	SW-846 8011	1	170120006A	01/13/2017 14:30	Shawn J McMullen	1
06935	Arsenic	SW-846 6010C	1	170110637001	01/12/2017 23:23	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SP239-004-171 Soil

LL Sample # SW 8778688

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:35 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass

Lewisville TX 75067-8192

23941 SDG#: KR120-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010C	1	170110637001	01/12/2017 23:23	Elaine F Stoltzfus	1
06949	Cadmium	SW-846 6010C	1	170110637001	01/12/2017 23:23	Elaine F Stoltzfus	1
06951	Chromium	SW-846 6010C	1	170110637001	01/12/2017 23:23	Elaine F Stoltzfus	1
06955	Lead	SW-846 6010C	1	170110637001	01/12/2017 23:23	Elaine F Stoltzfus	1
06936	Selenium	SW-846 6010C	1	170110637001	01/12/2017 23:23	Elaine F Stoltzfus	1
06966	Silver	SW-846 6010C	1	170110637001	01/12/2017 23:23	Elaine F Stoltzfus	1
00159	Mercury 7471B	SW-846 7471B	1	170110638001	01/12/2017 08:22	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	170110637001	01/11/2017 15:25	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	170110638001	01/11/2017 16:30	JoElla L Rice	1
00111	Moisture	SM 2540 G-1997	1	17012820005B	01/12/2017 18:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SP239-005-171 Soil

LL Sample # SW 8778689

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:40 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass

Lewisville TX 75067-8192

23951 SDG#: KR120-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
GC/MS Volatiles							
11995	Benzene	71-43-2	2 U	0.5	2	5	1.01
11995	Ethylbenzene	100-41-4	2 U	1	2	5	1.01
11995	Toluene	108-88-3	2 U	1	2	5	1.01
11995	Xylene (Total)	1330-20-7	2 U	1	2	5	1.01
Volatiles by Extraction							
13214	Ethylene dibromide	106-93-4	0.42 U	0.21	0.42	0.53	1
Metals							
06935	Arsenic	7440-38-2	3.53 J	0.957	1.97	3.95	1
06946	Barium	7440-39-3	143	0.0326	0.123	0.986	1
06949	Cadmium	7440-43-9	0.0967 J	0.0483	0.123	0.986	1
06951	Chromium	7440-47-3	8.46	0.138	0.370	2.96	1
06955	Lead	7439-92-1	8.52	0.543	1.48	2.96	1
06936	Selenium	7782-49-2	1.97 U	0.888	1.97	3.95	1
06966	Silver	7440-22-4	0.493 U	0.148	0.493	0.986	1
00159	Mercury 7471B	7439-97-6	0.0179 U	0.0108	0.0179	0.108	1
Wet Chemistry							
00111	Moisture	n.a.	7.0	0.50	0.50	0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	BTEX 8260C Soil	SW-846 8260C	1	A170112AA	01/12/2017 01:56	Patrick T Herres	1.01
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201701043995	01/10/2017 13:06	Katelyn C Shober	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201701043995	01/10/2017 12:53	Katelyn C Shober	n.a.
13214	EDB Soil 8011	SW-846 8011	1	170120006A	01/16/2017 18:18	Heather M Miller	1
13218	EDB Soil Extraction	SW-846 8011	1	170120006A	01/13/2017 14:30	Shawn J McMullen	1
06935	Arsenic	SW-846 6010C	1	170110637001	01/12/2017 23:27	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SP239-005-171 Soil

LL Sample # SW 8778689

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 14:40 by JB

EA Engineering, Science & Tech

Submitted: 01/10/2017 09:50

Building C, Suite 100

Reported: 02/01/2017 13:20

405 State Highway 121 Bypass

Lewisville TX 75067-8192

23951 SDG#: KR120-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010C	1	170110637001	01/12/2017 23:27	Elaine F Stoltzfus	1
06949	Cadmium	SW-846 6010C	1	170110637001	01/12/2017 23:27	Elaine F Stoltzfus	1
06951	Chromium	SW-846 6010C	1	170110637001	01/12/2017 23:27	Elaine F Stoltzfus	1
06955	Lead	SW-846 6010C	1	170110637001	01/12/2017 23:27	Elaine F Stoltzfus	1
06936	Selenium	SW-846 6010C	1	170110637001	01/12/2017 23:27	Elaine F Stoltzfus	1
06966	Silver	SW-846 6010C	1	170110637001	01/12/2017 23:27	Elaine F Stoltzfus	1
00159	Mercury 7471B	SW-846 7471B	1	170110638001	01/12/2017 08:25	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	170110637001	01/11/2017 15:25	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	170110638001	01/11/2017 16:30	JoElla L Rice	1
00111	Moisture	SM 2540 G-1997	1	17012820005B	01/12/2017 18:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: TB-171-02 Water

LL Sample # WW 8778690

Project Name: Kirtland AFB

LL Group # 1752214

Account # 31675

Collected: 01/09/2017 16:15 by JB

EA Engineering, Science & Tech

Building C, Suite 100

Submitted: 01/10/2017 09:50

405 State Highway 121 Bypass

Reported: 02/01/2017 13:20

Lewisville TX 75067-8192

239T2 SDG#: KR120-09TB

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	ug/l	ug/l	
11997	Benzene	71-43-2	1 U	0.5	1	1	1
11997	Ethylbenzene	100-41-4	1 U	0.5	1	1	1
11997	Toluene	108-88-3	1 U	0.5	1	1	1
11997	Xylene (Total)	1330-20-7	1 U	0.5	1	1	1
Volatiles by Extraction	SW-846 8011	ug/l	ug/l	ug/l	ug/l	ug/l	
10398	Ethylene dibromide	106-93-4	0.019 U	0.0095	0.019	0.028	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	BTEX 8260C Water	SW-846 8260C	1	L170152AA	01/15/2017 14:33	Angela D Sneeringer	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L170152AA	01/15/2017 14:33	Angela D Sneeringer	1
10398	EDB 8011 Water	SW-846 8011	1	170100015A	01/17/2017 18:52	Heather M Miller	1
07786	EDB Extraction (8011)	SW-846 8011	1	170100015A	01/11/2017 08:00	Kayla A Yuditsky	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: EA Engineering, Science & Tech
Reported: 02/01/2017 13:20

Group Number: 1752214

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	DL**	LOD	LOQ
	ug/kg	ug/kg	ug/kg	ug/kg
Batch number: A170112AA	Sample number(s): 8778682-8778683, 8778686-8778689			
Benzene	2 U	0.5	2	5
Ethylbenzene	2 U	1	2	5
Toluene	2 U	1	2	5
Xylene (Total)	2 U	1	2	5
Batch number: B170161AA	Sample number(s): 8778684			
Benzene	2 U	0.5	2	5
Ethylbenzene	2 U	1	2	5
Toluene	2 U	1	2	5
Xylene (Total)	2 U	1	2	5
	ug/l	ug/l	ug/l	ug/l
Batch number: L170152AA	Sample number(s): 8778685, 8778690			
Benzene	1 U	0.5	1	1
Ethylbenzene	1 U	0.5	1	1
Toluene	1 U	0.5	1	1
Xylene (Total)	1 U	0.5	1	1
	ug/kg	ug/kg	ug/kg	ug/kg
Batch number: 170120006A	Sample number(s): 8778682-8778684, 8778686-8778689			
Ethylene dibromide	0.40 U	0.20	0.40	0.50
	ug/l	ug/l	ug/l	ug/l
Batch number: 170100015A	Sample number(s): 8778685, 8778690			
Ethylene dibromide	0.020 U	0.010	0.020	0.030
	mg/kg	mg/kg	mg/kg	mg/kg
Batch number: 170110637001	Sample number(s): 8778682-8778684, 8778686-8778689			
Arsenic	2.00 U	0.970	2.00	4.00
Barium	0.125 U	0.0330	0.125	1.00
Cadmium	0.125 U	0.0490	0.125	1.00
Chromium	0.375 U	0.140	0.375	3.00
Lead	1.50 U	0.550	1.50	3.00
Selenium	2.00 U	0.900	2.00	4.00
Silver	0.500 U	0.150	0.500	1.00
Batch number: 170110638001	Sample number(s): 8778682-8778684, 8778686-8778689			
Mercury 7471B	0.0167 U	0.0100	0.0167	0.100

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

(3) The surrogate spike amount was less than the LOD.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: EA Engineering, Science & Tech
Reported: 02/01/2017 13:20

Group Number: 1752214

LCS/LCSD

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A170112AA	Sample number(s): 8778682-8778683, 8778686-8778689								
Benzene	20	21.73	20	22.2	109	111	77-121	2	20
Ethylbenzene	20	22.76	20	23.17	114	116	76-122	2	20
Toluene	20	21.44	20	21.6	107	108	77-121	1	20
Xylene (Total)	60	68.02	60	69.71	113	116	78-124	2	20
Batch number: B170161AA	Sample number(s): 8778684								
Benzene	20	20.85	20	22.79	104	114	77-121	9	20
Ethylbenzene	20	21.58	20	23.61	108	118	76-122	9	20
Toluene	20	20.71	20	22.82	104	114	77-121	10	20
Xylene (Total)	60	64.85	60	71.33	108	119	78-124	10	20
	ug/l	ug/l	ug/l	ug/l					
Batch number: L170152AA	Sample number(s): 8778685, 8778690								
Benzene	20	19.72	20	19.78	99	99	79-120	0	20
Ethylbenzene	20	18.12	20	17.91	91	90	79-121	1	20
Toluene	20	18.32	20	18.19	92	91	80-121	1	20
Xylene (Total)	60	55.23	60	53.94	92	90	79-121	2	20
	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 170120006A	Sample number(s): 8778682-8778684, 8778686-8778689								
Ethylene dibromide	4.50	3.29	4.50	3.19	73	71	60-140	3	20
	ug/l	ug/l	ug/l	ug/l					
Batch number: 170100015A	Sample number(s): 8778685, 8778690								
Ethylene dibromide	0.128	0.117	0.128	0.124	92	96	60-140	5	20
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 170110637001	Sample number(s): 8778682-8778684, 8778686-8778689								
Arsenic	15	14.14			94		82-111		
Barium	200	196.63			98		83-113		
Cadmium	5.00	5.00			100		82-113		
Chromium	20	20.11			101		85-113		
Lead	15	15.57			104		81-112		
Selenium	15	14.41			96		78-111		
Silver	5.00	5.07			101		82-112		
Batch number: 170110638001	Sample number(s): 8778682-8778684, 8778686-8778689								
Mercury 7471B	0.100	0.0886			89		80-124		
	%	%	%	%					
Batch number: 17012820005B	Sample number(s): 8778682-8778684, 8778686-8778689								
Moisture	89.5	89.41			100		99-101		

*- Outside of specification

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(3) The surrogate spike amount was less than the LOD.

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Quality Control Summary

Client Name: EA Engineering, Science & Tech
Reported: 02/01/2017 13:20

Group Number: 1752214

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: A170112AA	Sample number(s): 8778682-8778683,8778686-8778689 UNSPK: 8778682									
Benzene	2 U	19.8	18.45	20.45	22.78	93	111	77-121	21*	20
Ethylbenzene	2 U	19.8	16.74	20.45	23.84	85	117	76-122	35*	20
Toluene	2 U	19.8	17.36	20.45	22.97	88	112	77-121	28*	20
Xylene (Total)	2 U	59.41	48.54	61.35	71.07	82	116	78-124	38*	20
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 170120006A	Sample number(s): 8778682-8778684,8778686-8778689 UNSPK: 8778682									
Ethylene dibromide	0.38 U	4.41	2.48	4.37	2.65	56*	61	60-140	7	20
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 170100015A	Sample number(s): 8778685,8778690 UNSPK: P768288									
Ethylene dibromide	0.019 U	0.122	0.119			98		60-140		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 170110637001	Sample number(s): 8778682-8778684,8778686-8778689 UNSPK: 8778682									
Arsenic	3.34	14.85	17.87	11.54	13.5	98	88	82-111	28*	20
Barium	122.81	198.02	327.44	153.85	231.86	103	71*	83-113	34*	20
Cadmium	0.0748	4.95	4.47	3.85	3.56	89	91	82-113	23*	20
Chromium	11.06	19.8	30.66	15.38	21.78	99	70*	85-113	34*	20
Lead	21.11	14.85	46.57	11.54	28.3	171*	62*	81-112	49*	20
Selenium	1.70	14.85	15.79	11.54	11.65	95	86	78-111	30*	20
Silver	0.467 U	4.95	4.71	3.85	3.78	95	98	82-112	22*	20
Batch number: 170110638001	Sample number(s): 8778682-8778684,8778686-8778689 UNSPK: 8778682									
Mercury 7471B	0.0167 U	0.154	0.138	0.161	0.161	90	100	80-124	15	20

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 170100015A	Sample number(s): 8778685,8778690 BKG: P773271			
Ethylene dibromide	0.019 U	0.019 U	0 (1)	30
	mg/kg	mg/kg		
Batch number: 170110637001	Sample number(s): 8778682-8778684,8778686-8778689 BKG: 8778682			
Arsenic	3.34	2.02	49* (1)	20
Barium	122.81	64.1	63*	20
Cadmium	0.0748	0.0920	21* (1)	20
Chromium	11.06	5.49	67* (1)	20

*- Outside of specification

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(3) The surrogate spike amount was less than the LOD.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: EA Engineering, Science & Tech
Reported: 02/01/2017 13:20

Group Number: 1752214

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Lead	21.11	14.38	38*	20
Selenium	1.70	1.77 U	200* (1)	20
Silver	0.467 U	0.442 U	0 (1)	20
Batch number: 170110638001	Sample number(s): 8778682-8778684, 8778686-8778689 BKG: 8778682			
Mercury 7471B	0.0167 U	0.0164 U	0 (1)	20
	%	%		
Batch number: 17012820005B	Sample number(s): 8778682-8778684, 8778686-8778689 BKG: 8778682			
Moisture	10.66	11.62	9*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX 8260C Soil
Batch number: A170112AA

	Dibromofluoromethane %Rec LOD (ug/kg)		1,2-Dichloroethane-d4 %Rec LOD (ug/kg)		Toluene-d8 %Rec LOD (ug/kg)		4-Bromofluorobenzene %Rec LOD (ug/kg)	
8778682	110	5	108	5	99	5	85	5
8778683	108	5	109	5	100	5	87	5
8778686	110	5	107	5	99	5	88	5
8778687	112	5	109	5	101	5	81	5
8778688	112	5	107	5	100	5	84	5
8778689	112	5	111	5	99	5	84	5
Blank	107	5	109	5	98	5	90	5
LCS	102	5	107	5	101	5	100	5
LCSD	101	5	104	5	102	5	99	5
MS	104	5	109	5	102	5	99	5
MSD	101	5	102	5	103	5	98	5
Limits:	78-119		71-136		85-116		79-119	

Analysis Name: BTEX 8260C Soil
Batch number: B170161AA

	Dibromofluoromethane %Rec LOD (ug/kg)		1,2-Dichloroethane-d4 %Rec LOD (ug/kg)		Toluene-d8 %Rec LOD (ug/kg)		4-Bromofluorobenzene %Rec LOD (ug/kg)	
8778684	103	5	107	5	97	5	97	5
Blank	100	5	100	5	98	5	96	5
LCS	101	5	103	5	100	5	100	5
LCSD	100	5	103	5	100	5	100	5

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

(3) The surrogate spike amount was less than the LOD.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: EA Engineering, Science & Tech
Reported: 02/01/2017 13:20

Group Number: 1752214

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX 8260C Soil
Batch number: B170161AA

Limits: 78-119 71-136 85-116 79-119

Analysis Name: BTEX 8260C Water
Batch number: L170152AA

	Dibromofluoromethane		1,2-Dichloroethane-d4		Toluene-d8		4-Bromofluorobenzene	
	%Rec	LOD	%Rec	LOD	%Rec	LOD	%Rec	LOD
	(ug/l)		(ug/l)		(ug/l)		(ug/l)	
8778685	110	1	102	1	95	1	98	1
8778690	111	1	104	1	94	1	99	1
Blank	111	1	104	1	93	1	99	1
LCS	110	1	101	1	96	1	101	1
LCSD	110	1	102	1	95	1	100	1
Limits:	80-119		81-118		89-112		85-114	

Analysis Name: EDB 8011 Water
Batch number: 170100015A

	1,1,2,2-Tetrachloroethane	
	%Rec	LOD
	(ug/l)	
8778685	105	0.0066
8778690	108	0.0066
Blank	92	0.0070
DUP	95	0.0066
LCS	90	0.0070
LCSD	92	0.0070
MS	90	0.0067
Limits:	46-136	

Analysis Name: EDB Soil 8011
Batch number: 170120006A

	1,1,2,2-Tetrachloroethane	
	%Rec	LOD
	(ug/kg)	
8778682	109	0.16
8778683	105	0.17
8778684	107	0.17
8778686	123	0.17
8778687	108	0.16
8778688	106	0.17
8778689	111	0.17
Blank	119	0.17
LCS	100	0.17
LCSD	102	0.17

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

(3) The surrogate spike amount was less than the LOD.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: EA Engineering, Science & Tech
Reported: 02/01/2017 13:20

Group Number: 1752214

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: EDB Soil 8011

Batch number: 170120006A

1,1,2,2-Tetrachloroethane
%Rec LOD
(ug/kg)

MS	79	0.17
MSD	98	0.17

Limits: 60-140

*- Outside of specification

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(3) The surrogate spike amount was less than the LOD.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

31625 1752214 8778682-90

EA		225 Schilling Circle Suite 400 Hunt Valley MD Tel No: (410) 584-7000 Fax No: (410) 771-1625		CHAIN-OF-CUSTODY RECORD										COC NUMBER COG 239-171A			
PROJECT NAME: Kirtland AFB Bulk Fuels Facility		PROJECT NUMBER: 62599DM01		LABORATORY NAME AND CONTACT: Eurofins Lancaster Laboratories 2425 New Holland Pike Lancaster PA 17601				FAX AND MAIL REPORTS/EDD TO: Tara Lamond: tlamond@eaest.com EA Amanda Smith: asmith@eaest.com EA				YEAR: 2017					
PROJECT SITE AND PHASE: ST106/SS110		LAB PO NUMBER: 14800				FAX AND MAIL REPORTS/EDD TO: Pam Moss: pmoss@eaest.com EA				QUARTER: 1							
				LAB CONTACT: Kay Hower KayHower@eurofinsUS.com Eurofins 1 (717) 556-7258													
ANALYSIS REQUIRED (Specify number of bottles)																	
ITEM	SAMPLE IDENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	VOCs (8260C)	BTEX (8260C)	BTEXN (8260C)	EDB (8011)	Total As, Pb, Ca, K, Na, Mg (6020A/6010C)	Dissolved Fe, Mn (6010C)	Chloride, bromide, sulfate (300.0)	Nitrate-Nitrite (353.2)	Ammonia (SM4500-NH3)	Sulfide (SM4500-S2CF)	Alkalinity (SM2320B)	RCRA Metals (SM2320B)	COMMENTS
1	SP239-006-171	1/9/17	1448	2		X		X		*						X	
2	SP239-006-571	1/9/17	1448	6		3		3								3	
3	SP239-007-171	1/9/17	1457	2		X		X								X	
4	TB-171-01	1/9/17	1612	4		2		2									
5																	
6																	
COMMENTS: *Dissolved Fe, Mn aliquot was field filtered. RCRA metals = (As, Ba, Cd, Cr, Pb, Hg, Se, Ag) Please analyze for BTEX, EDB, + RCRA & metals RUSH TAT TB-171-01																	
SAMPLER(S): Joshua Brown				COURIER AND SHIPPING NUMBER: Fed Ex 809 58994 1138													
RELINQUISHED BY:				DATE	TIME	RECEIVED BY:				DATE	TIME						
Printed Name and Signature:						Printed Name and Signature:											
Joshua Brown				1/9/17	1700	Carlos Montoya				1/9/17	1700						
Printed Name and Signature:						Printed Name and Signature:											
Carlos Montoya				1/9/17	1800					1/9/17							
Printed Name and Signature:						Printed Name and Signature:											
Printed Name and Signature:						Printed Name and Signature:											
						Porsia Hill				1/10/17	950						

 225 Schilling Circle Suite 400 Hunt Valley MD Tel No: (410) 584-7000 Fax No: (410) 771-1625		<h1>CHAIN-OF-CUSTODY RECORD</h1>				COC NUMBER COC-SP239-171B			
PROJECT NAME: Kirtland AFB Bulk Fuels Facility		PROJECT NUMBER: 62599DM01		LABORATORY NAME AND CONTACT: Eurofins Lancaster Laboratories 2425 New Holland Pike Lancaster PA 17601		FAX AND MAIL REPORTS/EDD TO: Tara Lamond: tlamond@eaest.com EA Amanda Smith: asmith@eaest.com EA FAX AND MAIL REPORTS/EDD TO: Pam Moss: pmoss@eaest.com EA		YEAR: 2017	
PROJECT SITE AND PHASE: ST106/SS110		LAB PO NUMBER: 14800		LAB CONTACT: Kay Hower KayHower@eurofinsUS.com Eurofins 1 (717) 556-7258		QUARTER: 1			

ITEM	SAMPLE IDENTIFIER	DATE COLLECTED	TIME COLLECTED	ANALYSIS REQUIRED (Specify number of bottles)										COMMENTS			
				Total Number of Bottles	VOCs (8260C)	BTEX (8260C)	BTExN (8260C)	EDB (8011)	Total As, Pb, Cd, K, Na, Mg (6020A/6010C)	Dissolved Fe, Mn (6010C)	Chloride, bromide, sulfate (300.0)	Nitrate-Nitrite (333.2)	Ammonia (SM4500NH3)		Sulfide (SM4500S2CF)	Alkalinity (SM2320B)	RLRA Metals
1	SP 239-008-171	1/9/17	1502	2		X		X			*					X	
2	SP 239-003-171	1/9/17	1425	2		X		X								X	
3	SP 239-004-171	1/9/17	1435	2		X		X								X	
4	SP 239-005-171	1/9/17	1440	2		X		X								X	
5	TB-171-02	1/9/17	1615	4		2		2								X	
6																	

COMMENT'S: *Dissolved Fe, Mn aliquot was field filtered.

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RCRA metals = (As, Ba, Cd, Cr, Pb, Hg, Se, Ag)

Please analyze Samples for BTEX, EDB, +
RCRA 8 metals.

AMPLER(S): Jeshua Brown

RUSH TAT

COURIER AND SHIPPING NUMBER:

Fed Ex 8095 8994 1127

Printed Name and Signature:

RELINQUISHED BY:

DATE _____

TIME

RECEIVED BY:

DATE _____

TIME

Joshua Brown

11/9/17	1700
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Printed Name and Signature:

Carlos Montoya

1/9/17	1700
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Printed Name and Signature:

Carlos Montoya

1/9/17	1800
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Printed Name and Signature:

Printed Name and Signature:

Printed Name and Signature:

ited Name and Signature:

Printed Name and Signature:

Pesha Hill

1/10/17	9:50
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Client: EA

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>01/10/2017 9:50</u>
Number of Packages:	<u>2</u>	Number of Projects:	<u>1</u>

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	8
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Porsha Hill (12046) at 10:41 on 01/10/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	32170023	0.7	IR	Wet	Y	Bagged	N
2	32170023	1.3	IR	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	none detected
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Laboratory Data Qualifiers:

- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...
- W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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