



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



ENTERED



Colonel Eric H. Froehlich
377 ABW/CC
2000 Wyoming Blvd SE
Kirtland AFB NM 87117-5000



MAR 14 2017

Mr. John Kieling, Bureau Chief
Hazardous Waste Bureau (HWB)
New Mexico Environment Department (NMED)
2905 Rodeo Park Drive East, Building 1
Santa Fe NM 87505-6303

Dear Mr. Kieling

Please find attached the *Revised Corrective Action Report for the Water/Condensate Release* associated with dismantlement of the soil vapor extraction system on 1 February 2017 at the Bulk Fuels Facility Spill, Solid Waste Management Unit ST-106/SS-111, Kirtland Air Force Base, New Mexico. The 30-gallon water/condensate release was originally reported to NMED via email on 1 February 2017 and the Corrective Action Report was submitted on 14 February 2017 pursuant to Part 1.27 (*Twenty-Four Hour and Subsequent Reporting*) of Hazardous Waste Treatment Facility Operating Permit (HWTF Permit No. NM9570024423 - "RCRA Permit"). Based on NMED comments received on 16 February 2017 additional samples were collected and analyzed. Based on all data collected, soil samples contain no detectable hazardous constituents and indicate that the water/condensate released from the HDPE pipe did not impact the surrounding soil media. No further corrective action is recommended.

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:

Revised Corrective Action Plan for Water/Condensate Release During Soil Vapor Extraction System Dismantlement at Solid Waste Management Unit ST-106/SS-111; 2 Hard Copies/2 CDs

cc:

NMED-HWB (Kieling)
NMED-RPD (McQuillan)
NMED-GWQB (Agnew, Pullen)
EPA Region 6 (King, Ellinger)
SAF-IEE (Lynnes)
AFCEC/CZ (Bodour, Clark, Devergie, O'Grady)
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KIRTLAND AIR FORCE BASE ALBUQUERQUE, NEW MEXICO

CORRECTIVE ACTION REPORT FOR WATER/CONDENSATE RELEASE DURING SOIL VAPOR EXTRACTION SYSTEM DISMANTLEMENT AT SOLID WASTE MANAGEMENT UNIT ST-106/SS-111, BULK FUELS FACILITY

Revised

March 2017



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

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

**CORRECTIVE ACTION REPORT FOR WATER/CONDENSATE
RELEASE DURING SOIL VAPOR EXTRACTION SYSTEM
DISMANTLEMENT AT SOLID WASTE MANAGEMENT UNIT
ST-106/SS-111, BULK FUELS FACILITY
REVISED**

MARCH 2017

Prepared for

U.S. Army Corps of Engineers
Albuquerque District
4101 Jefferson Plaza NE
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Prepared by

EA Engineering, Science, and Technology, Inc., PBC
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Contract No. W9128F-13-D-0006/Delivery Order DM02

NOTICE

This Revised 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 water/condensate release at 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 requirements set forth in Part 1.27 (*Twenty-four Hour and Subsequent Reporting*) 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 addresses the activities related to the corrective actions taken after a release of water/condensate during the dismantlement of a soil vapor extraction system on February 1, 2017.

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9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Corps of Engineers–Albuquerque District 4101 Jefferson Plaza NE Albuquerque, New Mexico 87109-3435			10. SPONSOR/MONITOR'S ACRONYM(S)		
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
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13. SUPPLEMENTARY NOTES					
14. ABSTRACT This report describes the corrective action response to the release of 30 gallons of water/condensate from a soil vapor extraction system during dismantlement operations at Solid Waste Management Unit ST-106/SS-111 at Kirtland Air Force Base, New Mexico. Approximately 1 cubic yard of wetted soil was removed from the release area and 80 gallons of water/condensate was removed from the high density polyethylene pipe. Soil samples were collected before and after soil removal and analyzed for volatile organic compounds (VOCs) using U.S. Environmental Protection Agency Method 8260B. No VOCs were detected in any soil samples. A water/condensate sample was collected from a sump in the pipeline and analyzed for VOCs, semivolatile organic compounds (SVOCs), gasoline range organic (GRO) compounds, diesel range organic (DRO) compounds, and motor oil range organic (MRO) compounds. The water/condensate contained part per billion (ppb) concentrations of VOCs and low parts per million (ppm) concentrations of GRO/DRO/MRO and ketones related to hydrocarbon fuels. The water/condensate also contained ppb concentrations of SVOCs related to the plastic piping.					
15. SUBJECT TERMS Solid Waste Management Unit ST-106/SS-111, Bulk Fuels Facility, water/condensate, release, corrective action, soil sampling, soil removal, dismantle, soil vapor extraction system, RCRA					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT ABSTRACT	18. NUMBER OF PAGES 94	19a. NAME OF RESPONSIBLE PERSON Devon E. Jercinovic
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code) 505-715-4248

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40 CFR 270.11

DOCUMENT CERTIFICATION

March 2017

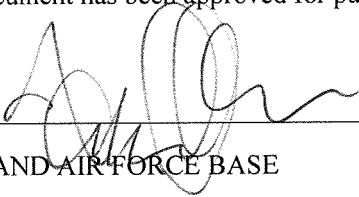
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ERIC H. FROEHLICH, Colonel, U.S. Air Force

Commander, 377th Air Base Wing

This document has been approved for public release.



KIRTLAND AIR FORCE BASE

377th Air Base Wing Public Affairs

PREFACE

This Revised Corrective Action Report was prepared by EA Engineering, Science, and Technology, Inc., PBC (EA) for the U.S. Army Corps of Engineers (USACE), under Contract Number W9128F-13-D-0006, Delivery Order DM02 and describes the corrective action response to the release of 30 gallons of water/condensate from a soil vapor extraction system during dismantlement operations at Solid Waste Management Unit ST-106/SS-111 at Kirtland Air Force Base (AFB), New Mexico. This report was prepared in accordance with Part 1.27 (*Twenty-four Hour and Subsequent Reporting*) of the permit issued to Kirtland AFB under the Resource Conservation and Recovery Act and applicable federal, state, and local laws and regulations. The report summarizes the response actions taken following the release and including soil removal and sample data analysis.

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, P.G., C.P.G., PMP, the EA Project Manager.



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

µg/L	microgram(s) per liter
AFB	Air Force Base
BFF	Bulk Fuels Facility
DRO	diesel range organic compounds
EA	EA Engineering, Science, and Technology, Inc., PBC
EPA	U.S. Environmental Protection Agency
GRO	gasoline range organic compounds
HDPE	high - density polyethylene
MRO	motor range oil organic compounds
NMED	New Mexico Environment Department
RCRA	Resource Conservation and Recovery Act
SE	Southeast
SVE	soil vapor extraction
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound

EXECUTIVE SUMMARY

This Revised Corrective Action Report was prepared by EA Engineering, Science, and Technology, Inc., PBC (EA) for the U.S. Army Corps of Engineers (USACE), under Contract Number W9128F-13-D-0006, Delivery Order DM02. This report describes the corrective action response to the release of 30 gallons of water/condensate from a soil vapor extraction (SVE) system during dismantlement operations at Solid Waste Management Unit (SWMU) ST-106/SS-111 at Kirtland Air Force Base (AFB), New Mexico. The accidental spill and corrective actions took place on February 1-2, 2017.

Approximately 1 cubic yard of wetted soil was removed from the release area and 80 gallons of water/condensate was removed from the high - density polyethylene (HDPE) pipe. Soil samples were collected before and after soil removal and analyzed for volatile organic compounds (VOCs) using U.S. Environmental Protection Agency (EPA) Method 8260B. No VOCs were detected in any soil samples. A water/condensate sample was also collected from a sump in the pipeline and analyzed for VOCs, semivolatile organic compounds (SVOCs), gasoline range organic (GRO) compounds, diesel range organic (DRO) compounds, and motor oil range organic (MRO) compounds. The water/condensate contained part per billion (ppb) concentrations of VOCs and low parts per million (ppm) concentrations of GRO/DRO/MRO and ketones related to hydrocarbon fuels. The water/condensate contained ppb concentrations of SVOCs related to the plastic piping. Based on these soil analyses, no further corrective action is proposed. Waste profiles will be developed for the removed water/condensate and soil for final disposition.

1. INTRODUCTION

EA, under USACE Contract Number W9128F-13-D-0006, Delivery Order DM02, is performing dismantling of the SVE system at SWMU ST-106/SS-111, at Kirtland AFB, New Mexico. This SWMU is known as the Bulk Fuels Facility (BFF) site. Environmental restoration efforts at the BFF site are being conducted under requirements set forth in the Resource Conservation and Recovery Act (RCRA) 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/condensate from an HDPE pipe occurred on the south side of the SVE area fence on February 1, 2017 during the SVE dismantlement at the BFF. This report is submitted pursuant to Part 1.27 of the RCRA Permit.

1.1 Description of the Release

On February 1, 2017, while dismantling the SVE HDPE influent pipe, a release of water/condensate occurred on the south side of SVE area fence adjacent to the BFF located on Fuel Drive, Southeast (SE) (Figure 1). Approximately 30 gallons of water/condensate was released from the SVE HDPE pipe onto the ground when a cut was made between the wellhead and the pipe (Appendix A). The condensate was produced from cooled water vapor trapped in the decommissioned SVE system. The release occurred at 0915 and the condensate was contained by 0930. The spill area was approximately 16 feet in length and between 2 and 4 feet in width. There were no potential hazardous waste or constituents released that would cause endangerment to a public drinking water supply and no private property was impacted.

1.2 Report Overview

This report describes the accidental water/condensate release associated with the dismantlement of the SVE system at SWMU ST-106/SS-111 and the corrective actions taken immediately after the release. The report consists of four sections:

- Section 1 includes an introduction, description of the condensate release from the SVE HDPE pipe
- Section 2 describes the corrective actions taken immediately after the release, characterization sampling (pre-excavation and post-excavation), and soil removal procedure.
- Section 3 summarizes the condensate and soil sample analytical results
- Section 4 provides a list of references cited.

Appendix A contains photographs of the release area and corrective actions. Appendix B contains the laboratory results of analyses performed on the condensate and soil samples.

2. CORRECTIVE ACTIONS

Field personnel responded immediately after the spill by elevating the HDPE pipe and covering the end to prevent additional condensate release (Appendix A). After the condensate was contained inside the HDPE pipe, the soil area impacted by the condensate was demarcated with pin flags based on wetted soil observed on the ground surface. The spill area was approximately 16 feet in length and between 2 and 4 feet in width (Figure 1). Once the site spill was secured, Mr. John Kieling, Chief of the NMED Hazardous Waste Bureau and Ms. Diane Agnew, NMED's Project Technical Lead, were notified regarding the incident via phone and email on February 1, 2017.

2.1 Soil Removal and Characterization Sampling – February 1, 2017

Three soil samples (pre-excavation) were collected in the spill area immediately after the release to characterize the potentially-contaminated soil (Figure 1). The samples were collected from the upper half of the release footprint closest to the HDPE pipe cut since the water/condensate saturated the deepest in this zone (Figure 2). Soil samples were collected immediately beneath the HDPE pipe (SP-01), in the midpoint of the upper half of the spill area (SP-02), and at the spill area midpoint (SP-03). Following pre-excavation sampling, the soil was excavated by hand to a depth of 4 inches throughout the length of the spill and to a depth of 8 inches directly under the HDPE pipe where the release originated. The criteria for excavation depth were removal of soil until dry soil was encountered and verification on a photoionization detector that no residual VOCs were measureable. Approximately 1 cubic yard of soil was removed and placed in five, plastic-lined 55-gallon drums. The drums were transported from the BFF to the EA investigation-derived waste yard for final waste disposition pending characterization.

Following excavation, three confirmation soil samples were collected. Sample SP-04 was collected from directly beneath the HDPE pipe (same location as SP-01). Sample SP-05 was collected at approximately the same location as SP-03. The third confirmation sample SP-06 was collected in the lower third of the release area (Figure 2). Sample SP-07 was a composite of soil removed from the site and collected for waste characterization. Additionally, a water/condensate sample was collected with a polyethylene bailer from a pipe sump in the HDPE line after removal of the flange on February 1, 2017. A second sample of condensate was collected from the storage container (following removal from the piping) on February 16, 2017 to characterize the heavier petroleum fraction. All samples were analyzed primarily for VOCs, based on the water/condensate forming when the monitoring wells released soil vapors during barometric changes which subsequently condensed in the piping attached to the wellhead. The VOCs were analyzed by EPA Method 8260B at Hall Environmental Laboratories in Albuquerque, New Mexico. In addition, the water/condensate sample was also analyzed for SVOCs by EPA Method 8270C, GRO by EPA Method 8015D, and DRO/MRO by EPA Method 8015M/D at Hall Laboratories to ensure that no heavier hydrocarbon fraction was present. In addition, the soil IDW was analyzed for EPA Method 6010B Toxicity Characteristic Leaching Procedure (TCLP) metals, EPA Method 8081 TCLP pesticides, EPA Method 8270B and C for TCLP SVOCs. Condensate analytical results are provided in Table 1 and Table 2. Soil sample analytical results are provided in Table 3. Laboratory analytical reports are provided in Appendix B.

2.2 Residual Water/Condensate Removal from Soil Vapor Extraction Line – February 2, 2017

On February 2, 2017, residual condensate was removed from the HDPE pipe by a vacuum truck. The following steps were performed to remove the water/condensate from the HDPE pipe.

- The HDPE pipe was elevated at one end to get water/condensate to flow to low points so it could be more easily targeted by the vacuum truck
- At the low point, a hole was cut at the top of the HDPE pipe to allow the vacuum truck stinger to access all collected fluids; a cut tote container was placed underneath the pipe at all times to prevent residual water/condensate from dripping on the underlying soil. As the HDPE pipe was only partially full, no water/condensate could leak from the top hole cut for vacuum truck access.
- After free water/condensate was vacuumed out of the HDPE pipe, the vacuum truck crew moved to the next low point to repeat the process, and the pipe remained elevated on one end.
- After fluids were removed from each elevated section, the contractor cut those sections of elevated pipe that had been drained/vacuumed of all fluids. A cut tote container acted as a catch basin placed beneath the HDPE pipe where cutting occurred to capture any residual moisture that drained from the pipe (very little residual fluid remained in the pipe).
- Photoionization detector measurements were recorded at each point where the HDPE pipe was cut to vacuum out fluids.

3. SAMPLING RESULTS

Table 1 provides the VOC analytical results for the water/condensate sample collected on February 1, 2017. Table 2 provides the GRO/DRO/MRO and SVOC and analytical results for the additional water/condensate sample collected on February 16, 2017. Table 3 summarizes the VOC analytical results for the six soil samples collected.

3.1 Water/Condensate Samples

The water/condensate sample contained petroleum hydrocarbon compounds as well as ketones (Tables 1 and 2), both groups of contaminants routinely detected in groundwater samples from the BFF source area. Benzene was detected at 54 micrograms per liter ($\mu\text{g/L}$). Toluene and total xylenes were detected at concentrations of 280 and 270 $\mu\text{g/L}$, respectively. Acetone was detected at a concentration of 3,500 $\mu\text{g/L}$ and 2-butanone was detected at a concentration of 900 $\mu\text{g/L}$. Sample analytical results for VOCs were conservatively compared to EPA Maximum Contaminant Levels and New Mexico Water Quality Control Commission Standards; however, no surface water or groundwater was impacted by the release to the ground surface. The sample collected on February 16, 2017 contained low parts per million (ppm) concentrations of GRO/DRO/MRO related to hydrocarbon fuels. While the GRO/DRO/MRO concentrations exceed the EPA Regional Screening Levels (RSLs) for Tapwater, there is no impact to surface water or groundwater that could reach a drinking water supply or receptor. The water/condensate also contained ppb concentrations of SVOCs related to the plastic piping and hydrocarbon degradation, but concentrations were all below the EPA RSLs for Tapwater.

3.2 Pre-Removal Soil Samples

Laboratory analytical results for the three soil samples (SP-01, SP-02, and SP-03) collected prior to excavation activities indicate the soil did not contain any VOCs above the practical quantitation limit as all results were non-detect for these compounds. In addition, the analyses of the removed soil detected only MRO at 92 milligrams per kilogram (mg/kg) which is below the NMED soil screening level of 1,000 mg/kg for residential exposure (NMED, 2015).

3.3 Post-Removal Soil Samples

Laboratory analytical results for the three confirmation soil samples (SP-04, SP-05, and SP-06) collected after excavation activities indicate the soil did not contain any VOCs above the practical quantitation limit as all results were non-detect for these compounds.

3.4 Summary and Recommendation

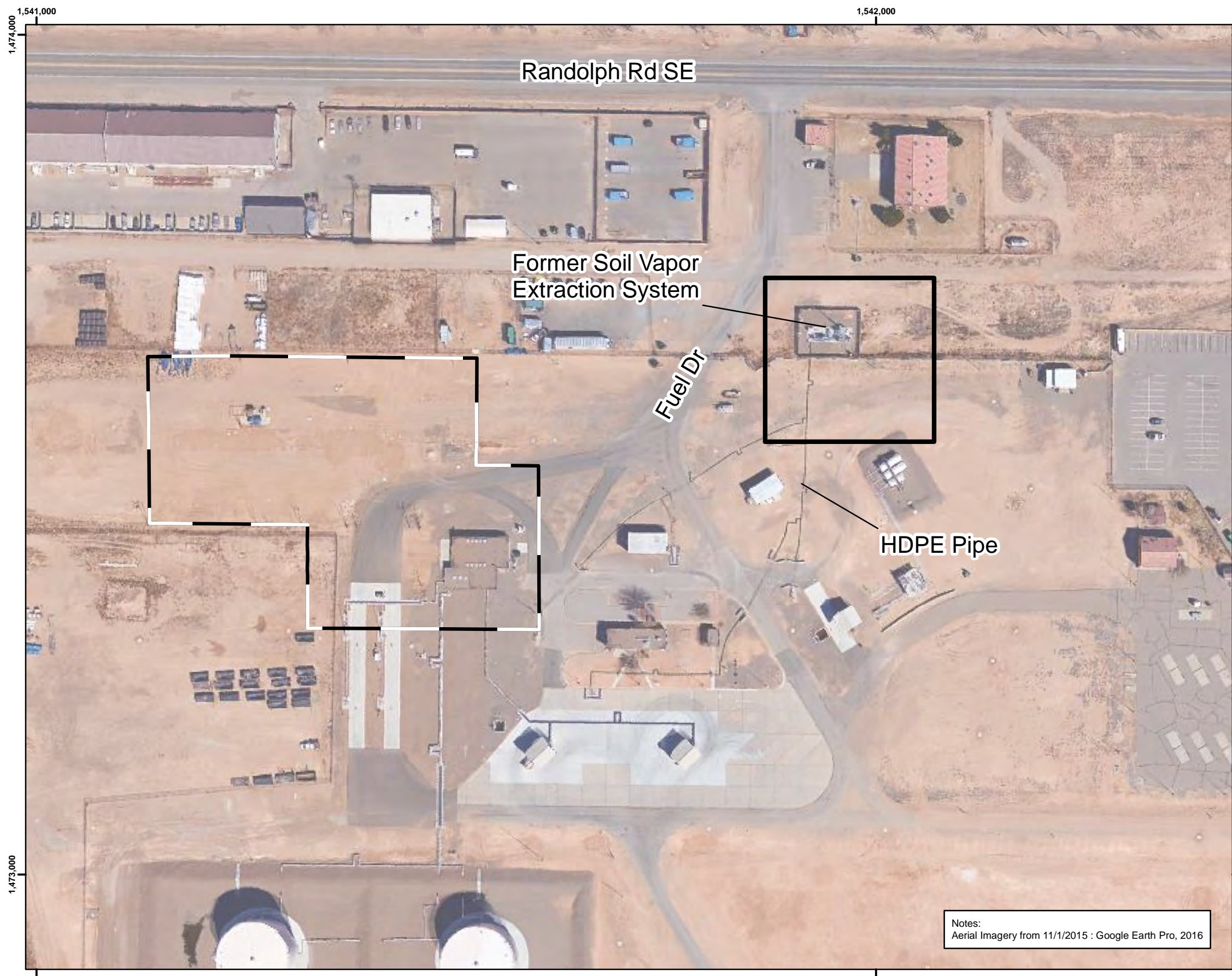
Water/condensate sampling confirms that low concentrations of VOCs were present in the source water. Heavier petroleum fractions in the water/condensate were only above EPA RSLs for Tapwater but there is no risk to surface or groundwater from the release to the ground surface. Soil samples contain no detectable hazardous constituents and indicate that the water/condensate released from the HDPE pipe did not impact the surrounding soil media. No further corrective action is recommended.

4. REFERENCES

New Mexico Environment Department (NMED). 2010. Hazardous Waste Treatment Facility Operating Permit, EPA ID No. 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.

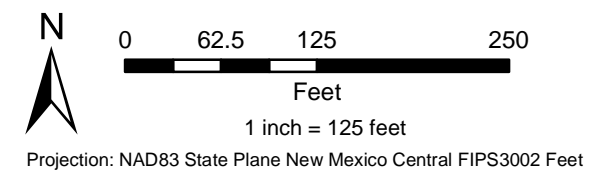
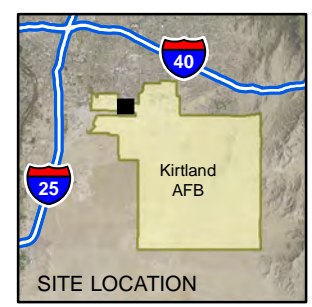
NMED. 2015. Risk Assessment Guidance for Site Investigations and Remediation. July.

FIGURES



Notes:
Aerial Imagery from 11/1/2015 : Google Earth Pro, 2016

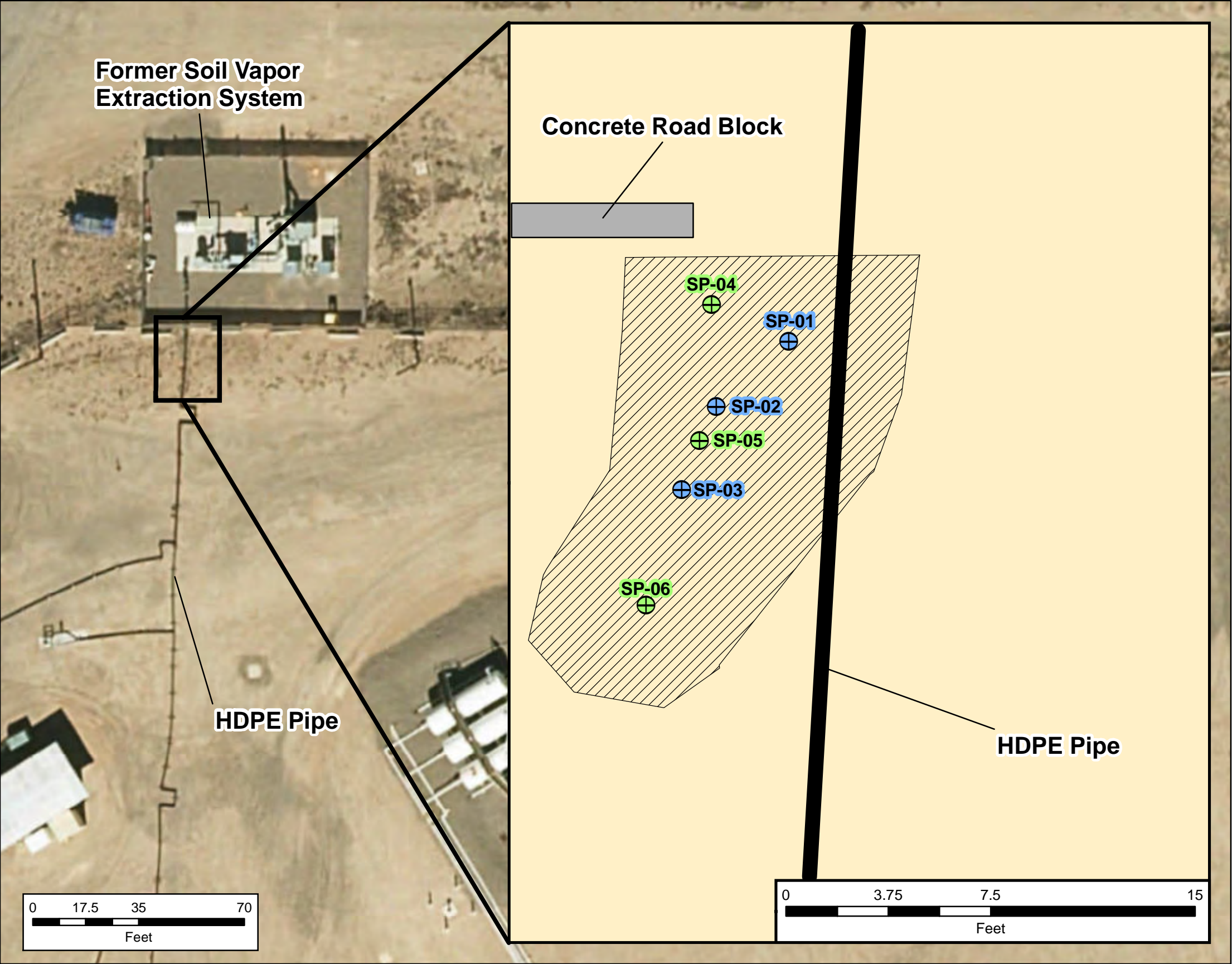
- Legend**
- Source Area
 - Site Location



CORRECTIVE ACTION REPORT FOR
WATER / CONDENSATE RELEASE
BULK FUELS FACILITY
SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 1

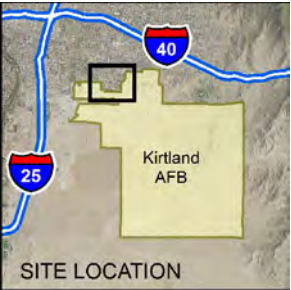
WATER / CONDENSATE RELEASE
LOCATION



Legend

Sample Locations

- Pre Excavation Sample Site
- Post Excavation Sample Site
- Spill Area



Projection: NAD83 State Plane New Mexico Central FIPS3002 Feet

CORRECTIVE ACTION REPORT FOR
WATER / CONDENSATE RELEASE
BULK FUELS FACILITY
SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 2

WATER / CONDENSATE RELEASE
DETAIL AND SAMPLE LOCATIONS

TABLES

Table 1
Water/Condensate Analytical Results for Volatile Organic Compounds

Parameter	EPA Method	Analyte	CAS RN	Field Sample ID:		Water/Condensate	
				Sample Date:		2/1/2017	
				Sample Type:		REG	
				NMAC NMWQCC ^a (µg/L)	EPA MCL ^b (µg/L)	Result (µg/L)	PQL
VOCs	SW8260B	1,1,1,2-Tetrachloroethane	630-20-6	NS	NS	ND	50
		1,1,1-Trichloroethane	71-55-6	60	200	ND	50
		1,1,2,2-Tetrachloroethane	79-34-5	10	NS	ND	100
		1,1,2-Trichloroethane	79-00-5	10	5	ND	50
		1,1-Dichloroethane	75-34-3	25	NS	ND	50
		1,1-Dichloroethene	75-35-4	5	7	ND	50
		1,1-Dichloropropene	563-58-6	NS	NS	ND	50
		1,2,3-Trichlorobenzene	87-61-6	NS	NS	ND	50
		1,2,3-Trichloropropane	96-18-4	NS	NS	ND	100
		1,2,4-Trichlorobenzene	120-82-1	NS	70	ND	50
		1,2,4-Trimethylbenzene	95-63-6	NS	NS	ND	50
		1,2-Dibromo-3-chloropropane	96-12-8	NS	0.2	ND	100
		1,2-Dibromoethane (EDB)	106-93-4	0.1	0.05	ND	50
		1,2-Dichlorobenzene	95-50-1	600	600	ND	50
		1,2-Dichloroethane (EDC)	107-06-2	10	5	ND	50
		1,2-Dichloropropane	78-87-5	NS	5	ND	50
		1,3,5-Trimethylbenzene	108-67-8	NS	NS	ND	50
		1,3-Dichlorobenzene	541-73-1	600	600	ND	50
		1,3-Dichloropropane	142-28-9	NS	NS	ND	50
		1,4-Dichlorobenzene	106-46-7	NS	75	ND	50
		1-Methylnaphthalene ^c	90-12-0	30	NS	ND	200
		2,2-Dichloropropane	594-20-7	NS	NS	ND	100
		2-Butanone	78-93-3	NS	NS	900	500
		2-Chlorotoluene	95-49-8	NS	NS	ND	50
		2-Hexanone	591-78-6	NS	NS	ND	500
		2-Methylnaphthalene	91-57-6	NS	NS	ND	200
		4-Chlorotoluene	106-43-4	NS	NS	ND	50
		4-Isopropyltoluene	99-87-6	NS	NS	ND	50
		4-Methyl-2-pentanone	108-10-1	NS	NS	ND	500
		Acetone	67-64-1	NS	NS	3500	500
		Benzene	71-43-2	10	5	54	50
		Bromobenzene	108-86-1	NS	NS	ND	50
		Bromodichloromethane	75-27-4	NS	80	ND	50
		Bromoform	75-25-2	NS	80	ND	50
		Bromomethane	74-83-9	NS	NS	ND	150
		Carbon disulfide	75-15-0	NS	NS	ND	500
		Carbon tetrachloride	56-23-5	10	5	ND	50
		Chlorobenzene	108-90-7	NS	100	ND	50
		Chloroethane	75-00-3	NS	NS	ND	100
		Chloroform	67-66-3	100	80	ND	50
		Chloromethane	74-87-3	NS	NS	ND	150
		cis-1,2-Dichloroethene	156-59-2	NS	70	ND	50
		cis-1,3-Dichloropropene	10061-01-5	NS	NS	ND	50
		Dibromochloromethane	124-48-1	NS	80	ND	50
		Dibromomethane	74-95-3	NS	NS	ND	50
		Dichlorodifluoromethane	75-71-8	NS	NS	ND	50
		Ethylbenzene	100-41-4	750	700	ND	50
		Hexachlorobutadiene	87-68-3	NS	NS	ND	50
		Isopropylbenzene	98-82-8	NS	NS	ND	50

Table 1
Water/Condensate Analytical Results for Volatile Organic Compounds

				Field Sample ID:		Water/Condensate	
				Sample Date:		2/1/2017	
				Sample Type:		REG	
Parameter	EPA Method	Analyte	CAS RN	NMAC NMWQCC ^a (µg/L)	EPA MCL ^b (µg/L)	Result (µg/L)	PQL
VOCs	SW8260B	Methyl tert-butyl ether (MTBE)	1634-04-4	NS	NS	ND	50
		Methylene chloride	75-09-2	100	5	ND	150
		n-Butylbenzene	104-51-8	NS	NS	ND	150
		n-Propylbenzene	103-65-1	NS	NS	ND	50
		Naphthalene ^c	91-20-3	30	NS	ND	100
		sec-Butylbenzene	135-98-8	NS	NS	ND	50
		Styrene	100-42-5	NS	100	ND	50
		tert-Butylbenzene	98-06-6	NS	NS	ND	50
		Tetrachloroethene (PCE)	127-18-4	20	5	ND	50
		Toluene	108-88-3	750	1,000	280	50
		trans-1,2-DCE	156-60-5	NS	100	ND	50
		trans-1,3-Dichloropropene	10061-02-6	NS	NS	ND	50
		Trichloroethene (TCE)	79-01-6	100	5	ND	50
		Trichlorofluoromethane	75-69-4	NS	NS	ND	50
		Vinyl chloride	75-01-4	1	2	ND	50
		Xylenes, Total	1330-20-7	620	10,000	270	75

Analytical data generated by Hall Environmental Analysis Laboratories, Inc., Albuquerque, New Mexico

^a NMWQCC numeric standards per the New Mexico Administrative Code Title 20.6.2.3101A, Standards for Ground Water of 10,000 mg/L Total Dissolved Solids Concentration or Less (NMAC 2004).

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

^c NMWQCC specifies a standard for the sum of naphthalene and mononaphthalenes (1- and 2-methylnaphthalene).

µg/L = microgram per liter

CASRN = Chemical Abstracts Service Registry Number

CFR = Code of Federal Regulations

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 quantitation limit

REG = normal field sample

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

VOC = Volatile organic compound

Shading = detected concentration above the PQL

Bold = detected concentration exceeds the NMWQCC or EPA MCL value.

Table 2
Water/Condensate Analytical Results for GRO/DRO/MRO and Semivolatile Organic Compounds
February 16, 2017

				Location ID:	KAFB-SVE	
				Field Sample ID:	SVE Condensate	
				Sample Date:	2/16/2017	
				Sample Type:	REG	
Parameter	EPA Method	Analyte	CASRN	EPA MCL/Tapwater RSL ^a (µg/L)	Result (µg/L)	PQL (µg/L)
TPH	SW8015D/8015M/D	GRO	NA	33	1600	500
		DRO	NA	100	34,000	1000
		MRO	NA	800	7600	5000
SVOCs	SW8270C	Benzyl Alcohol	100-51-6	2000	270	50
		Bis(2-ethylhexyl)phthalate	117-81-7	6 ^b /56	52	50

Analytical data generated by Hall Environmental Analysis Laboratory, Inc., Albuquerque, New Mexico

^a USEPA Tapwater Regional Screening Levels (RSLs) for hazard index = 1.0 for noncarcinogens and a 10-5 cancer risk level for carcinogens, May 2016.

The RSL for GRO is based on the RSL for TPH aromatic (low), DRO is based on aliphatic (medium) and MRO is based on aromatic (high).

^b EPA National Primary Drinking Water Regulations, Maximum Contaminant Levels, Title 40CFR Part 141, 143 (May 2016).

µg/L = microgram per liter

CASRN = Chemical Abstracts Service Registry Number

DRO = Diesel range organics

EPA = U.S. Environmental Protection Agency

GRO = Gasoline range organics

MRO = Motor oil range organics

NA = Not applicable

PQL = Practical quantitation limit

REG = Normal field sample

SVOC = Semivolatile organic compound

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

TPH = Total petroleum hydrocarbon

Bold = reported concentration exceeds the EPA MCL or Tapwater RSL value

Table 3
Soil Analytical Results for Volatile Organic Compound
February 1, 2017

				Field Sample ID:		Cat Ox SP-01		Cat Ox SP-02		Cat Ox SP-03		Cat Ox SP-04		Cat Ox SP-05		Cat Ox SP-06	
					Sample Date:	2/1/2017		2/1/2017		2/1/2017		2/1/2017		2/1/2017		2/1/2017	
					Sample Type:	REG		REG		REG		REG		REG		REG	
Parameter	EPA Method	Analyte	CASRN	NMED Residential SSL ^a	EPA RSL ^b	Result (mg/kg)	PQL	Result (mg/kg)	PQL	Result (mg/kg)	PQL	Result (mg/kg)	PQL	Result (mg/kg)	PQL	Result (mg/kg)	PQL
VOCs	SW8260B	1,1,1,2-Tetrachloroethane	630-20-6	28.1	20	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,1,1-Trichloroethane	71-55-6	14,400	8100	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,1,2,2-Tetrachloroethane	79-34-5	7.98	6	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,1,2-Trichloroethane	79-00-5	2.61	11	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,1-Dichloroethane	75-34-3	78.6	36	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,1-Dichloroethene	75-35-4	440	230	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,1-Dichloropropene	563-58-6	NS	NS	ND	0.099	ND	0.094	ND	0.092	ND	0.099	ND	0.098	ND	0.098
		1,2,3-Trichlorobenzene	87-61-6	NS	63	ND	0.099	ND	0.094	ND	0.092	ND	0.099	ND	0.098	ND	0.098
		1,2,3-Trichloropropane	96-18-4	0.051	0.051	ND	0.099	ND	0.094	ND	0.092	ND	0.099	ND	0.098	ND	0.098
		1,2,4-Trichlorobenzene	120-82-1	82.9	240	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,2,4-Trimethylbenzene	95-63-6	NS	58	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,2-Dibromo-3-chloropropane	96-12-8	0.0858	0.053	ND	0.099	ND	0.094	ND	0.092	ND	0.099	ND	0.098	ND	0.098
		1,2-Dibromoethane (EDB)	106-93-4	0.672	0.36	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,2-Dichlorobenzene	95-50-1	2,150	1800	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,2-Dichloroethane (EDC)	107-06-2	8.32	4.6	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,2-Dichloropropane	78-87-5	17.8	10	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,3,5-Trimethylbenzene	108-67-8	NS	780	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,3-Dichlorobenzene	541-73-1	NS	26	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,3-Dichloropropane	142-28-9	NS	1600	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1,4-Dichlorobenzene	106-46-7	32.8	26	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		1-Methylnaphthalene	90-12-0	NS	18	ND	0.199	ND	0.188	ND	0.183	ND	0.198	ND	0.195	ND	0.195
		2,2-Dichloropropane	594-20-7	NS	NS	ND	0.099	ND	0.094	ND	0.092	ND	0.099	ND	0.098	ND	0.098
		2-Butanone	78-93-3	37,400	27000	ND	0.497	ND	0.470	ND	0.459	ND	0.495	ND	0.488	ND	0.488
		2-Chlorotoluene	95-49-8	1,560	1600	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		2-Hexanone	591-78-6	NS	200	ND	0.497	ND	0.470	ND	0.459	ND	0.495	ND	0.488	ND	0.488
		2-Methylnaphthalene	91-57-6	NS	24	ND	0.199	ND	0.188	ND	0.183	ND	0.198	ND	0.195	ND	0.195
		4-Chlorotoluene	106-43-4	NS	1600	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		4-Isopropyltoluene	99-87-6	NS	NS	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		4-Methyl-2-pentanone	108-10-1	5,810	33000	ND	0.497	ND	0.470	ND	0.459	ND	0.495	ND	0.488	ND	0.488
		Acetone	67-64-1	66,300	61000	ND	0.745	ND	0.706	ND	0.688	ND	0.743	ND	0.732	ND	0.732
		Benzene	71-43-2	17.8	12	ND	0.025	ND	0.024	ND	0.023	ND	0.025	ND	0.024	ND	0.024
		Bromobenzene	108-86-1	NS	290	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Bromodichloromethane	75-27-4	6.19	2.9	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Bromoform	75-25-2	674	190	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Bromomethane	74-83-9	17.7	6.8	ND	0.149	ND	0.141	ND	0.138	ND	0.149	ND	0.146	ND	0.146
		Carbon disulfide	75-15-0	1,550	770	ND	0.497	ND	0.470	ND	0.459	ND	0.495	ND	0.488	ND	0.488
		Carbon tetrachloride	56-23-5	10.7	6.5	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Chlorobenzene	108-90-7	378	280	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Chloroethane	75-00-3	19,000	14000	ND	0.099	ND	0.094	ND	0.092	ND	0.099	ND	0.098	ND	0.098
		Chloroform	67-66-3	5.9	3.2	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049

Table 3
Soil Analytical Results for Volatile Organic Compound
February 1, 2017

				Field Sample ID:		Cat Ox SP-01		Cat Ox SP-02		Cat Ox SP-03		Cat Ox SP-04		Cat Ox SP-05		Cat Ox SP-06	
					Sample Date:	2/1/2017		2/1/2017		2/1/2017		2/1/2017		2/1/2017		2/1/2017	
					Sample Type:	REG		REG		REG		REG		REG		REG	
Parameter	EPA Method	Analyte	CASRN	NMED Residential SSL ^a	EPA RSL ^b	Result (mg/kg)	PQL	Result (mg/kg)	PQL	Result (mg/kg)	PQL	Result (mg/kg)	PQL	Result (mg/kg)	PQL	Result (mg/kg)	PQL
VOCs	SW8260B	Chloromethane	74-87-3	41.1	110	ND	0.149	ND	0.141	ND	0.138	ND	0.149	ND	0.146	ND	0.146
		cis-1,2-Dichloroethene	156-59-2	156	160	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		cis-1,3-Dichloropropene	10061-01-5	29.3	18	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Dibromochloromethane	124-48-1	13.9	83	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Dibromomethane	74-95-3	57.9	24	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Dichlorodifluoromethane	75-71-8	182	87	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Ethylbenzene	100-41-4	75.1	58	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Hexachlorobutadiene	87-68-3	61.6	1.2	ND	0.099	ND	0.094	ND	0.092	ND	0.099	ND	0.098	ND	0.098
		Isopropylbenzene	98-82-8	2,360	1900	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Methyl tert-butyl ether (MTBE)	1634-04-4	975	470	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Methylene chloride	75-09-2	409	570	ND	0.149	ND	0.141	ND	0.138	ND	0.149	ND	0.146	ND	0.146
		n-Butylbenzene	104-51-8	NS	3900	ND	0.149	ND	0.141	ND	0.138	ND	0.149	ND	0.146	ND	0.146
		n-Propylbenzene	103-65-1	NS	3800	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Naphthalene	91-20-3	49.7	38	ND	0.099	ND	0.094	ND	0.092	ND	0.099	ND	0.098	ND	0.098
		sec-Butylbenzene	135-98-8	NS	7800	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Styrene	100-42-5	7,260	6000	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		tert-Butylbenzene	98-06-6	NS	7800	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Tetrachloroethene (PCE)	127-18-4	111	24	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Toluene	108-88-3	5,230	4900	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		trans-1,2-Dichloroethene	156-60-5	295	1600	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		trans-1,3-Dichloropropene	10061-02-6	29.3	18	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Trichloroethene (TCE)	79-01-6	6.77	9.4	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Trichlorofluoromethane	75-69-4	1,230	23000	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Vinyl chloride	75-01-4	0.742	0.59	ND	0.050	ND	0.047	ND	0.046	ND	0.050	ND	0.049	ND	0.049
		Xylenes, Total	1330-20-7	871	580	ND	0.099	ND	0.094	ND	0.094	ND	0.092	ND	0.099	ND	0.098

Analytical data generated by Hall Environmental Analysis Laboratories, Inc., Albuquerque, New Mexico. Results are presented "as received" from the laboratory and have not been adjusted for moisture content.

^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 USEPA Regional Screening Levels (RSLs) for residential land use scenario for hazard index = 1.0 for non-carcinogens and a 10-5 cancer risk level for carcinogens. May 2016.

CASRN = Chemical Abstracts Service Registry Number

EPA = U.S. Environmental Protection Agency

mg/kg = Milligram(s) per kilogram

ND = Not detected above the PQL

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

VOC = Volatile organic compound

Shading = detected concentration above the PQL

Bold = detected concentration exceeds the NMED SSL or EPA RSL value.

APPENDIX A
PHOTOGRAPHS



Address: BFF Kirtland AFB

Description: Release location with impacted soil.

Date: February 1, 2017

Direction: North



Address: BFF Kirtland AFB

Description: Cut HDPE location where the release occurred.

Date: February 1, 2017

Direction: North



Address: BFF Kirtland AFB

Description: Release location with HDPE pipe elevated.

Date: February 1, 2017

Direction: North



Address: BFF Kirtland AFB

Description: Soil removal with shovels.

Date: February 1, 2017

Direction: North



Address: BFF Kirtland AFB

Description: Release location after impacted soil removal and pin flags of release perimeter.

Date: February 1, 2017

Direction: North



Address: BFF Kirtland AFB

Description: Release perimeter identified by pin flags.

Date: February 1, 2017

Direction: North



Address: BFF Kirtland AFB
Description: Overnight cover for exposed pipe section.
Date: February 1, 2017

Direction: North



Address: BFF Kirtland AFB
Description: Overnight cover for exposed pipe section.
Date: February 1, 2017

Direction: North



Address: BFF Kirtland AFB

Description: HDPE pipe elevated to drain water/condensate to a low point.

Date: February 2, 2017

Direction: North



Address: BFF Kirtland AFB

Description: Cut poly drum placed under the low point to ensure no spillage to soil during condensate removal.

Date: February 2, 2017

Direction: North



Address: BFF Kirtland AFB

Description: Preparation to cut hole in top of HDPE for vacuum truck stinger access.

Date: February 2, 2017

Direction: North



Address: BFF, Kirtland AFB

Description: Vacuum truck connected to the HDPE pipe with removing water/condensate.

Date: February 2, 2017

Direction: North



Address: BFF, Kirtland AFB

Description: Cut HDPE pipe after condensate removed.

Date: February 2, 2017

Direction: North

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

February 06, 2017

Devon Jercinovic

EA Engineering

320 Gold Ave SW Suite 1210

Albuquerque, NM 87102

TEL: (505) 224-9013

FAX

RE: Cat Ox Removal

OrderNo.: 1702076

Dear Devon Jercinovic:

Hall Environmental Analysis Laboratory received 7 sample(s) on 2/1/2017 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 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-01

Project: Cat Ox Removal

Collection Date: 2/1/2017 10:17:00 AM

Lab ID: 1702076-001

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	0.025		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Toluene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Ethylbenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,2,4-Trimethylbenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,3,5-Trimethylbenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Naphthalene	ND	0.099		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1-Methylnaphthalene	ND	0.20		mg/Kg	1	2/3/2017 12:25:37 PM	30023
2-Methylnaphthalene	ND	0.20		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Acetone	ND	0.74		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Bromobenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Bromodichloromethane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Bromoform	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Bromomethane	ND	0.15		mg/Kg	1	2/3/2017 12:25:37 PM	30023
2-Butanone	ND	0.50		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Carbon disulfide	ND	0.50		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Carbon tetrachloride	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Chlorobenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Chloroethane	ND	0.099		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Chloroform	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Chloromethane	ND	0.15		mg/Kg	1	2/3/2017 12:25:37 PM	30023
2-Chlorotoluene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
4-Chlorotoluene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
cis-1,2-DCE	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
cis-1,3-Dichloropropene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,2-Dibromo-3-chloropropane	ND	0.099		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Dibromochloromethane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Dibromomethane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Dichlorodifluoromethane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,1-Dichloroethane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,1-Dichloroethene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,2-Dichloropropane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,3-Dichloropropane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
2,2-Dichloropropane	ND	0.099		mg/Kg	1	2/3/2017 12:25:37 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-01

Project: Cat Ox Removal

Collection Date: 2/1/2017 10:17:00 AM

Lab ID: 1702076-001

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: DJF			
1,1-Dichloropropene	ND	0.099		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Hexachlorobutadiene	ND	0.099		mg/Kg	1	2/3/2017 12:25:37 PM	30023
2-Hexanone	ND	0.50		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Isopropylbenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
4-Isopropyltoluene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Methylene chloride	ND	0.15		mg/Kg	1	2/3/2017 12:25:37 PM	30023
n-Butylbenzene	ND	0.15		mg/Kg	1	2/3/2017 12:25:37 PM	30023
n-Propylbenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
sec-Butylbenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Styrene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
tert-Butylbenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
trans-1,2-DCE	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,2,3-Trichlorobenzene	ND	0.099		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Trichlorofluoromethane	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
1,2,3-Trichloropropane	ND	0.099		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Vinyl chloride	ND	0.050		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Xylenes, Total	ND	0.099		mg/Kg	1	2/3/2017 12:25:37 PM	30023
Surr: Dibromofluoromethane	99.1	70-130		%Rec	1	2/3/2017 12:25:37 PM	30023
Surr: 1,2-Dichloroethane-d4	96.4	70-130		%Rec	1	2/3/2017 12:25:37 PM	30023
Surr: Toluene-d8	103	70-130		%Rec	1	2/3/2017 12:25:37 PM	30023
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	2/3/2017 12:25:37 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-02

Project: Cat Ox Removal

Collection Date: 2/1/2017 10:19:00 AM

Lab ID: 1702076-002

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	0.024		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Toluene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Ethylbenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Methyl tert-butyl ether (MTBE)	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,2,4-Trimethylbenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,3,5-Trimethylbenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,2-Dichloroethane (EDC)	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,2-Dibromoethane (EDB)	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Naphthalene	ND	0.094		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1-Methylnaphthalene	ND	0.19		mg/Kg	1	2/3/2017 12:55:03 PM	30023
2-Methylnaphthalene	ND	0.19		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Acetone	ND	0.71		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Bromobenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Bromodichloromethane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Bromoform	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Bromomethane	ND	0.14		mg/Kg	1	2/3/2017 12:55:03 PM	30023
2-Butanone	ND	0.47		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Carbon disulfide	ND	0.47		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Carbon tetrachloride	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Chlorobenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Chloroethane	ND	0.094		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Chloroform	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Chloromethane	ND	0.14		mg/Kg	1	2/3/2017 12:55:03 PM	30023
2-Chlorotoluene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
4-Chlorotoluene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
cis-1,2-DCE	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
cis-1,3-Dichloropropene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,2-Dibromo-3-chloropropane	ND	0.094		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Dibromochloromethane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Dibromomethane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,2-Dichlorobenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,3-Dichlorobenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,4-Dichlorobenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Dichlorodifluoromethane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,1-Dichloroethane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,1-Dichloroethene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,2-Dichloropropane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,3-Dichloropropane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
2,2-Dichloropropane	ND	0.094		mg/Kg	1	2/3/2017 12:55:03 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-02

Project: Cat Ox Removal

Collection Date: 2/1/2017 10:19:00 AM

Lab ID: 1702076-002

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: DJF			
1,1-Dichloropropene	ND	0.094		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Hexachlorobutadiene	ND	0.094		mg/Kg	1	2/3/2017 12:55:03 PM	30023
2-Hexanone	ND	0.47		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Isopropylbenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
4-Isopropyltoluene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
4-Methyl-2-pentanone	ND	0.47		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Methylene chloride	ND	0.14		mg/Kg	1	2/3/2017 12:55:03 PM	30023
n-Butylbenzene	ND	0.14		mg/Kg	1	2/3/2017 12:55:03 PM	30023
n-Propylbenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
sec-Butylbenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Styrene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
tert-Butylbenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,1,1,2-Tetrachloroethane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,1,2,2-Tetrachloroethane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Tetrachloroethene (PCE)	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
trans-1,2-DCE	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
trans-1,3-Dichloropropene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,2,3-Trichlorobenzene	ND	0.094		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,2,4-Trichlorobenzene	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,1,1-Trichloroethane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,1,2-Trichloroethane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Trichloroethene (TCE)	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Trichlorofluoromethane	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
1,2,3-Trichloropropane	ND	0.094		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Vinyl chloride	ND	0.047		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Xylenes, Total	ND	0.094		mg/Kg	1	2/3/2017 12:55:03 PM	30023
Surr: Dibromofluoromethane	95.7	70-130		%Rec	1	2/3/2017 12:55:03 PM	30023
Surr: 1,2-Dichloroethane-d4	96.6	70-130		%Rec	1	2/3/2017 12:55:03 PM	30023
Surr: Toluene-d8	104	70-130		%Rec	1	2/3/2017 12:55:03 PM	30023
Surr: 4-Bromofluorobenzene	86.9	70-130		%Rec	1	2/3/2017 12:55:03 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-03

Project: Cat Ox Removal

Collection Date: 2/1/2017 10:21:00 AM

Lab ID: 1702076-003

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	0.023		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Toluene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Ethylbenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Methyl tert-butyl ether (MTBE)	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,2,4-Trimethylbenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,3,5-Trimethylbenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,2-Dichloroethane (EDC)	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,2-Dibromoethane (EDB)	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Naphthalene	ND	0.092		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1-Methylnaphthalene	ND	0.18		mg/Kg	1	2/3/2017 2:51:38 PM	30023
2-Methylnaphthalene	ND	0.18		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Acetone	ND	0.69		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Bromobenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Bromodichloromethane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Bromoform	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Bromomethane	ND	0.14		mg/Kg	1	2/3/2017 2:51:38 PM	30023
2-Butanone	ND	0.46		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Carbon disulfide	ND	0.46		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Carbon tetrachloride	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Chlorobenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Chloroethane	ND	0.092		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Chloroform	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Chloromethane	ND	0.14		mg/Kg	1	2/3/2017 2:51:38 PM	30023
2-Chlorotoluene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
4-Chlorotoluene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
cis-1,2-DCE	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
cis-1,3-Dichloropropene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,2-Dibromo-3-chloropropane	ND	0.092		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Dibromochloromethane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Dibromomethane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,2-Dichlorobenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,3-Dichlorobenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,4-Dichlorobenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Dichlorodifluoromethane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,1-Dichloroethane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,1-Dichloroethene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,2-Dichloropropane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,3-Dichloropropane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
2,2-Dichloropropane	ND	0.092		mg/Kg	1	2/3/2017 2:51:38 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-03

Project: Cat Ox Removal

Collection Date: 2/1/2017 10:21:00 AM

Lab ID: 1702076-003

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: DJF			
1,1-Dichloropropene	ND	0.092		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Hexachlorobutadiene	ND	0.092		mg/Kg	1	2/3/2017 2:51:38 PM	30023
2-Hexanone	ND	0.46		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Isopropylbenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
4-Isopropyltoluene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
4-Methyl-2-pentanone	ND	0.46		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Methylene chloride	ND	0.14		mg/Kg	1	2/3/2017 2:51:38 PM	30023
n-Butylbenzene	ND	0.14		mg/Kg	1	2/3/2017 2:51:38 PM	30023
n-Propylbenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
sec-Butylbenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Styrene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
tert-Butylbenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,1,1,2-Tetrachloroethane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,1,2,2-Tetrachloroethane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Tetrachloroethene (PCE)	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
trans-1,2-DCE	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
trans-1,3-Dichloropropene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,2,3-Trichlorobenzene	ND	0.092		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,2,4-Trichlorobenzene	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,1,1-Trichloroethane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,1,2-Trichloroethane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Trichloroethene (TCE)	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Trichlorofluoromethane	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
1,2,3-Trichloropropane	ND	0.092		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Vinyl chloride	ND	0.046		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Xylenes, Total	ND	0.092		mg/Kg	1	2/3/2017 2:51:38 PM	30023
Surr: Dibromofluoromethane	97.2	70-130		%Rec	1	2/3/2017 2:51:38 PM	30023
Surr: 1,2-Dichloroethane-d4	93.4	70-130		%Rec	1	2/3/2017 2:51:38 PM	30023
Surr: Toluene-d8	110	70-130		%Rec	1	2/3/2017 2:51:38 PM	30023
Surr: 4-Bromofluorobenzene	95.2	70-130		%Rec	1	2/3/2017 2:51:38 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-04

Project: Cat Ox Removal

Collection Date: 2/1/2017 3:20:00 PM

Lab ID: 1702076-004

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	0.025		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Toluene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Ethylbenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,2,4-Trimethylbenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,3,5-Trimethylbenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Naphthalene	ND	0.099		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1-Methylnaphthalene	ND	0.20		mg/Kg	1	2/3/2017 1:24:37 PM	30023
2-Methylnaphthalene	ND	0.20		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Acetone	ND	0.74		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Bromobenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Bromodichloromethane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Bromoform	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Bromomethane	ND	0.15		mg/Kg	1	2/3/2017 1:24:37 PM	30023
2-Butanone	ND	0.50		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Carbon disulfide	ND	0.50		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Carbon tetrachloride	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Chlorobenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Chloroethane	ND	0.099		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Chloroform	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Chloromethane	ND	0.15		mg/Kg	1	2/3/2017 1:24:37 PM	30023
2-Chlorotoluene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
4-Chlorotoluene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
cis-1,2-DCE	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
cis-1,3-Dichloropropene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,2-Dibromo-3-chloropropane	ND	0.099		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Dibromochloromethane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Dibromomethane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Dichlorodifluoromethane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,1-Dichloroethane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,1-Dichloroethene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,2-Dichloropropane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,3-Dichloropropane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
2,2-Dichloropropane	ND	0.099		mg/Kg	1	2/3/2017 1:24:37 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-04

Project: Cat Ox Removal

Collection Date: 2/1/2017 3:20:00 PM

Lab ID: 1702076-004

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: DJF			
1,1-Dichloropropene	ND	0.099		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Hexachlorobutadiene	ND	0.099		mg/Kg	1	2/3/2017 1:24:37 PM	30023
2-Hexanone	ND	0.50		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Isopropylbenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
4-Isopropyltoluene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Methylene chloride	ND	0.15		mg/Kg	1	2/3/2017 1:24:37 PM	30023
n-Butylbenzene	ND	0.15		mg/Kg	1	2/3/2017 1:24:37 PM	30023
n-Propylbenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
sec-Butylbenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Styrene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
tert-Butylbenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
trans-1,2-DCE	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,2,3-Trichlorobenzene	ND	0.099		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Trichlorofluoromethane	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
1,2,3-Trichloropropane	ND	0.099		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Vinyl chloride	ND	0.050		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Xylenes, Total	ND	0.099		mg/Kg	1	2/3/2017 1:24:37 PM	30023
Surr: Dibromofluoromethane	95.4	70-130		%Rec	1	2/3/2017 1:24:37 PM	30023
Surr: 1,2-Dichloroethane-d4	97.3	70-130		%Rec	1	2/3/2017 1:24:37 PM	30023
Surr: Toluene-d8	104	70-130		%Rec	1	2/3/2017 1:24:37 PM	30023
Surr: 4-Bromofluorobenzene	88.2	70-130		%Rec	1	2/3/2017 1:24:37 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-05

Project: Cat Ox Removal

Collection Date: 2/1/2017 3:19:00 PM

Lab ID: 1702076-005

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	0.024		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Toluene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Ethylbenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Naphthalene	ND	0.098		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1-Methylnaphthalene	ND	0.20		mg/Kg	1	2/3/2017 1:53:18 PM	30023
2-Methylnaphthalene	ND	0.20		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Acetone	ND	0.73		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Bromobenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Bromodichloromethane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Bromoform	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Bromomethane	ND	0.15		mg/Kg	1	2/3/2017 1:53:18 PM	30023
2-Butanone	ND	0.49		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Carbon disulfide	ND	0.49		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Carbon tetrachloride	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Chlorobenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Chloroethane	ND	0.098		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Chloroform	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Chloromethane	ND	0.15		mg/Kg	1	2/3/2017 1:53:18 PM	30023
2-Chlorotoluene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
4-Chlorotoluene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
cis-1,2-DCE	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,2-Dibromo-3-chloropropane	ND	0.098		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Dibromochloromethane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Dibromomethane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,1-Dichloroethane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,1-Dichloroethene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,2-Dichloropropane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,3-Dichloropropane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
2,2-Dichloropropane	ND	0.098		mg/Kg	1	2/3/2017 1:53:18 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-05

Project: Cat Ox Removal

Collection Date: 2/1/2017 3:19:00 PM

Lab ID: 1702076-005

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1-Dichloropropene	ND	0.098		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Hexachlorobutadiene	ND	0.098		mg/Kg	1	2/3/2017 1:53:18 PM	30023
2-Hexanone	ND	0.49		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Isopropylbenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
4-Isopropyltoluene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Methylene chloride	ND	0.15		mg/Kg	1	2/3/2017 1:53:18 PM	30023
n-Butylbenzene	ND	0.15		mg/Kg	1	2/3/2017 1:53:18 PM	30023
n-Propylbenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
sec-Butylbenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Styrene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
tert-Butylbenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
trans-1,2-DCE	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,2,3-Trichlorobenzene	ND	0.098		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Trichlorofluoromethane	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
1,2,3-Trichloropropane	ND	0.098		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Vinyl chloride	ND	0.049		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Xylenes, Total	ND	0.098		mg/Kg	1	2/3/2017 1:53:18 PM	30023
Surr: Dibromofluoromethane	95.3	70-130		%Rec	1	2/3/2017 1:53:18 PM	30023
Surr: 1,2-Dichloroethane-d4	96.0	70-130		%Rec	1	2/3/2017 1:53:18 PM	30023
Surr: Toluene-d8	109	70-130		%Rec	1	2/3/2017 1:53:18 PM	30023
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	2/3/2017 1:53:18 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-06

Project: Cat Ox Removal

Collection Date: 2/1/2017 3:18:00 PM

Lab ID: 1702076-006

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	0.024		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Toluene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Ethylbenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Naphthalene	ND	0.098		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1-Methylnaphthalene	ND	0.20		mg/Kg	1	2/3/2017 2:22:24 PM	30023
2-Methylnaphthalene	ND	0.20		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Acetone	ND	0.73		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Bromobenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Bromodichloromethane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Bromoform	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Bromomethane	ND	0.15		mg/Kg	1	2/3/2017 2:22:24 PM	30023
2-Butanone	ND	0.49		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Carbon disulfide	ND	0.49		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Carbon tetrachloride	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Chlorobenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Chloroethane	ND	0.098		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Chloroform	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Chloromethane	ND	0.15		mg/Kg	1	2/3/2017 2:22:24 PM	30023
2-Chlorotoluene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
4-Chlorotoluene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
cis-1,2-DCE	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,2-Dibromo-3-chloropropane	ND	0.098		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Dibromochloromethane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Dibromomethane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,1-Dichloroethane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,1-Dichloroethene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,2-Dichloropropane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,3-Dichloropropane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
2,2-Dichloropropane	ND	0.098		mg/Kg	1	2/3/2017 2:22:24 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox SP-06

Project: Cat Ox Removal

Collection Date: 2/1/2017 3:18:00 PM

Lab ID: 1702076-006

Matrix: SOIL

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1-Dichloropropene	ND	0.098		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Hexachlorobutadiene	ND	0.098		mg/Kg	1	2/3/2017 2:22:24 PM	30023
2-Hexanone	ND	0.49		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Isopropylbenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
4-Isopropyltoluene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Methylene chloride	ND	0.15		mg/Kg	1	2/3/2017 2:22:24 PM	30023
n-Butylbenzene	ND	0.15		mg/Kg	1	2/3/2017 2:22:24 PM	30023
n-Propylbenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
sec-Butylbenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Styrene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
tert-Butylbenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
trans-1,2-DCE	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,2,3-Trichlorobenzene	ND	0.098		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Trichlorofluoromethane	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
1,2,3-Trichloropropane	ND	0.098		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Vinyl chloride	ND	0.049		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Xylenes, Total	ND	0.098		mg/Kg	1	2/3/2017 2:22:24 PM	30023
Surr: Dibromofluoromethane	100	70-130		%Rec	1	2/3/2017 2:22:24 PM	30023
Surr: 1,2-Dichloroethane-d4	98.3	70-130		%Rec	1	2/3/2017 2:22:24 PM	30023
Surr: Toluene-d8	106	70-130		%Rec	1	2/3/2017 2:22:24 PM	30023
Surr: 4-Bromofluorobenzene	94.6	70-130		%Rec	1	2/3/2017 2:22:24 PM	30023

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox Condensate

Project: Cat Ox Removal

Collection Date: 2/1/2017 3:53:00 PM

Lab ID: 1702076-007

Matrix: AQUEOUS

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BCN
Benzene	54	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Toluene	280	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Ethylbenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,2,4-Trimethylbenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,3,5-Trimethylbenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,2-Dichloroethane (EDC)	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,2-Dibromoethane (EDB)	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Naphthalene	ND	100		µg/L	50	2/3/2017 10:37:00 AM	R40492
1-Methylnaphthalene	ND	200		µg/L	50	2/3/2017 10:37:00 AM	R40492
2-Methylnaphthalene	ND	200		µg/L	50	2/3/2017 10:37:00 AM	R40492
Acetone	3500	500		µg/L	50	2/3/2017 10:37:00 AM	R40492
Bromobenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Bromodichloromethane	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Bromoform	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Bromomethane	ND	150		µg/L	50	2/3/2017 10:37:00 AM	R40492
2-Butanone	900	500		µg/L	50	2/3/2017 10:37:00 AM	R40492
Carbon disulfide	ND	500		µg/L	50	2/3/2017 10:37:00 AM	R40492
Carbon Tetrachloride	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Chlorobenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Chloroethane	ND	100		µg/L	50	2/3/2017 10:37:00 AM	R40492
Chloroform	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Chloromethane	ND	150		µg/L	50	2/3/2017 10:37:00 AM	R40492
2-Chlorotoluene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
4-Chlorotoluene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
cis-1,2-DCE	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
cis-1,3-Dichloropropene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,2-Dibromo-3-chloropropane	ND	100		µg/L	50	2/3/2017 10:37:00 AM	R40492
Dibromochloromethane	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Dibromomethane	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,2-Dichlorobenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,3-Dichlorobenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,4-Dichlorobenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Dichlorodifluoromethane	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,1-Dichloroethane	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,1-Dichloroethene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,2-Dichloropropane	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,3-Dichloropropane	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
2,2-Dichloropropane	ND	100		µg/L	50	2/3/2017 10:37:00 AM	R40492

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702076

Date Reported: 2/6/2017

CLIENT: EA Engineering

Client Sample ID: Cat Ox Condensate

Project: Cat Ox Removal

Collection Date: 2/1/2017 3:53:00 PM

Lab ID: 1702076-007

Matrix: AQUEOUS

Received Date: 2/1/2017 4:33:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BCN
1,1-Dichloropropene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Hexachlorobutadiene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
2-Hexanone	ND	500		µg/L	50	2/3/2017 10:37:00 AM	R40492
Isopropylbenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
4-Isopropyltoluene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
4-Methyl-2-pentanone	ND	500		µg/L	50	2/3/2017 10:37:00 AM	R40492
Methylene Chloride	ND	150		µg/L	50	2/3/2017 10:37:00 AM	R40492
n-Butylbenzene	ND	150		µg/L	50	2/3/2017 10:37:00 AM	R40492
n-Propylbenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
sec-Butylbenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Styrene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
tert-Butylbenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,1,1,2-Tetrachloroethane	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,1,2,2-Tetrachloroethane	ND	100		µg/L	50	2/3/2017 10:37:00 AM	R40492
Tetrachloroethene (PCE)	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
trans-1,2-DCE	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
trans-1,3-Dichloropropene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,2,3-Trichlorobenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,2,4-Trichlorobenzene	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,1,1-Trichloroethane	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,1,2-Trichloroethane	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Trichloroethene (TCE)	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Trichlorofluoromethane	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
1,2,3-Trichloropropane	ND	100		µg/L	50	2/3/2017 10:37:00 AM	R40492
Vinyl chloride	ND	50		µg/L	50	2/3/2017 10:37:00 AM	R40492
Xylenes, Total	270	75		µg/L	50	2/3/2017 10:37:00 AM	R40492
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	50	2/3/2017 10:37:00 AM	R40492
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	50	2/3/2017 10:37:00 AM	R40492
Surr: Dibromofluoromethane	105	70-130		%Rec	50	2/3/2017 10:37:00 AM	R40492
Surr: Toluene-d8	103	70-130		%Rec	50	2/3/2017 10:37:00 AM	R40492

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#: 1702076

07-Feb-17

Client: EA Engineering

Project: Cat Ox Removal

Sample ID	mb-30023		SampType:	MBLK		TestCode:	EPA Method 8260B: Volatiles			
Client ID:	PBS		Batch ID:	30023		RunNo:	40507			
Prep Date:	2/2/2017		Analysis Date:	2/3/2017		SeqNo:	1269600	Units:	mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

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#: 1702076

07-Feb-17

Client: EA Engineering

Project: Cat Ox Removal

Sample ID	mb-30023		SampType:	MBLK		TestCode:	EPA Method 8260B: Volatiles			
Client ID:	PBS		Batch ID:	30023		RunNo:	40507			
Prep Date:	2/2/2017		Analysis Date:	2/3/2017		SeqNo:	1269600		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.49		0.5000		98.0	70	130			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		97.9	70	130			
Surr: Toluene-d8	0.53		0.5000		107	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		93.6	70	130			

Sample ID	lcs-30023		SampType:	LCS		TestCode:	EPA Method 8260B: Volatiles			
Client ID:	LCSS		Batch ID:	30023		RunNo:	40507			
Prep Date:	2/2/2017		Analysis Date:	2/3/2017		SeqNo:	1269601		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	95.7	70	130			
Toluene	1.1	0.050	1.000	0	106	70	130			
Chlorobenzene	1.0	0.050	1.000	0	102	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#: 1702076

07-Feb-17

Client: EA Engineering

Project: Cat Ox Removal

Sample ID	Ics-30023		SampType: LCS			TestCode: EPA Method 8260B: Volatiles				
Client ID:	LCSS		Batch ID: 30023			RunNo: 40507				
Prep Date:	2/2/2017		Analysis Date: 2/3/2017			SeqNo: 1269601		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.0	0.050	1.000	0	104	72	146			
Trichloroethene (TCE)	0.94	0.050	1.000	0	94.3	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		94.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		97.4	70	130			
Surr: Toluene-d8	0.53		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.1	70	130			

Sample ID	1702076-001ams		SampType: MS			TestCode: EPA Method 8260B: Volatiles				
Client ID:	Cat Ox SP-01		Batch ID: 30023			RunNo: 40507				
Prep Date:	2/2/2017		Analysis Date: 2/3/2017			SeqNo: 1269602		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.024	0.9766	0	92.1	61.9	146			
Toluene	1.1	0.049	0.9766	0.03817	105	70	130			
Chlorobenzene	1.0	0.049	0.9766	0	102	70	130			
1,1-Dichloroethene	0.92	0.049	0.9766	0	94.7	37.1	170			
Trichloroethene (TCE)	0.92	0.049	0.9766	0	94.2	49.8	150			
Surr: Dibromofluoromethane	0.47		0.4883		96.2	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.4883		96.7	70	130			
Surr: Toluene-d8	0.53		0.4883		108	70	130			
Surr: 4-Bromofluorobenzene	0.45		0.4883		93.1	70	130			

Sample ID	1702076-001amsd		SampType: MSD			TestCode: EPA Method 8260B: Volatiles				
Client ID:	Cat Ox SP-01		Batch ID: 30023			RunNo: 40507				
Prep Date:	2/2/2017		Analysis Date: 2/3/2017			SeqNo: 1269603		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.81	0.023	0.9183	0	88.6	61.9	146	9.96	20	
Toluene	0.95	0.046	0.9183	0.03817	99.8	70	130	11.1	20	
Chlorobenzene	0.88	0.046	0.9183	0	96.0	70	130	12.7	20	
1,1-Dichloroethene	0.88	0.046	0.9183	0	95.6	37.1	170	5.21	20	
Trichloroethene (TCE)	0.81	0.046	0.9183	0	87.9	49.8	150	13.1	20	
Surr: Dibromofluoromethane	0.44		0.4591		95.3	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.45		0.4591		97.2	70	130	0	0	
Surr: Toluene-d8	0.49		0.4591		107	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.43		0.4591		94.0	70	130	0	0	

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#: 1702076

07-Feb-17

Client: EA Engineering

Project: Cat Ox Removal

Sample ID	100ng lcs2	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R40476	RunNo:	40476					
Prep Date:		Analysis Date:	2/2/2017	SeqNo:	1268410	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	11		10.00		115	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	11		10.00		111	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R40476			RunNo: 40476					
Prep Date:		Analysis Date: 2/2/2017			SeqNo: 1268411		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	11		10.00		114	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	11		10.00		113	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R40492			RunNo: 40492					
Prep Date:		Analysis Date: 2/3/2017			SeqNo: 1269341		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								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								

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#: 1702076

07-Feb-17

Client: EA Engineering

Project: Cat Ox Removal

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R40492			RunNo: 40492					
Prep Date:		Analysis Date: 2/3/2017			SeqNo: 1269341	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								

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#: 1702076

07-Feb-17

Client: EA Engineering

Project: Cat Ox Removal

Sample ID rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R40492		RunNo: 40492							
Prep Date:	Analysis Date: 2/3/2017		SeqNo: 1269341		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID 100ng lcs2	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R40492		RunNo: 40492							
Prep Date:	Analysis Date: 2/3/2017		SeqNo: 1269478		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	21	1.0	20.00	0	107	70	130			
Chlorobenzene	21	1.0	20.00	0	106	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	111	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: W40507		RunNo: 40507							
Prep Date:	Analysis Date: 2/3/2017		SeqNo: 1269582		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.0	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	11		10.00		107	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#: 1702076

07-Feb-17

Client: EA Engineering

Project: Cat Ox Removal

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	W40507	RunNo:	40507					
Prep Date:		Analysis Date:	2/3/2017	SeqNo:	1269583	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.1	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		93.6	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.4	70	130			
Surr: Toluene-d8	11		10.00		106	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



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: 1702076

RcptNo: 1

Received by/date:

AG 02/01/17

Logged By:

Ashley Gallegos

2/1/2017 4:33:00 PM

Completed By:

Ashley Gallegos

2/2/2017 9:51:50 AM

Reviewed By:

IO

2/2/17

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: ☐ 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	7.5	Good	Not Present			



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: EA Engineering		<input type="checkbox"/> Standard <input type="checkbox"/> Rush ASTP				
Mailing Address:		Project Name: Cat Ox removal				
Phone #:		Project #: DM02 per Devon				
email or Fax#:		62735 DM02.1037.01				
QA/QC Package:		Project Manager: Devon Jercinovic				
<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Level 4 (Full Validation)		Sampler: Tyler Curbly				
Accreditation: <input type="checkbox"/> NELAP <input type="checkbox"/> Other _____		On Ice <input type="checkbox"/> Yes <input type="checkbox"/> No				
<input type="checkbox"/> EDD (Type) _____		Sample Temperature 7.0 to 0.5 CF -7.502 HEAL No. 17030710				
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
2/1/17	1017	Soil	Cat ox sp-01	glass	none	-001
2/1/17	1014	Soil	Cat ox sp-02	glass	none	-002
2/1/17	1021	Soil	Cat Ox sp-03	glass	none	-003
2/1/17	1520	Soil	Cat Ox sp-04	glass	none	-004
2/1/17	1514	Soil	Cat Ox sp-05	glass	none	-005
2/1/17	1518	Soil	Cat Ox sp-06	glass	none	-006
2/1/17	1553	water	Cat Ox Leachate	3 Vol VOA HCl		-007
Date:	Time:	Relinquished by:	Relinquished by:	Received by:	Date	Time
2/1/17	1633			Amberly	02/11/17	1633
Date:	Time:	Relinquished by:	Relinquished by:	Received by:	Date	Time

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.



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

February 27, 2017

Devon Jercinovic

EA Engineering

320 Gold Ave SW Suite 1210

Albuquerque, NM 87102

TEL: (505) 224-9013

FAX

RE: KAFB-SVE

OrderNo.: 1702792

Dear Devon Jercinovic:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/16/2017 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 1702792

Date Reported: 2/27/2017

CLIENT: EA Engineering

Client Sample ID: SVE Condensate

Project: KAFB-SVE

Collection Date: 2/16/2017 2:10:00 PM

Lab ID: 1702792-001

Matrix: AQUEOUS

Received Date: 2/16/2017 3:47:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: MAB
Diesel Range Organics (DRO)	34	1.0		mg/L	1	2/17/2017 3:59:12 PM	30272
Motor Oil Range Organics (MRO)	7.6	5.0		mg/L	1	2/17/2017 3:59:12 PM	30272
Surr: DNOP	109	98.8-141		%Rec	1	2/17/2017 3:59:12 PM	30272
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	1.6	0.50		mg/L	10	2/17/2017 3:43:45 PM	WG4082
Surr: BFB	97.2	52.3-138		%Rec	10	2/17/2017 3:43:45 PM	WG4082
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Acenaphthene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Acenaphthylene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Aniline	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Anthracene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Azobenzene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Benz(a)anthracene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Benzo(a)pyrene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Benzo(b)fluoranthene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Benzo(g,h,i)perylene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Benzo(k)fluoranthene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Benzoic acid	ND	100	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Benzyl alcohol	270	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Bis(2-chloroethoxy)methane	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Bis(2-chloroethyl)ether	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Bis(2-chloroisopropyl)ether	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Bis(2-ethylhexyl)phthalate	52	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
4-Bromophenyl phenyl ether	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Butyl benzyl phthalate	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Carbazole	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
4-Chloro-3-methylphenol	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
4-Chloroaniline	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2-Chloronaphthalene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2-Chlorophenol	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
4-Chlorophenyl phenyl ether	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Chrysene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Di-n-butyl phthalate	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Di-n-octyl phthalate	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Dibenz(a,h)anthracene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Dibenzofuran	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
1,2-Dichlorobenzene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
1,3-Dichlorobenzene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702792

Date Reported: 2/27/2017

CLIENT: EA Engineering

Client Sample ID: SVE Condensate

Project: KAFB-SVE

Collection Date: 2/16/2017 2:10:00 PM

Lab ID: 1702792-001

Matrix: AQUEOUS

Received Date: 2/16/2017 3:47:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
1,4-Dichlorobenzene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
3,3'-Dichlorobenzidine	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Diethyl phthalate	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Dimethyl phthalate	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2,4-Dichlorophenol	ND	100	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2,4-Dimethylphenol	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
4,6-Dinitro-2-methylphenol	ND	100	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2,4-Dinitrophenol	ND	100	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2,4-Dinitrotoluene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2,6-Dinitrotoluene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Fluoranthene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Fluorene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Hexachlorobenzene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Hexachlorobutadiene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Hexachlorocyclopentadiene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Hexachloroethane	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Indeno(1,2,3-cd)pyrene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Isophorone	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
1-Methylnaphthalene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2-Methylnaphthalene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2-Methylphenol	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
3+4-Methylphenol	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
N-Nitrosodi-n-propylamine	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
N-Nitrosodimethylamine	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
N-Nitrosodiphenylamine	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Naphthalene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2-Nitroaniline	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
3-Nitroaniline	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
4-Nitroaniline	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Nitrobenzene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2-Nitrophenol	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
4-Nitrophenol	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Pentachlorophenol	ND	100	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Phenanthrene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Phenol	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Pyrene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Pyridine	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
1,2,4-Trichlorobenzene	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
2,4,5-Trichlorophenol	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1702792**

Date Reported: **2/27/2017**

CLIENT: EA Engineering

Client Sample ID: SVE Condensate

Project: KAFB-SVE

Collection Date: 2/16/2017 2:10:00 PM

Lab ID: 1702792-001

Matrix: AQUEOUS

Received Date: 2/16/2017 3:47:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
2,4,6-Trichlorophenol	ND	50	D	µg/L	1	2/26/2017 7:42:44 PM	30370
Surr: 2-Fluorophenol	52.3	15-98.1	D	%Rec	1	2/26/2017 7:42:44 PM	30370
Surr: Phenol-d5	45.8	15-80.7	D	%Rec	1	2/26/2017 7:42:44 PM	30370
Surr: 2,4,6-Tribromophenol	80.3	15-112	D	%Rec	1	2/26/2017 7:42:44 PM	30370
Surr: Nitrobenzene-d5	67.3	27.2-90.7	D	%Rec	1	2/26/2017 7:42:44 PM	30370
Surr: 2-Fluorobiphenyl	77.4	23.3-85.6	D	%Rec	1	2/26/2017 7:42:44 PM	30370
Surr: 4-Terphenyl-d14	60.3	27.6-107	D	%Rec	1	2/26/2017 7:42:44 PM	30370

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#: 1702792

27-Feb-17

Client: EA Engineering

Project: KAFB-SVE

Sample ID	LCS-30272		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 30272		RunNo: 40813					
Prep Date:	2/17/2017		Analysis Date: 2/17/2017		SeqNo: 1278905		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.2	1.0	5.000	0	125	63.2	155			
Surr: DNOP	0.66		0.5000		131	98.8	141			

Sample ID	MB-30272		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 30272		RunNo: 40813					
Prep Date:	2/17/2017		Analysis Date: 2/17/2017		SeqNo: 1278906		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.1		1.000		114	98.8	141			

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#: 1702792

27-Feb-17

Client: EA Engineering

Project: KAFB-SVE

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	WG40829	RunNo:	40829					
Prep Date:		Analysis Date:	2/17/2017	SeqNo:	1279144	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		85.8	52.3	138			

Sample ID	2.5UG GRO LCSB	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	WG40829	RunNo:	40829					
Prep Date:		Analysis Date:	2/17/2017	SeqNo:	1279145	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.7	79.1	123			
Surr: BFB	18		20.00		91.7	52.3	138			

Sample ID	1702792-001AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	SVE Condensate	Batch ID:	WG40829	RunNo:	40829					
Prep Date:		Analysis Date:	2/17/2017	SeqNo:	1279147	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.3	0.50	5.000	1.640	113	64.8	129			
Surr: BFB	220		200.0		110	52.3	138			

Sample ID	1702792-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	SVE Condensate	Batch ID:	WG40829	RunNo:	40829					
Prep Date:		Analysis Date:	2/17/2017	SeqNo:	1279148	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	6.8	0.50	5.000	1.640	103	64.8	129	6.84	20	
Surr: BFB	220		200.0		109	52.3	138	0	0	

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#: 1702792

27-Feb-17

Client: EA Engineering

Project: KAFB-SVE

Sample ID	lcs-30370		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 30370		RunNo: 40995					
Prep Date:	2/23/2017		Analysis Date: 2/26/2017		SeqNo: 1283879		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	70	10	100.0	0	69.7	42.9	100			
4-Chloro-3-methylphenol	130	10	200.0	0	63.2	36.2	110			
2-Chlorophenol	130	10	200.0	0	65.7	33.4	97.8			
1,4-Dichlorobenzene	57	10	100.0	0	57.4	32.8	79.3			
2,4-Dinitrotoluene	57	10	100.0	0	56.6	34.9	107			
N-Nitrosodi-n-propylamine	66	10	100.0	0	65.6	30.7	111			
4-Nitrophenol	71	10	200.0	0	35.6	15	91.9			
Pentachlorophenol	100	20	200.0	0	50.2	33.3	93.5			
Phenol	74	10	200.0	0	36.9	20.9	86.4			
Pyrene	67	10	100.0	0	66.7	45.6	111			
1,2,4-Trichlorobenzene	56	10	100.0	0	56.3	38.7	88.2			
Surr: 2-Fluorophenol	97		200.0		48.4	15	98.1			
Surr: Phenol-d5	75		200.0		37.5	15	80.7			
Surr: 2,4,6-Tribromophenol	130		200.0		66.2	15	112			
Surr: Nitrobenzene-d5	68		100.0		67.6	27.2	90.7			
Surr: 2-Fluorobiphenyl	64		100.0		64.0	23.3	85.6			
Surr: 4-Terphenyl-d14	57		100.0		57.5	27.6	107			

Sample ID	lcsd-30370		SampType: LCSD		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS02		Batch ID: 30370		RunNo: 40995					
Prep Date:	2/23/2017		Analysis Date: 2/26/2017		SeqNo: 1283880		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	68	10	100.0	0	67.8	42.9	100	2.79	37.4	
4-Chloro-3-methylphenol	130	10	200.0	0	63.1	36.2	110	0.174	26.8	
2-Chlorophenol	120	10	200.0	0	59.0	33.4	97.8	10.7	30.3	
1,4-Dichlorobenzene	55	10	100.0	0	54.8	32.8	79.3	4.70	32	
2,4-Dinitrotoluene	60	10	100.0	0	60.0	34.9	107	5.80	36.7	
N-Nitrosodi-n-propylamine	70	10	100.0	0	69.9	30.7	111	6.31	29.9	
4-Nitrophenol	56	10	200.0	0	28.2	15	91.9	23.2	28.8	
Pentachlorophenol	110	20	200.0	0	52.6	33.3	93.5	4.69	38.2	
Phenol	65	10	200.0	0	32.4	20.9	86.4	12.8	39.8	
Pyrene	65	10	100.0	0	64.9	45.6	111	2.67	28.3	
1,2,4-Trichlorobenzene	54	10	100.0	0	53.8	38.7	88.2	4.40	39.8	
Surr: 2-Fluorophenol	84		200.0		41.9	15	98.1	0	0	
Surr: Phenol-d5	61		200.0		30.7	15	80.7	0	0	
Surr: 2,4,6-Tribromophenol	130		200.0		63.4	15	112	0	0	
Surr: Nitrobenzene-d5	67		100.0		67.4	27.2	90.7	0	0	
Surr: 2-Fluorobiphenyl	64		100.0		64.1	23.3	85.6	0	0	

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#: 1702792

27-Feb-17

Client: EA Engineering

Project: KAFB-SVE

Sample ID	lcsd-30370		SampType: LCSD		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS02		Batch ID: 30370		RunNo: 40995					
Prep Date:	2/23/2017		Analysis Date: 2/26/2017		SeqNo: 1283880		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	53		100.0		53.0	27.6	107	0	0	

Sample ID	mb-30370		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 30370		RunNo: 40995					
Prep Date:	2/23/2017		Analysis Date: 2/26/2017		SeqNo: 1283881		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								

Qualifiers:

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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

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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#: 1702792

27-Feb-17

Client: EA Engineering

Project: KAFB-SVE

Sample ID	mb-30370		SampType:	MBLK		TestCode:	EPA Method 8270C: Semivolatiles			
Client ID:	PBW		Batch ID:	30370		RunNo:	40995			
Prep Date:	2/23/2017		Analysis Date:	2/26/2017		SeqNo:	1283881	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1702792

27-Feb-17

Client: EA Engineering

Project: KAFB-SVE

Sample ID	mb-30370		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 30370		RunNo: 40995					
Prep Date:	2/23/2017		Analysis Date: 2/26/2017		SeqNo: 1283881		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	92		200.0		45.8	15	98.1			
Surr: Phenol-d5	66		200.0		32.9	15	80.7			
Surr: 2,4,6-Tribromophenol	130		200.0		64.8	15	112			
Surr: Nitrobenzene-d5	66		100.0		65.9	27.2	90.7			
Surr: 2-Fluorobiphenyl	60		100.0		59.7	23.3	85.6			
Surr: 4-Terphenyl-d14	55		100.0		54.9	27.6	107			

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

Sample Log-In Check List

Client Name: EA Engineering Alb

Work Order Number: 1702792

RcptNo: 1

Received by/date:	AG	02/16/17
Logged By:	Ashley Gallegos	2/16/2017 3:47:00 PM
Completed By:	Ashley Gallegos	2/17/2017 7:41:55 AM
Reviewed By:	AT	02/17/17

Chain of Custody

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

Log In

- Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
- Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
- Sample(s) in proper container(s)? Yes ☒ No ☐
- Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
- Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
- Was preservative added to bottles? Yes ☐ No ☒ NA ☐
- VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
- Were any sample containers received broken? Yes ☐ No ☒
- Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
- Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
- Is it clear what analyses were requested? Yes ☒ No ☐
- 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)

- 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:			

- Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	15.4	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

February 28, 2017

Devon Jercinovic

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

RE: SVE Condensate Removal

OrderNo.: 1702797

Dear Devon Jercinovic:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/16/2017 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 qualifers 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 1702797

Date Reported: 2/28/2017

CLIENT: EA Engineering Science & Technology

Client Sample ID: SVE Condensate SP-07

Project: SVE Condensate Removal

Collection Date: 2/16/2017 11:57:00 AM

Lab ID: 1702797-001

Matrix: SOIL

Received Date: 2/16/2017 1:19:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
MERCURY, TCLP							Analyst: MED
Mercury	ND	0.020		mg/L	1	2/24/2017 3:59:58 PM	30378
EPA METHOD 6010B: TCLP METALS							Analyst: pmf
Arsenic	ND	5.0		mg/L	1	2/24/2017 11:42:34 AM	30364
Barium	ND	100		mg/L	1	2/24/2017 11:42:34 AM	30364
Cadmium	ND	1.0		mg/L	1	2/24/2017 11:42:34 AM	30364
Chromium	ND	5.0		mg/L	1	2/24/2017 11:42:34 AM	30364
Lead	ND	5.0		mg/L	1	2/24/2017 11:42:34 AM	30364
Selenium	ND	1.0		mg/L	1	2/24/2017 11:42:34 AM	30364
Silver	ND	5.0		mg/L	1	2/24/2017 11:42:34 AM	30364
EPA METHOD 8081: PESTICIDES TCLP							Analyst: MAB
Chlordane	ND	0.030		mg/L	1	2/24/2017 10:29:14 AM	30334
Endrin	ND	0.020		mg/L	1	2/24/2017 10:29:14 AM	30334
gamma-BHC (Lindane)	ND	0.40		mg/L	1	2/24/2017 10:29:14 AM	30334
Heptachlor	ND	0.0080		mg/L	1	2/24/2017 10:29:14 AM	30334
Heptachlor epoxide	ND	0.0080		mg/L	1	2/24/2017 10:29:14 AM	30334
Methoxychlor	ND	10		mg/L	1	2/24/2017 10:29:14 AM	30334
Toxaphene	ND	0.50		mg/L	1	2/24/2017 10:29:14 AM	30334
Surr: Decachlorobiphenyl	83.1	47.9-114		%Rec	1	2/24/2017 10:29:14 AM	30334
Surr: Tetrachloro-m-xylene	67.3	31.9-104		%Rec	1	2/24/2017 10:29:14 AM	30334
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: MAB
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	2/23/2017 8:41:49 PM	30282
Motor Oil Range Organics (MRO)	92	46		mg/Kg	1	2/23/2017 8:41:49 PM	30282
Surr: DNOP	127	70-130		%Rec	1	2/23/2017 8:41:49 PM	30282
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/20/2017 2:36:04 PM	30280
Surr: BFB	77.4	54-150		%Rec	1	2/20/2017 2:36:04 PM	30280
EPA METHOD 8270C TCLP							Analyst: DAM
2-Methylphenol	ND	200		mg/L	1	2/22/2017 5:53:35 PM	30316
3+4-Methylphenol	ND	200		mg/L	1	2/22/2017 5:53:35 PM	30316
Phenol	ND	200		mg/L	1	2/22/2017 5:53:35 PM	30316
2,4-Dinitrotoluene	ND	0.13		mg/L	1	2/22/2017 5:53:35 PM	30316
Hexachlorobenzene	ND	0.13		mg/L	1	2/22/2017 5:53:35 PM	30316
Hexachlorobutadiene	ND	0.50		mg/L	1	2/22/2017 5:53:35 PM	30316
Hexachloroethane	ND	3.0		mg/L	1	2/22/2017 5:53:35 PM	30316
Nitrobenzene	ND	2.0		mg/L	1	2/22/2017 5:53:35 PM	30316
Pentachlorophenol	ND	100		mg/L	1	2/22/2017 5:53:35 PM	30316
Pyridine	ND	5.0		mg/L	1	2/22/2017 5:53:35 PM	30316

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702797

Date Reported: 2/28/2017

CLIENT: EA Engineering Science & Technology

Client Sample ID: SVE Condensate SP-07

Project: SVE Condensate Removal

Collection Date: 2/16/2017 11:57:00 AM

Lab ID: 1702797-001

Matrix: SOIL

Received Date: 2/16/2017 1:19:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C TCLP							Analyst: DAM
2,4,5-Trichlorophenol	ND	400		mg/L	1	2/22/2017 5:53:35 PM	30316
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	2/22/2017 5:53:35 PM	30316
Cresols, Total	ND	200		mg/L	1	2/22/2017 5:53:35 PM	30316
Surr: 2-Fluorophenol	24.6	15-82.7		%Rec	1	2/22/2017 5:53:35 PM	30316
Surr: Phenol-d5	24.3	15-79.7		%Rec	1	2/22/2017 5:53:35 PM	30316
Surr: 2,4,6-Tribromophenol	67.7	17.2-102		%Rec	1	2/22/2017 5:53:35 PM	30316
Surr: Nitrobenzene-d5	48.6	35.4-106		%Rec	1	2/22/2017 5:53:35 PM	30316
Surr: 2-Fluorobiphenyl	46.1	26-98.9		%Rec	1	2/22/2017 5:53:35 PM	30316
Surr: 4-Terphenyl-d14	55.9	15-79.5		%Rec	1	2/22/2017 5:53:35 PM	30316
EPA METHOD 8260B: TCLP COMPOUNDS							Analyst: DJF
Benzene	ND	0.50		ppm	10	2/20/2017 11:58:54 AM	30280
1,2-Dichloroethane (EDC)	ND	0.50		ppm	10	2/20/2017 11:58:54 AM	30280
2-Butanone	ND	200		ppm	10	2/20/2017 11:58:54 AM	30280
Carbon tetrachloride	ND	0.50		ppm	10	2/20/2017 11:58:54 AM	30280
Chlorobenzene	ND	100		ppm	10	2/20/2017 11:58:54 AM	30280
Chloroform	ND	6.0		ppm	10	2/20/2017 11:58:54 AM	30280
1,4-Dichlorobenzene	ND	7.5		ppm	10	2/20/2017 11:58:54 AM	30280
1,1-Dichloroethene	ND	0.70		ppm	10	2/20/2017 11:58:54 AM	30280
Tetrachloroethene (PCE)	ND	0.70		ppm	10	2/20/2017 11:58:54 AM	30280
Trichloroethene (TCE)	ND	0.50		ppm	10	2/20/2017 11:58:54 AM	30280
Vinyl chloride	ND	0.20		ppm	10	2/20/2017 11:58:54 AM	30280
Surr: 1,2-Dichloroethane-d4	110	70-130		%Rec	10	2/20/2017 11:58:54 AM	30280
Surr: 4-Bromofluorobenzene	93.6	70-130		%Rec	10	2/20/2017 11:58:54 AM	30280
Surr: Dibromofluoromethane	106	70-130		%Rec	10	2/20/2017 11:58:54 AM	30280
Surr: Toluene-d8	95.7	70-130		%Rec	10	2/20/2017 11:58:54 AM	30280

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



Collected date/time: 02/16/17 11:57

L891117

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		2/23/2017 2:58:07 PM	WG955104
Fluid	1		2/23/2017 2:58:07 PM	WG955104
Initial pH	9.54		2/23/2017 2:58:07 PM	WG955104
Final pH	6.44		2/23/2017 2:58:07 PM	WG955104

Wet Chemistry by Method 9012 B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND		0.250	1	02/23/2017 22:02	WG955292

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Sulfide	31.0		25.0	1	02/25/2017 14:52	WG955364

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	8.81		1	02/22/2017 12:00	WG954518

Sample Narrative:

9045D L891117-01 WG954518: 8.81 at 19.4c

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Ignitability	DNI at 170 F		1	02/22/2017 00:22	WG954026

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
2,4,5-TP (Silvex)	ND		0.00200	1	1	02/27/2017 15:57	WG955942
2,4-D	ND		0.00200	10	1	02/27/2017 15:57	WG955942
(S) 2,4-Dichlorophenyl Acetic Acid	83.9		14.0-158	158		02/27/2017 15:57	WG955942

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

QUALITY CONTROL SUMMARY

WG955292
Wet Chemistry by Method 9012 B

L891117-01

Method Blank (MB)

(MB) R3199033-1 02/23/17 21:53

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	
Reactive Cyanide	U	0.039	0.250	

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3199033-2 02/23/17 21:54 • (LCSD) R3199033-3 02/23/17 21:55

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Reactive Cyanide	2.50	2.57	2.52	103	101	50-150			2	20

L891210-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L891210-04 02/23/17 22:08 • (MS) R3199033-4 02/23/17 22:09 • (MSD) R3199033-5 02/23/17 22:10

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Reactive Cyanide	1.67	ND	0.250	0.247	5	5	1	75-125	J6	J6	1	20





Method Blank (MB)

(MB) WG955364-4 02/25/17 14:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Reactive Sulfide	U		7.63	25.0

L891210-04 Original Sample (OS) • Duplicate (DUP)

(OS) L891210-04 02/25/17 14:52 • (DUP) WG955364-1 02/25/17 14:52

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Sulfide	310	310	1	0.0452		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCS-D)

(LCS) WG955364-2 02/25/17 14:52 • (LCS-D) WG955364-3 02/25/17 14:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Reactive Sulfide	100	99.2	93.0	99.2	93.0	70.0-130			6.45	20

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L891117

DATE/TIME:

02/27/17 17:23

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

QUALITY CONTROL SUMMARY

WG954518
Wet Chemistry by Method 9045D

L891117-01

L890710-02 Original Sample (OS) • Duplicate (DUP)

(OS) L890710-02 02/22/17 12:00 • (DUP) WG954518-3 02/22/17 12:00

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Corrosivity by pH	5.48	5.49	1	0.182		1

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCS-D)

(LCS) WG954518-1 02/22/17 12:00 • (LCS-D) WG954518-2 02/22/17 12:00

Analyte	Spike Amount su	LCS Result su	LCS-D Result su	LCS Rec. %	LCS-D Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCS-D Qualifier</u>	RPD %	RPD Limits %
Corrosivity by pH	6.07	6.11	6.13	101	101	98.4-102			0.327	1

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

ACCOUNT:
Hall Environmental Analysis Laboratory

PROJECT:

SDG:
L891117

DATE/TIME:
02/27/17 17:23



L890949-01 Original Sample (OS) • Duplicate (DUP)

(OS) L890949-01 02/22/17 00:22 • (DUP) WG954026-3 02/22/17 00:22

Analyte	Original Result		DUP Result		DUP RPD		DUP Qualifier		DUP RPD Limits	
	Deg. F	DNI at 170 F	Deg. F	DNI at 170 F	Dilution	%			%	
Ignitability					1	0.000			10	

L891119-01 Original Sample (OS) • Duplicate (DUP)

(OS) L891119-01 02/22/17 00:22 • (DUP) WG954026-4 02/22/17 00:22

Analyte	Original Result		DUP Result		DUP RPD		DUP Qualifier		DUP RPD Limits	
	Deg. F	DNI at 170 F	Deg. F	DNI at 170 F	Dilution	%			%	
Ignitability					1	0.000			10	

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCS-D)

(LCS) WG954026-1 02/22/17 00:22 • (LCS-D) WG954026-2 02/22/17 00:22

Analyte	Spike Amount		LCS Result		LCS-D Result		LCS Rec.		LCS-D Rec.		Rec. Limits		LCS Qualifier		LCS-D Qualifier		RPD		RPD Limits	
	Deg. F		Deg. F		Deg. F		%		%		%		%		%		%		%	
Ignitability	82.0		83.0		83.0		101		101		93.0-107		0.000		0.000		20			

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc



QUALITY CONTROL SUMMARY

WG9555942

Chlorinated Acid Herbicides (GC) by Method 8151A

L891117-01

Method Blank (MB)

(MB) R3199670-3 02/27/17 15:43

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2,4-D	U		0.000667	0.00200
2,4,5-TP (Silvex)	U		0.000667	0.00200
(S) 2,4-Dichlorophenyl Acetic Acid	81.4			14.0-158

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCS-D)

(LCS) R3199670-1 02/27/17 15:04 • (LCS-D) R3199670-2 02/27/17 15:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	LCS-D Rec. %	Rec. Limits %	LCS Qualifier	LCS-D Qualifier	RPD %	RPD Limits %
2,4-D	0.00500	0.00418	83.5	83.3	56.0-120			0.320	20
2,4,5-TP (Silvex)	0.00500	0.00499	99.8	99.2	55.0-120			0.530	20
(S) 2,4-Dichlorophenyl Acetic Acid			90.5	89.8	20.0-138				

1 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.



QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1702797

28-Feb-17

Client: EA Engineering Science & Technology

Project: SVE Condensate Removal

Sample ID	MB-30282		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS		Batch ID: 30282		RunNo: 40870					
Prep Date:	2/20/2017		Analysis Date: 2/21/2017		SeqNo: 1280393		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.2		10.00		91.6	70	130			

Sample ID	LCS-30282		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 30282		RunNo: 40870					
Prep Date:	2/20/2017		Analysis Date: 2/21/2017		SeqNo: 1280404		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	100	63.8	116			
Surr: DNOP	4.5		5.000		90.7	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#: 1702797

28-Feb-17

Client: EA Engineering Science & Technology

Project: SVE Condensate Removal

Sample ID	MB-30280		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: 30280		RunNo: 40860					
Prep Date:	2/17/2017		Analysis Date: 2/20/2017		SeqNo: 1279799		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	750		1000		75.5	54	150			

Sample ID	LCS-30280		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: 30280		RunNo: 40860					
Prep Date:	2/17/2017		Analysis Date: 2/20/2017		SeqNo: 1279800		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	113	76.4	125			
Surr: BFB	990		1000		99.3	54	150			

Sample ID	1702797-001AMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	SVE Condensate SP		Batch ID: 30280		RunNo: 40860					
Prep Date:	2/17/2017		Analysis Date: 2/20/2017		SeqNo: 1279808		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	24.95	0	91.0	61.3	150			
Surr: BFB	830		998.0		82.9	54	150			

Sample ID	1702797-001AMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	SVE Condensate SP		Batch ID:	30280		RunNo:	40860				
Prep Date:	2/17/2017		Analysis Date:	2/20/2017		SeqNo:	1279809		Units:	mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	24	5.0	24.98	0	96.0	61.3	150	5.49	20		
Surr: BFB	910		999.0		91.3	54	150	0	0		

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#: 1702797

28-Feb-17

Client: EA Engineering Science & Technology

Project: SVE Condensate Removal

Sample ID	LCS-30334			SampType:	LCS		TestCode:	EPA Method 8081: Pesticides TCLP			
Client ID:	LCSW			Batch ID:	30334		RunNo:	40962			
Prep Date:	2/22/2017			Analysis Date:	2/24/2017		SeqNo:	1283341		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Endrin	0.00044	0.00010	0.0005000	0	87.4	42.6	125				
gamma-BHC (Lindane)	0.00044	0.00010	0.0005000	0	87.8	29.5	142				
Heptachlor	0.00040	0.00010	0.0005000	0	79.2	18.6	138				
Heptachlor epoxide	0.00044	0.00010	0.0005000	0	88.2	40.3	127				
Methoxychlor	0.00045	0.00010	0.0005000	0	89.6	36.5	143				
Surr: Decachlorobiphenyl	0.0021		0.002500		85.8	47.9	114				
Surr: Tetrachloro-m-xylene	0.0015		0.002500		60.9	31.9	104				

Sample ID	MB-30334		SampType: MBLK		TestCode: EPA Method 8081: Pesticides TCLP					
Client ID:	PBW		Batch ID: 30334		RunNo: 40962					
Prep Date:	2/22/2017		Analysis Date: 2/24/2017		SeqNo: 1283342		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.40								
Heptachlor	ND	0.0080								
Heptachlor epoxide	ND	0.0080								
Methoxychlor	ND	10								
Toxaphene	ND	0.50								
Surr: Decachlorobiphenyl	0.0021		0.002500		85.8	47.9	114			
Surr: Tetrachloro-m-xylene	0.0019		0.002500		75.8	31.9	104			

Sample ID	LCSD-30334		SampType: LCSD		TestCode: EPA Method 8081: Pesticides TCLP					
Client ID:	LCSS02		Batch ID: 30334		RunNo: 40962					
Prep Date:	2/22/2017		Analysis Date: 2/24/2017		SeqNo: 1283345		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00030	0.00010	0.0005000	0	60.8	42.6	125	35.9	20	R
gamma-BHC (Lindane)	0.00031	0.00010	0.0005000	0	62.0	29.5	142	34.4	20	R
Heptachlor	0.00030	0.00010	0.0005000	0	59.8	18.6	138	27.9	20	R
Heptachlor epoxide	0.00031	0.00010	0.0005000	0	61.6	40.3	127	35.5	20	R
Methoxychlor	0.00031	0.00010	0.0005000	0	62.2	36.5	143	36.1	20	R
Surr: Decachlorobiphenyl	0.0018		0.002500		73.2	47.9	114	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.8	31.9	104	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#: 1702797

28-Feb-17

Client: EA Engineering Science & Technology

Project: SVE Condensate Removal

Sample ID	mb-30280		SampType: MBLK		TestCode: EPA Method 8260B: TCLP Compounds					
Client ID:	PBS		Batch ID: 30280		RunNo: 40864					
Prep Date:	2/17/2017		Analysis Date: 2/20/2017		SeqNo: 1279927		Units: ppm			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
2-Butanone	ND	20								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	10								
Chloroform	ND	0.60								
1,4-Dichlorobenzene	ND	0.75								
1,1-Dichloroethene	ND	0.070								
Tetrachloroethene (PCE)	ND	0.070								
Trichloroethene (TCE)	ND	0.050								
Vinyl chloride	ND	0.020								
Surr: 1,2-Dichloroethane-d4	0.57		0.5000		113	70	130			
Surr: 4-Bromofluorobenzene	0.43		0.5000		85.3	70	130			
Surr: Dibromofluoromethane	0.56		0.5000		112	70	130			
Surr: Toluene-d8	0.47		0.5000		94.3	70	130			

Sample ID	lcs-30280		SampType: LCS		TestCode: EPA Method 8260B: TCLP Compounds					
Client ID:	LCSS		Batch ID: 30280		RunNo: 40864					
Prep Date:	2/17/2017		Analysis Date: 2/20/2017		SeqNo: 1279928		Units: ppm			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	110	70	130			
Chlorobenzene	0.93	0.050	1.000	0	92.6	70	130			
1,1-Dichloroethene	1.2	0.050	1.000	0	119	72	146			
Trichloroethene (TCE)	1.0	0.050	1.000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	0.57		0.5000		113	70	130			
Surr: 4-Bromofluorobenzene	0.44		0.5000		88.1	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		109	70	130			
Surr: Toluene-d8	0.47		0.5000		94.9	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#: 1702797

28-Feb-17

Client: EA Engineering Science & Technology

Project: SVE Condensate Removal

Sample ID	lcs-30316		SampType: LCS		TestCode: EPA Method 8270C TCLP					
Client ID:	LCSS		Batch ID: 30316		RunNo: 40927					
Prep Date:	2/21/2017		Analysis Date: 2/22/2017		SeqNo: 1281873		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.071	0.010	0.1000	0	70.6	38.6	122			
3+4-Methylphenol	0.16	0.010	0.2000	0	78.3	38.1	148			
2,4-Dinitrotoluene	0.059	0.010	0.1000	0	58.9	35	107			
Hexachlorobenzene	0.071	0.010	0.1000	0	71.5	48.8	123			
Hexachlorobutadiene	0.065	0.010	0.1000	0	65.3	16.6	142			
Hexachloroethane	0.059	0.010	0.1000	0	59.1	19	121			
Nitrobenzene	0.065	0.010	0.1000	0	64.6	38.5	119			
Pentachlorophenol	0.047	0.010	0.1000	0	47.3	37.9	107			
Pyridine	0.051	0.010	0.1000	0	50.6	15	131			
2,4,5-Trichlorophenol	0.077	0.010	0.1000	0	77.1	46	139			
2,4,6-Trichlorophenol	0.068	0.010	0.1000	0	68.3	39	135			
Cresols, Total	0.23	0.010	0.3000	0	75.8	30	136			
Surr: 2-Fluorophenol	0.12		0.2000		60.3	15	82.7			
Surr: Phenol-d5	0.12		0.2000		58.7	15	79.7			
Surr: 2,4,6-Tribromophenol	0.16		0.2000		78.8	17.2	102			
Surr: Nitrobenzene-d5	0.068		0.1000		68.5	35.4	106			
Surr: 2-Fluorobiphenyl	0.062		0.1000		62.1	26	98.9			
Surr: 4-Terphenyl-d14	0.061		0.1000		61.5	15	79.5			

Sample ID	mb-30316		SampType: MBLK		TestCode: EPA Method 8270C TCLP					
Client ID:	PBS		Batch ID: 30316		RunNo: 40927					
Prep Date:	2/21/2017		Analysis Date: 2/22/2017		SeqNo: 1281874		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
Phenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.071		0.2000		35.4	15	82.7			
Surr: Phenol-d5	0.061		0.2000		30.4	15	79.7			

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#: 1702797

28-Feb-17

Client: EA Engineering Science & Technology

Project: SVE Condensate Removal

Sample ID	mb-30316		SampType:	MBLK		TestCode:	EPA Method 8270C TCLP				
Client ID:	PBS		Batch ID:	30316		RunNo:	40927				
Prep Date:	2/21/2017		Analysis Date:	2/22/2017		SeqNo:	1281874		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: 2,4,6-Tribromophenol	0.11		0.2000		57.3	17.2	102				
Surr: Nitrobenzene-d5	0.047		0.1000		47.2	35.4	106				
Surr: 2-Fluorobiphenyl	0.042		0.1000		41.8	26	98.9				
Surr: 4-Terphenyl-d14	0.052		0.1000		52.2	15	79.5				

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#: 1702797

28-Feb-17

Client: EA Engineering Science & Technology

Project: SVE Condensate Removal

Sample ID	MB-30378		SampType: MBLK		TestCode: MERCURY, TCLP					
Client ID:	PBW		Batch ID: 30378		RunNo: 40990					
Prep Date:	2/24/2017		Analysis Date: 2/24/2017		SeqNo: 1283766		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.020								

Sample ID	LCS-30378			SampType:	LCS		TestCode:	MERCURY, TCLP			
Client ID:	LCSW			Batch ID:	30378		RunNo:	40990			
Prep Date:	2/24/2017			Analysis Date:	2/24/2017		SeqNo:	1283767		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.020	0.005000	0	97.5	80	120				

Sample ID	TCLP Fluid1 #2973		SampType: MBLK		TestCode: MERCURY, TCLP					
Client ID:	PBW		Batch ID: 30378		RunNo: 40990					
Prep Date:	2/24/2017		Analysis Date: 2/24/2017		SeqNo: 1283778		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

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#: 1702797

28-Feb-17

Client: EA Engineering Science & Technology

Project: SVE Condensate Removal

Sample ID	MB-30364		SampType: MBLK		TestCode: EPA Method 6010B: TCLP Metals					
Client ID:	PBW		Batch ID: 30364		RunNo: 40975					
Prep Date:	2/23/2017		Analysis Date: 2/24/2017		SeqNo: 1283607		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	LCS-30364		SampType: LCS		TestCode: EPA Method 6010B: TCLP Metals					
Client ID:	LCSW		Batch ID: 30364		RunNo: 40975					
Prep Date:	2/23/2017		Analysis Date: 2/24/2017		SeqNo: 1283608		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	104	80	120			
Barium	ND	100	0.5000	0	99.2	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	97.6	80	120			
Lead	ND	5.0	0.5000	0	95.9	80	120			
Selenium	ND	1.0	0.5000	0	102	80	120			
Silver	ND	5.0	0.1000	0	102	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



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: 1702797

RcptNo: 1

Received by/date:

AS 02/16/17

Logged By: Anne Thorne

2/16/2017 1:19:00 PM

Anne Thorne

Completed By: Anne Thorne

2/17/2017 8:12:48 AM

Anne Thorne

Reviewed By:

[Signature]

02/17/17

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 ☐
- Samples were collected the same day and chilled.**
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: ☐ 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	7.7	Good	Not Present			

