3R - 453

2015 CA REPORT

06/01/2015





June 1, 2015

Return Receipt Requested 7014 0510 0002 3586 2408

Mr. Steve Austin Navajo Nation Environmental Protection Agency P.O. Box 1999 Shiprock, New Mexico 87420

RE: Corrective Action Report - Soil Removal

Enterprise Field Services, LLC - Federal 2E #1 Pipeline Release

San Juan County, New Mexico

OCD RP: 3R-453

Dear Mr. Austin:

Please find attached a copy of the above-referenced report prepared by Apex TITAN, LLC (Apex). The report is associated with the Enterprise Field Services, LLC (Enterprise) Federal 2E #1 pipeline release that occurred on March 15, 2012.

The activities detailed in the attached *Corrective Action Report* include the second excavation program to remove hydrocarbon-affected soils completed at the site during March 2014. Based on confirmation sample analytical results (and further supported by results from adjacent soil borings advanced during previous site investigation activities), no affected soils remain at the site. However, Groundwater impact in excess of New Mexico Water Quality Control Commission *Groundwater Quality Standards* remains at the site. Enterprise is currently attempting to obtain monitoring well/water use permits from the Navajo Nation to facilitate the completion of groundwater delineation at the site.

Enterprise appreciates the Navajo Nation's continued assistance and guidance with this project. Should you have any questions, comments or concerns, or require additional information, please feel free to contact me any time at 713-381-8780, or at genrod.com.

Sincerely,

Gregory E. Miller, P.G.

Supervisor, Environmental

/dep

Rodney M. Sartor, REM Director, Environmental

Attachments

ec: Mr. Glenn von Gonten - NMOCD, Santa Fe, NM



CORRECTIVE ACTION REPORT - SOIL REMOVAL

Property:

Federal 2E #1 Pipeline Release SW ¼ NE ¼, S2 T27N R12W San Juan County, New Mexico 3RP-453

April 21, 2015 Apex Project No. 7030413G002

Prepared for:

Enterprise Field Services, LLC P. O. Box 4324 Houston, Texas 77210-4324 Attention: Mr. Greg Miller, P.G.

Prepared by:

Kyle Summers, CPG Senior Project Manager

Elizabeth Scaggs, P.G.

Division Manager



Corrective Action Report – Soil Removal Federal 2E #1 Pipeline Release Executive Summary

The Federal 2E #1 pipeline release site is located in the Navajo Agricultural Products Industry's Field 409A, off County Road 7010, in Section 2, Township 27N, Range 12W San Juan County, Navajo Nation, New Mexico (36.60681N, 108.08013W). The site is located in an agricultural field irrigated by center-pivot irrigation. An Enterprise Field Services (Enterprise) natural gas pipeline transects the field from southwest to northeast, where it ties in to the meter house of the Energen Resources Corporation operated Federal 2E #1 well site.

The natural gas condensate release was discovered during March 2012, at which time the line was repaired and petroleum hydrocarbon affected soils in the vicinity of the release were excavated and transported to the Envirotech, Inc. landfarm near Hilltop, NM for treatment/disposal. Animas Environmental Services advanced soil borings in the vicinity of the release, and the laboratory analysis of a groundwater sample collected from the bore hole of boring SB-2 exhibited concentrations of benzene, toluene, and total xylenes above the New Mexico Water Quality Control Commission Groundwater Quality Standards. An additional open borehole sample was collected during January 2013 demonstrating similar analytical results.

During April 2013, Apex TITAN, Inc. (formerly Southwest Geoscience) performed a groundwater investigation at the site. The investigation identified benzene, toluene, and total xylenes in groundwater at concentrations above the New Mexico WQCC Groundwater Quality Standards (Supplemental Environmental Site Investigation, dated May 28, 2013 – Southwest Geoscience).

During March 2014, Enterprise initiated a second excavation program to remove hydrocarbon-affected soils suspected to remain beyond the vertical extent of the original excavation. Approximately 888 cubic yards of hydrocarbon-affected soils were subsequently removed from the site and transported to the Envirotech, Inc. landfarm near Hilltop, NM for treatment/disposal.

- Eleven (11) confirmation samples were subsequently collected from the resulting excavation. Based on the confirmation sample analytical results and further supported by results from adjacent soil borings previously advanced during the 2013 Supplemental Environmental Site Investigation, no affected soils remain at the site. Details of the March 2014 corrective actions are provided herein.
- Groundwater impact in excess of New Mexico WQCC GQSs remains at the site.
 Enterprise has thus far been unable to obtain monitoring well/water use permits (lacking one (1) Council Member's signature) from the Navajo Nation to facilitate the completion of groundwater delineation at the site.

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CORRECTIVE ACTION REPORT - SOIL REMOVAL

Federal 2E #1 Pipeline Release SW 1/4 NE 1/4, S2 T27N R12W San Juan County, New Mexico

Apex Project No. 7030413G002

1.0 INTRODUCTION

The Federal 2E #1 pipeline release site, referred to hereinafter as the "Site" or "subject Site" is located in the Navajo Agricultural Products Industry's (NAPI) Field 409A, off County Road (CR) 7010, in Section 2, Township 27N, Range 12W, San Juan County, Navajo Nation, New Mexico (36.60681N, 108.08013W). The Site is located in an agricultural field irrigated by center-pivot irrigation. An Enterprise Field Services (Enterprise) natural gas gathering pipeline transects the NAPI field from southwest to northeast, where it ties in to the meter house of the Energen Resources Corporation operated Federal 2E #1 well site. The general depth of the pipeline is considered to be between 6 feet to 10 feet below grade surface (bgs) beneath the cultivated field.

On March 15, 2012, a natural gas condensate release was discovered by NAPI personnel and reported to Enterprise. The pipeline was isolated and repaired, and petroleum hydrocarbon affected soils in the vicinity of the release were excavated and transported to the Envirotech, Inc. (Envirotech) landfarm near Hilltop, NM for treatment/disposal. Additionally, Animas Environmental Services (AES) advanced soil borings in the vicinity of the release and the laboratory analysis of a groundwater sample collected from the bore hole of boring SB-2 exhibited concentrations of benzene, toluene, and total xylenes above the New Mexico Water Quality Control Commission (WQCC) *Groundwater Quality Standards (GQSs)*.

During January 2013, AES collected one (1) groundwater sample from an open borehole within the former excavation footprint. The groundwater sample collected from soil boring PMW-1 was analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX). Based on the laboratory analytical results, the groundwater sample exhibited groundwater concentrations of BTEX constituents that exceeded New Mexico WQCC standards.

During April 2013, Enterprise coordinated with NAPI and the Navajo Nation Environmental Protection Agency (NNEPA) to initiate constituents of concern (COC) delineation activities at the site under the *Supplemental Site Investigation Work Plan* dated April 4, 2013. The resulting investigation identified benzene, toluene, and total xylenes in groundwater at concentrations above the New Mexico WQCC *GQSs* (*Supplemental Environmental Site Investigation*, dated May 28, 2013 – Southwest Geoscience (SWG)). Based on groundwater COC concentrations and data from the previous corrective and investigative actions, Enterprise suspected hydrocarbonaffected soils remained in place at the Site.

A topographic map depicting the location of the Site is included as Figure 1, and a Site Vicinity Map is included as Figure 2, Appendix A.



1.1 Project Objective

The primary objective of the corrective actions was to reduce the concentration of COCs in the on-Site soils to below the New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), Oil Conservation Division (OCD) Remediation Action Levels using the New Mexico EMNRD OCD's Guidelines for Remediation of Leaks, Spills and Releases as guidance.

2.0 SITE RANKING

In accordance with the New Mexico ENMRD OCD's *Guidelines for Remediation of Leaks, Spills and Releases*, Apex utilized the general site characteristics obtained during the completion of corrective action activities and information available from the Office of the New Mexico Office of the State Engineer (OSE) to determine the appropriate "ranking" for the Site. The ranking criteria and associated scoring are provided in the following table:

Rankin	Ranking Criteria						
	<50 feet	20	· •				
Depth to Groundwater	50 to 99 feet	10	20				
	>100 feet	0					
Wellhead Protection Area • <1,000 feet from a water	Yes	20	0				
source, or; <200 feet from private domestic water source.	No	0					
	<200 feet	20					
Distance to Surface Water Body	200 to 1,000 feet	10	0				
	>1,000 feet 0						
Total Ran	20						

Based on Apex's evaluation of the scoring criteria, the Site would have a maximum Total Ranking Score of "20". This ranking is based on the following:

- Depth to groundwater is less than 50 feet bgs, resulting in a depth to groundwater ranking of "20".
- No water source wells (municipal/community wells) were identified within 1,000 feet of the Site. No private domestic water sources were identified within 200 feet of the Site. The lack of water source proximities results in a wellhead protection area ranking of "0".
- The release point is located greater than 1,000 feet from surface water bodies, resulting in a distance to surface water ranking of "0".

3.0 CORRECTIVE ACTIONS

3.1 Soil Excavation Activities

During March 2014, Enterprise initiated a second excavation program at the Site to remove hydrocarbon-affected soils suspected to remain beyond the vertical extent of the original excavation. During the corrective action activities, West States Energy Contractors, Inc., provided heavy equipment and labor support, and Kyle Summers and Aaron Bryant, Apex environmental professionals, provided environmental support.

Piezometer P-5 (previously installed during the 2013 Supplemental Environmental Site Investigation) was removed during the excavation activities to allow access to the deeper affected



soils. Groundwater was encountered at approximately 17 feet bgs, and soils in affected areas were over-excavated approximately one (1) to three (3) feet below the static water level.

The lithology encountered during the completion of corrective action activities consisted primarily of silty sand underlain by weathered sandstone bedrock. The overall average surface expression of the excavation (excluding those areas where ramps were excavated to allow deeper access) measured approximately 50 feet long by 50 feet wide, with a total depth ranging from 12 to 20 feet bgs.

A total of approximately 888 cubic yards of hydrocarbon affected soils were transported to the Envirotech landfarm near Hilltop, New Mexico for disposal/treatment. The executed Form C-138 is provided in Appendix B. The excavation was backfilled with clean/unaffected fill and contoured to surrounding grade.

Figure 3 of Appendix A is a site map, and Figure 4 provides the extents of the excavation and the corresponding confirmation sample locations in relation to Site features. Photographic documentation of the field activities is included in Appendix C.

3.2 Soil Sampling Program

Apex screened head-space samples of Site soils with a photoionization detector (PID) fitted with a 10.6 eV lamp.

Apex's soil sampling program included the collection of eleven (11) final confirmation samples (S-1 through S-11) from the resulting excavation for laboratory analysis. Grab samples were collected based on relative PID readings or other evidence of potential impact, and field composite samples were collected, utilizing the excavator, from areas that demonstrated no evidence of impact (and/or based on OCD field representative input). Figure 4 depicts the approximate location of the excavated area and shows the final confirmation sample locations in relation to the final excavation dimensions (Appendix A).

The confirmation soil samples were collected and placed in laboratory prepared glassware, labeled/sealed using the laboratory supplied labels, and placed on ice in a cooler, which was secured with a custody seal. The sample cooler and completed chain-of-custody form were relinquished to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, for analysis.

3.3 Laboratory Analytical Methods

The confirmation soil samples were analyzed for BTEX utilizing Environmental Protection Agency (EPA) SW-846 Method #8021, and total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and diesel range organics (DRO) utilizing EPA SW-846 Method #8015.

Laboratory results are summarized in Table 1, included in Appendix D. The executed chain-of-custody form and laboratory data sheets are provided in Appendix E.

4.0 DATA EVALUATION

The Site is subject to regulatory oversight by the New Mexico EMNRD OCD and the NNEPA. To address activities related to condensate releases, the New Mexico EMNRD OCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the OCD rules, specifically New Mexico Administrative Code 19.15.29 *Release Notification*. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.



4.1 Confirmation Soil Samples

Apex compared the BTEX and TPH concentrations or reporting limits associated with the final confirmation samples (S-1 through S-11) collected from the excavated area to the OCD Remediation Action Levels for sites having a total ranking score of "20".

- The laboratory analyses of confirmation samples collected from soils remaining in place do not indicate benzene concentrations above the laboratory reporting limits, which are below the OCD Remediation Action Level.
- The laboratory analyses of the confirmation samples collected from soils remaining in place do not indicate total BTEX concentrations above the laboratory reporting limits, which are below the OCD Remediation Action Level.
- The laboratory analyses of the confirmation samples collected from soils remaining in place do not indicate combined TPH GRO/DRO concentrations above the laboratory reporting limits, which are below the OCD Remediation Action Level for a Site ranking of "20"

Confirmation sample results and pertinent supporting soil boring analytical results from the 2013 Supplemental Environmental Site Investigation are provided in Table 1 in Appendix D.

5.0 FINDINGS AND RECOMMENDATIONS

The Federal 2E #1 pipeline release site is located in the NAPI Field 409A, off CR 7010, in Section 2, Township 27N, Range 12W, San Juan County, Navajo Nation, New Mexico. The Site is located in an agricultural field irrigated by pivot irrigation. An Enterprise natural gas gathering pipeline transects the NAPI field from southwest to northeast, where it ties in to the meter house of the Energen Resources Corporation operated Federal 2E #1 well site. The general depth of the pipeline is considered to be between 6 feet to 10 feet below grade surface beneath the cultivated field.

During March 2014, Enterprise initiated a second excavation program to remove hydrocarbon-affected soils suspected to remain beyond the vertical extent of the original excavation.

- The primary objective of the corrective actions was to reduce the concentration of COCs in the on-Site soils to below the New Mexico EMNRD OCD Remediation Action Levels using the New Mexico EMNRD OCD's Guidelines for Remediation of Leaks, Spills and Releases as guidance.
- The lithology encountered during the completion of corrective action activities consisted primarily of silty sand underlain by weathered sandstone bedrock. The overall average surface expression of the affected portion of the excavation measured approximately 50 feet long by 50 feet wide, with a total depth ranging from 12 to 20 feet bgs.
- Prior to backfilling, eleven (11) final confirmation samples were collected from the resulting excavation for laboratory analyses. Based on analytical results from the confirmation samples as well as previously advanced soil borings, soils remaining in place do not exhibit COC concentrations above the OCD Remediation Action Levels for a Site ranking of "20".



A total of approximately 888 cubic yards of hydrocarbon affected soils were transported to the Envirotech landfarm near Hilltop, New Mexico for disposal/treatment. The excavation was backfilled with clean/unaffected fill and contoured to surrounding grade.

Based on field observations and laboratory analytical results, no additional investigation or corrective action with respect to Site soils appears warranted at this time.

Groundwater impact in excess of New Mexico WQCC GQSs remains at the Site. Enterprise has thus far been unable to obtain monitoring well/water use permits from the Navajo Nation to facilitate the completion of groundwater delineation at the Site.

6.0 STANDARD OF CARE, LIMITATIONS, AND RELIANCE

Apex's services were performed in accordance with standards customarily provided by a firm rendering the same or similar services in the area during the same time period. Apex makes no warranties, expressed or implied, as to the services performed hereunder. Additionally, Apex does not warrant the work of third parties supplying information used in the report (e.g. laboratories, regulatory agencies, or other third parties). This scope of services was performed in accordance with the scope of work agreed with the client.

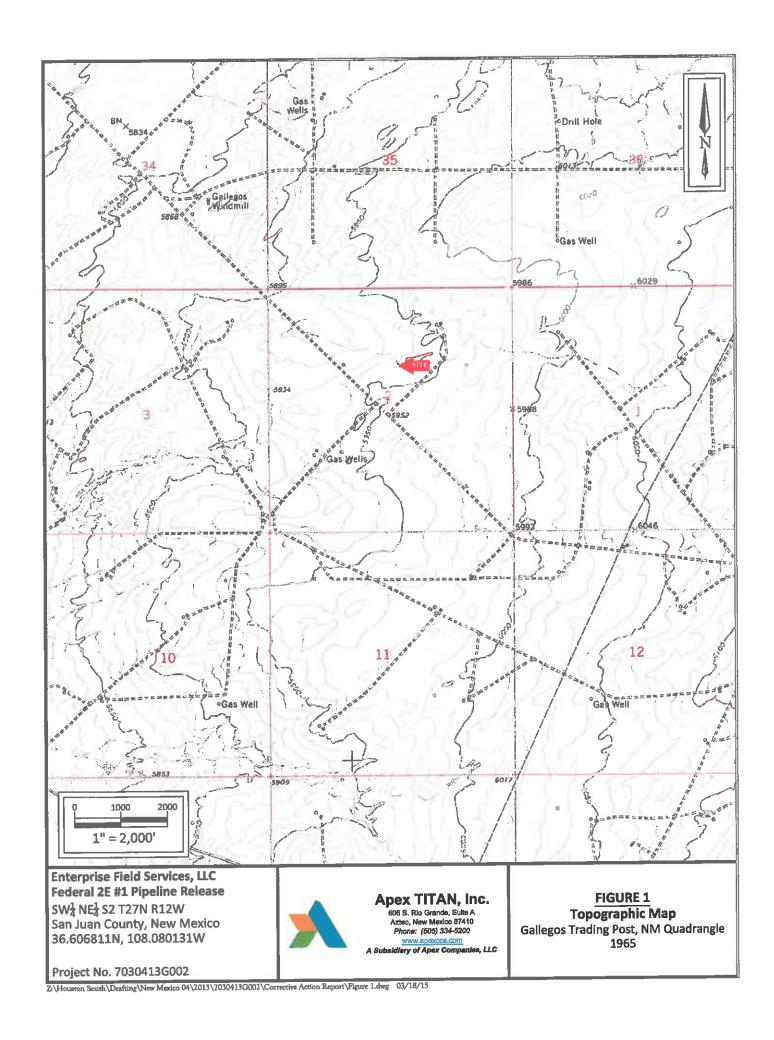
Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-Site activities and other services performed under this scope of work and it should be noted that this information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, or not present during these services, and Apex cannot represent that the Site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this scope of services. Environmental conditions at other areas or portions of the Site may vary from those encountered at actual sample locations. Apex's findings and recommendations are based solely upon data available to Apex at the time of these services.

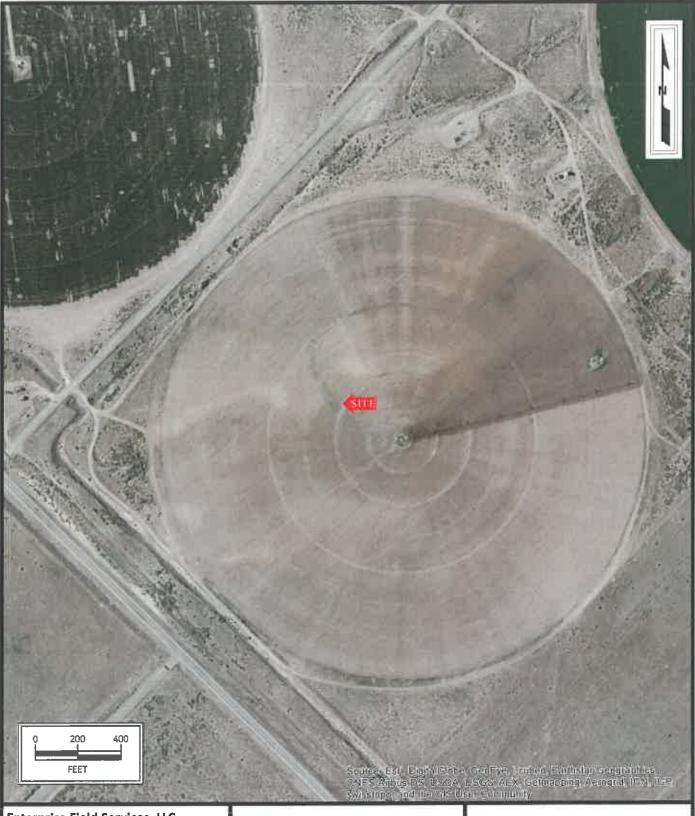
This report has been prepared for the exclusive use of Enterprise, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the Site) is prohibited without the expressed written authorization of Enterprise and Apex. Any unauthorized distribution or reuse is at the client's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in the proposal, the report, and Apex's Agreement. The limitation of liability defined in the agreement is the aggregate limit of Apex's liability to the client.



APPENDIX A

Figures





Enterprise Field Services, LLC Federal 2E #1 Pipeline Release SW1/4 NE1/4 S2 T27N R12W San Juan County, New Mexico 36.606811N, 108.080131W

Apex TITAN, Inc. 606 South Rio Grande, Suite A Azlec, NM 87410 Phane: (505) 334-5200 www.apexcos.com
A Subsidiary of Apex Companies, LLC

FIGURE 2 **Site Vicinity Map**

Project No. 7030413G002

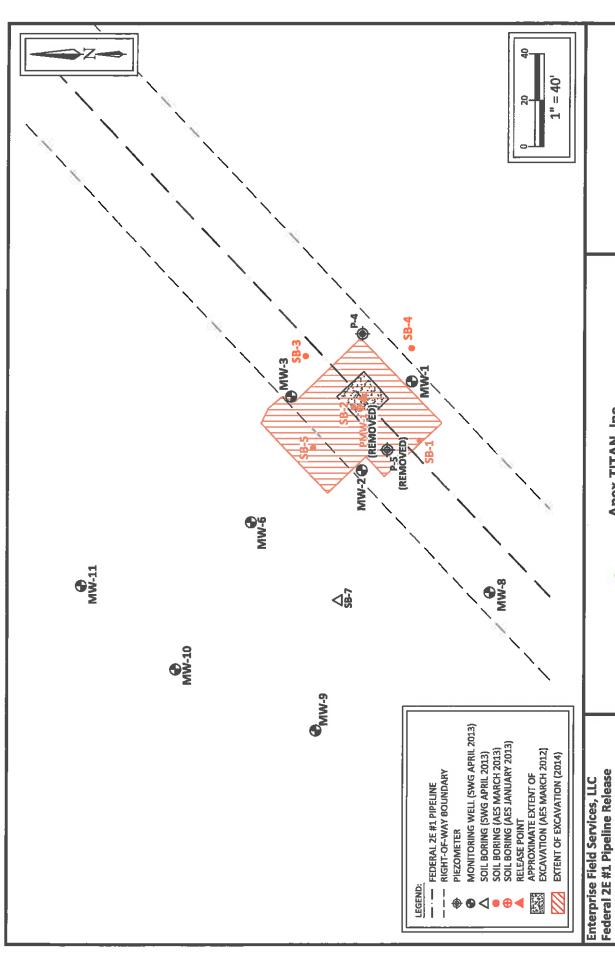


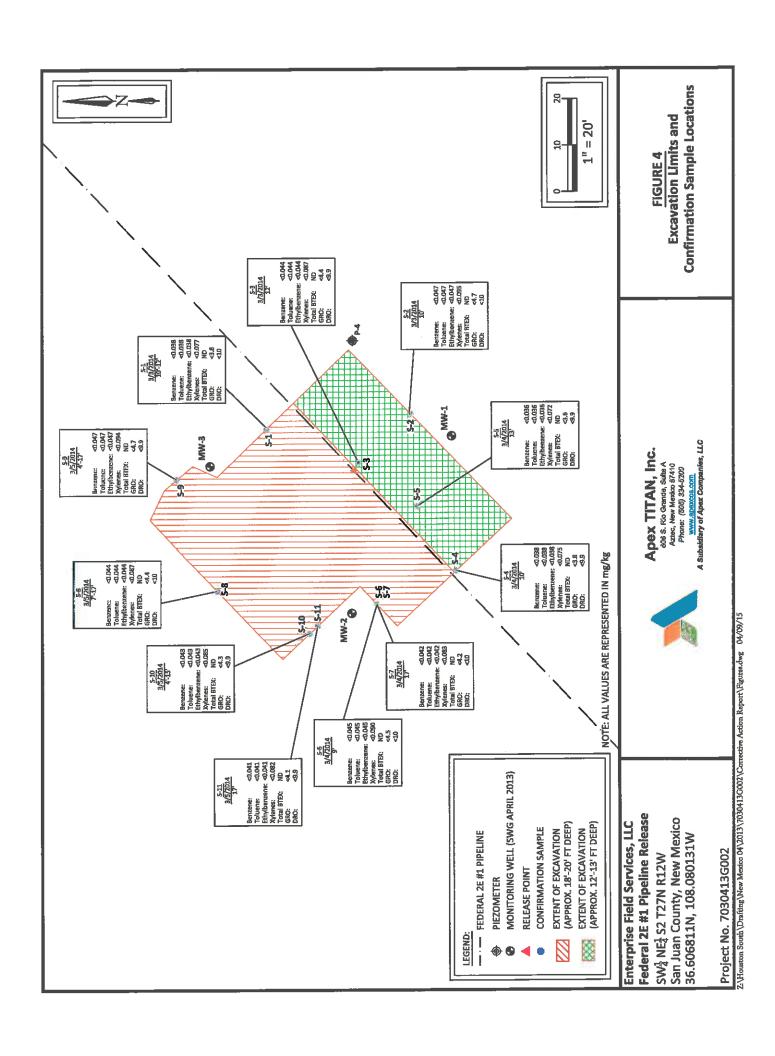
FIGURE 3

SW4 NE4 S2 T27N R12W San Juan County, New Mexico 36.606811N, 108.080131W

Apex TITAN, Inc.
808 S. Rio Grande, Sulta A
Actiec, New Mexico 87410
Priorie: (608) 334-5500
WWW ABRICOS COM

A Subsidiary of Apex Companies, LLC

Project No. 7030413G002
Z.\Houston South\Drafting\New Medico 04\2013\7030413G002\Corrective Action Report\Pigures.dwg 04/09/15





APPENDIX B

Executed C-138 Solid Waste Acceptance Form

District I
1625 N, French Dr., Hobbs, NM 88240
District II
1301 W, Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources 97057-0627

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 71057-0627 Re

Form C-138 Revised 08/01/11

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. Generator Name and Address: Enterprise Field Services, LLC, 614 Reilly Ave, Farmington NM 87401 Paykey Code: RB21200
2. Originating Site: Federal 2E #1 Well Tie Mar. 14
3. Location of Material (Street Address, City, State or ULSTR): Unit G Sec 2 T 27N R 12W, San Juan County, NM
4. Source and Description of Waste: Source: Natural Gas Pipeline Release Description: Exempt hydrocarbon affected soil from clean-up efforts at natural gas gathering pipeline release. Estimated Volume 50 yd³/bbls Known Volume (to be entered by the operator at the end of the haul) yd³/bbls
5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS
I,, representative or authorized agent for Enterprise Field Services, LLC do hereby Generator Signature certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)
RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. **Operator Use Only: Waste Acceptance Frequency Monthly Weekly Per Load**
☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)
☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☑ Process Knowledge ☐ Other (Provide description in Box 4)
GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS
I,, representative for Enterprise Field Services, LLC authorize ENVIROTECH to complete Generator Signature
the required testing/sign the Generator Waste Testing Certification.
I,
representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results
of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.
5. Transporter: -IMI, WestStates or unknown trucking company on OCD approved haulers list. Fredo Ferms, MMT,
OCD Permitted Surface Waste Management Facility Doug Fout z const. Moss, Figing M
Name and Facility Permit #: Envirotech, Inc. Soil Remediation Facility * Permit #: NM 01-0011
Address of Facility: Hilltop, NM
Method of Treatment and/or Disposal: Evaporation Injection Treating Plant Landfarm I Landfill Other
Waste Acceptance Status: APPROVED DENIED (Must Be Maintained As Permanent Record)
PRINT NAME: Greg Crabfree SIGNATURE: Surface Waste Management Facility Authorized Agent TITLE: Environmental Manager DATE: 3/3/14 TELEPHONE NO.: 505-632-0615



APPENDIX C

Photographic Documentation



Photograph 1

View of early stages of excavation facing west.



Photograph 2

View of stained soil beneath pipeline.



Photograph 3

View of removal of clean imported backfill from original 2012 excavation.



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Photograph 4

View of early stage of excavation facing north.



Photograph 5

View excavation after majority of backfill from original excavation as well as some hydrocarbon-affected material immediately below the pipeline had been removed.



Photograph 6

View of partially completed excavation, facing north. The dark brown spot on the northeast wall is a weathered concretion.



Apex Job #7030413G002 Page 2 | 3



Photograph 7

View of ramp facing east. Ramps were utilized to give the excavator better access.



Photograph 8

View of Site at the completion of corrective action activities facing northwest.



Photograph 9

View of Site after completion of corrective action activities facing south.



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APPENDIX D

Table



TABLE 1 Federal 2E #1 Pipeline Release SOIL ANALYTICAL SUMMARY

Sample I.D.	Date	Sample	Sample Type	Benzene	Toluene	Ethylbenzene	Xylenes	Total BTEX	TPH	TPH
		Depth (feet bgs)	Composite - C Grab - G	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	GRO (mg/kg)	DRO (mg/kg)
New Mexico Energy, Mineral & Natural Rescources Department, Oli Conservation Division, Remediation Action Level			10	NE	NE	NE	50	10	00	
Auto and	T dust to acc		Pertinent Soil Bori	ng Samples fr	om the 2013 Si	upplemental Site Inv	estigation			18.7
MVV-1	4.11.13	2	G	<0.047	<0.047	<0.047	<0.095	ND	<4.7	<10
MW-1	4.11.13	7	G	<0.046	<0.046	<0.046	<0.092	ND	<4.6	<9.9
MW-1	4.11.13	15	G	<0.046	<0.046	<0.046	<0.092	ND	<4.6	<10
MW-2	4.11.13	2	G	<0.046	<0.046	<0.046	<0.092	ND	<4.6	<10
MW-2	4.11.13	5	G	<0.046	<0.046	<0.046	<0.092	ND	<4.6	<10
MW-2	4.11.13	17	G	<0.048	<0.048	<0.048	<0.097	ND	<4.8	<9,9
MW-3	4.11.13	1	G	<0.048	<0.048	<0.048	<0.096	ND	<4.8	<9.9
MW-3	4.11.13	5	G	<0.047	< 0.047	<0.047	<0.093	ND	<4.7	<10
MW-3	4.11.13	15	G	<0.048	<0.048	<0.048	<0.097	ND	<4.8	<10
P-4	4.12.13	2	G	<0.047	<0.047	<0.047	<0.095	ND	<4.7	<10
P-4	4.12.13	7	G	<0.046	<0.046	<0.046	<0.092	ND	<4.6	<10
P-5	4.12.13	1	G	<0.048	<0.048	<0.048	<0.096	ND	<4.8	<10
P-5	4.12.13	8	G	<0.047	<0.047	<0.047	<0.094	ND	<4.7	<10
		Excavation Confl	rmátion Samples - D	riginal (2012) E	xcavation Lin	its Resampled Duri	ig 2014 Excav	ation Activities		in the second
S-1	3.3.14	10 to 12	G	<0.038	<0.038	<0.038	<0.077	ND	<3.8	<10
S-2	3.3.14	10	G	<0.047	<0.047	<0.047	<0.095	ND	<4.7	<10
S-3	3.3.14	12	C (3 aliquot)	<0.044	<0.044	<0.044	<0.087	ND	<4.4	<9.9
S-4	3.4.14	10	G	<0.038	<0.038	<0.038	<0.075	ND	<3.8	<9.9
S-5	3,4,14	13	C (2 aliquot)	<0.036	<0.036	<0.036	<0.072	ND	<3.6	<9.9
			Excavation Confirm	ation Samples	- Previously t	Indiaturbed Excavat	ion Limits			1 11.
S-6	3.4.14	9	G	<0.045	< 0.045	<0.045	<0.090	ND	<4.5	<10
S-7	3.4.14	17	G	<0.042	<0.042	<0.042	<0.083	ND	<4.2	<10
S-8	3.5.14	7 to 17	C (5 aliquot)	<0.044	<0.044	<0.044	<0.087	ND	<4.4	<10
S-9	3.5.14	4 to 17	C(3 allquot)	<0.047	<0.047	<0.047	<0.094	ND	<4.7	<9.9
S-10	3.5.14	4 to 15	C (4 aliquot)	<0.043	<0.043	<0.043	<0.085	ND	<4.3	<9.9
S-11	3.5.14	17	G	<0.041	<0.041	<0.041	<0.082	ND	<4.1	<9.9

Note Concentrations in **bold** and yellow exceed the applicable OCD Remediation Action Level

NA=Not Analyzed

ND=Not Detected at the Reporting Limit

NE=Not Established



APPENDIX E

Laboratory Data Sheets & Chain of Custody Documentation



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

March 07, 2014

Kyle Summers
Southwest Geoscience
606 S. Rio Grande Unit A
Aztec, NM 87410
TEL: (003) 821-5603

TEL: (903) 821-5603 FAX (214) 350-2914

RE: Fed 2E OrderNo.: 1403224

Dear Kyle Summers:

Hall Environmental Analysis Laboratory received 11 sample(s) on 3/6/2014 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,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 3/7/2014

CLIENT: Southwest Geoscience

Client Sample ID: S-1

Project: Fed 2E

Collection Date: 3/3/2014 3:00:00 PM

Lab ID: 1403224-001

Matrix: MEOH (SOIL) Received Date: 3/6/2014 10:20:00 AM

Analyses	Result	RL Qı	ıal Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E ORGANICS				Analys	t: BCN
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	3/6/2014 12:29:29 PM	12048
Surr: DNOP	82.3	66-131	%REC	1	3/6/2014 12:29:29 PM	12048
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: JMP
Gasoline Range Organics (GRO)	ND	3.8	mg/Kg	1	3/6/2014 11:33:44 AM	R17143
Surr: BFB	85.4	74.5-129	%REC	1	3/6/2014 11:33:44 AM	R17143
EPA METHOD 8021B: VOLATILES					Analys	t: JMP
Benzene	ND	0.038	mg/Kg	1	3/6/2014 11:33:44 AM	R17143
Toluene	ND.	0.038	mg/Kg	1	3/6/2014 11:33:44 AM	R17143
Ethylbenzene	ND	0.038	mg/Kg	1	3/6/2014 11:33:44 AM	R17143
Xylenes, Total	ND	0.077	mg/Kg	1	3/6/2014 11:33:44 AM	R17143
Surr: 4-Bromofluorobenzene	103	80-120	%REC	1	3/6/2014 11:33:44 AM	R17143

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDI mit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 3/7/2014

CLIENT: Southwest Geoscience Client Sample ID: S-2

 Project:
 Fed 2E
 Collection Date: 3/3/2014 3:10:00 PM

 Lab ID:
 1403224-002
 Matrix: MEOH (SOIL)
 Received Date: 3/6/2014 10:20:00 AM

Analyses	Result	RL Q	ıal Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGI	E ORGANICS				Analys	t: BCN
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	3/6/2014 12:51:35 PM	12048
Surr: DNOP	83.4	66-131	%REC	1	3/6/2014 12:51:35 PM	12048
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: JMP
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	3/6/2014 12:02:17 PM	R17143
Surr: BFB	84.8	74.5-129	%REC	1	3/6/2014 12:02:17 PM	R17143
EPA METHOD 8021B: VOLATILES					Analys	t: JMP
Benzene	ND	0.047	mg/Kg	1	3/6/2014 12:02:17 PM	R17143
Toluene	ND	0.047	mg/Kg	1	3/6/2014 12:02:17 PM	R17143
Ethylbenzene	ND	0.047	mg/Kg	1	3/6/2014 12:02:17 PM	R17143
Xylenes, Total	ND	0.095	mg/Kg	1	3/6/2014 12:02:17 PM	R17143
Surr: 4-Bromofluorobenzene	99.7	80-120	%REC	1	3/6/2014 12:02:17 PM	R17143

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2 of 16
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 3/7/2014

CLIENT: Southwest Geoscience

Client Sample ID: S-3

Project: Fed 2E

Collection Date: 3/3/2014 3:20:00 PM

Lab ID: 1403224-003

Matrix: MEOH (SOIL) Received Date: 3/6/2014 10:20:00 AM

Analyses	Result	RL Q	ıal Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E ORGANICS				Analys	t: BCN
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	3/6/2014 1:35:57 PM	12048
Surr: DNOP	83.2	66-131	%REC	1	3/6/2014 1:35:57 PM	12048
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: JMP
Gasoline Range Organics (GRO)	ND	4.4	mg/Kg	1	3/6/2014 12:30:46 PM	R17143
Surr: BFB	84.8	74.5-129	%REC	1	3/6/2014 12:30:46 PM	R17143
EPA METHOD 8021B: VOLATILES					Analys	t: JMP
Benzene	ND	0.044	mg/Kg	1	3/6/2014 12:30:46 PM	R17143
Toluene	ND	0.044	mg/Kg	1	3/6/2014 12:30:46 PM	R17143
Ethylbenzene	ND	0.044	mg/Kg	1	3/6/2014 12:30:46 PM	R17143
Xylenes, Total	ND	0.087	mg/Kg	1	3/6/2014 12:30:46 PM	R17143
Surr: 4-Bromofluorobenzene	99.7	80-120	%REC	1	3/6/2014 12:30:46 PM	R17143

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.

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RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 3/7/2014

CLIENT: Southwest Geoscience

Client Sample ID: S-4

Project: Fed 2E

Collection Date: 3/4/2014 9:40:00 AM

Lab ID: 1403224-004

Matrix: MEOH (SOIL)

Received Date: 3/6/2014 10:20:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE	ORGANICS				Analys	BCN
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	3/6/2014 1:58:14 PM	12048
Surr: DNOP	83.5	66-131	%REC	1	3/6/2014 1:58:14 PM	12048
EPA METHOD 8015D: GASOLINE RAI	NGE				Analys	: JMP
Gasoline Range Organics (GRO)	ND	3.8	mg/Kg	1	3/6/2014 12:59:23 PM	R17143
Surr: BFB	83.9	74.5-129	%REC	1	3/6/2014 12:59:23 PM	R17143
EPA METHOD 8021B: VOLATILES					Analyst	: JMP
Benzene	ND	0.038	mg/Kg	1	3/6/2014 12:59:23 PM	R17143
Toluene	ND	0.038	rng/Kg	1	3/6/2014 12:59:23 PM	R17143
Ethylbenzene	NĐ	0.038	mg/Kg	1	3/6/2014 12:59:23 PM	R17143
Xylenes, Total	ND	0.075	mg/Kg	1	3/6/2014 12:59:23 PM	R17143
Surr: 4-Bromofluorobenzene	97.9	80-120	%REC	1	3/6/2014 12:59:23 PM	R17143

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1403224

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 3/7/2014

CLIENT: Southwest Geoscience

Client Sample ID: S-5

Project: Fed 2E

Collection Date: 3/4/2014 10:00:00 AM

Lab ID: 1403224-005

Matrix: MEOH (SOIL)

Received Date: 3/6/2014 10:20:00 AM

Analyses	Result	RL Qua	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E ORGANICS				Analys	t: BCN
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	3/6/2014 2:20:28 PM	12048
Surr: DNOP	84.9	66-131	%REC	1	3/6/2014 2:20:28 PM	12048
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: JMP
Gasoline Range Organics (GRO)	ND	3.6	mg/Kg	1	3/6/2014 1:28:02 PM	R17143
Surr: BFB	85.1	74.5-129	%REC	1	3/6/2014 1:28:02 PM	R17143
EPA METHOD 8021B: VOLATILES					Analys	t: JMP
Benzene	ND	0.036	mg/Kg	1	3/6/2014 1:28:02 PM	R17143
Toluene	ND	0.036	mg/Kg	1	3/6/2014 1:28:02 PM	R17143
Ethylbenzene	ND	0.036	mg/Kg	1	3/6/2014 1:28:02 PM	R17143
Xylenes, Total	ND	0.072	mg/Kg	1	3/6/2014 1:28:02 PM	R17143
Surr: 4-Bromofluorobenzene	99.1	80-120	%REC	1	3/6/2014 1:28:02 PM	R17143

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1403224

Date Reported: 3/7/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Client Sample ID: S-6

Project: Fed 2E

Collection Date: 3/4/2014 2:30:00 PM

Lab ID: 1403224-006

Matrix: MEOH (SOIL) Received Date: 3/6/2014 10:20:00 AM

Analyses	Result	RL Qu	tal Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGI				Analys	t: BCN	
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	3/6/2014 2:42:51 PM	12048
Surr: DNOP	82.8	66-131	%REC	1	3/6/2014 2:42:51 PM	12048
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: JMP
Gasoline Range Organics (GRO)	ND	4.5	mg/Kg	1	3/6/2014 1:56:39 PM	R17143
Sum: BFB	84.7	74.5-129	%REC	1	3/6/2014 1:56:39 PM	R17143
EPA METHOD 8021B; VOLATILES					Analys	t: JMP
Benzene	ND	0.045	mg/Kg	1	3/6/2014 1:56:39 PM	R17143
Toluene	ND	0.045	mg/Kg	1	3/6/2014 1:56:39 PM	R17143
Ethylbenzene	ND	0.045	mg/Kg	1	3/6/2014 1:56:39 PM	R17143
Xylenes, Total	ND	0.090	mg/Kg	1	3/6/2014 1:56:39 PM	R17143
Surr: 4-Bromofluorobenzene	98.6	80-120	%REC	1	3/6/2014 1:56:39 PM	R17143

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1403224

Date Reported: 3/7/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Client Sample ID: S-7

Project: Fed 2E

Collection Date: 3/4/2014 2:35:00 PM

Lab ID: 1403224-007

Matrix: MEOH (SOIL) Received Date: 3/6/2014 10:20:00 AM

Analyses	Result	RL	Qual U	nits	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE					Analys	t: BCN	
Diesel Range Organics (DRO)	ND	10	m	ng/Kg	1	3/6/2014 3:05:06 PM	12048
Surr: DNOP	84.2	66-131	%	6REC	1	3/6/2014 3:05:06 PM	12048
EPA METHOD 8015D: GASOLINE RAN					Analys	t: JMP	
Gasoline Range Organics (GRO)	ND	4.2	m	ng/Kg	1	3/6/2014 2:25:14 PM	R17143
Surr: BFB	86.6	74.5-129	%	6REC	1	3/6/2014 2:25:14 PM	R17143
EPA METHOD 8021B: VOLATILES						Analys	t: JMP
Benzene	ND	0.042	m	ng/Kg	1	3/6/2014 2:25:14 PM	R17143
Toluene	ND	0.042	m	ng/Kg	1	3/6/2014 2:25:14 PM	R17143
Ethylbenzene	ND	0.042	m	ng/Kg	1	3/6/2014 2:25:14 PM	R17143
Xylenes, Total	ND	0.083	m	ng/Kg	1	3/6/2014 2:25:14 PM	R17143
Surr: 4-Bromofluorobenzene	103	80-120	%	&REC	1	3/6/2014 2:25:14 PM	R17143

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page
- P Sample pH greater than 2.

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RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 3/7/2014

CLIENT: Southwest Geoscience

Client Sample ID: S-8

Project: Fed 2E

Collection Date: 3/5/2014 12:00:00 PM

Lab ID: 1403224-008

Matrix: MEOH (SOIL) Received Date: 3/6/2014 10:20:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	SE ORGANICS				Analys	t: BCN
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	3/6/2014 3:27:48 PM	12048
Surr: DNOP	84.3	66-131	%REC	1	3/6/2014 3:27:48 PM	12048
EPA METHOD 8015D: GASOLINE RA	ANGE				Analys	t: JMP
Gasoline Range Organics (GRO)	ND	4.4	mg/Kg	1	3/6/2014 2:53:48 PM	R17143
Surr: BFB	86.1	74.5-129	%REC	1	3/6/2014 2:53:48 PM	R17143
EPA METHOD 8021B: VOLATILES					Analys	t: JMP
Benzene	ND	0.044	mg/Kg	1	3/6/2014 2:53:48 PM	R17143
Toluene	ND	0.044	mg/Kg	1	3/6/2014 2:53:48 PM	R17143
Ethylbenzene	ND	0.044	mg/Kg	1	3/6/2014 2:53:48 PM	R17143
Xylenes, Total	ND	0.087	mg/Kg	1	3/6/2014 2:53:48 PM	R17143
Surr: 4-Bromofluorobenzene	101	80-120	%REC	1	3/6/2014 2:53:48 PM	R17143

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1403224

Date Reported: 3/7/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Project: Fed 2E

Lab ID:

1403224-009

Client Sample ID: S-9

Collection Date: 3/5/2014 12:05:00 PM

Matrix: MEOH (SOIL) Received Date: 3/6/2014 10:20:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	SE ORGANICS				Analys	t: BCN
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	3/6/2014 3:50:03 PM	12048
Surr: DNOP	85.2	66-131	%REC	1	3/6/2014 3:50:03 PM	12048
EPA METHOD 8015D: GASOLINE R	ANGE				Analys	t: JMP
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	3/6/2014 3:22:20 PM	R17143
Surr: BFB	85.6	74.5-129	%REC	1	3/6/2014 3:22:20 PM	R17143
EPA METHOD 8021B: VOLATILES					Analys	t: JMP
Benzene	ND	0.047	mg/Kg	1	3/6/2014 3:22:20 PM	R17143
Toluene	ND	0.047	mg/Kg	1	3/6/2014 3:22:20 PM	R17143
Ethylbenzene	ND	0.047	mg/Kg	1	3/6/2014 3:22:20 PM	R17143
Xylenes, Total	ND	0.094	mg/Kg	1	3/6/2014 3:22:20 PM	R17143
Surr: 4-Bromofluorobenzene	101	80-120	%REC	/3	3/6/2014 3:22:20 PM	R17143

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1403224

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 3/7/2014

CLIENT: Southwest Geoscience Client Sample ID: S-10

Project: Fed 2E Collection Date: 3/5/2014 12:10:00 PM

Lab ID: 1403224-010 Matrix: MEOH (SOIL) Received Date: 3/6/2014 10:20:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E ORGANICS				Analys	t: BCN
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	3/6/2014 4:12:27 PM	12048
Surr: DNOP	80.4	66-131	%REC	1	3/6/2014 4:12:27 PM	12048
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: JMP
Gasoline Range Organics (GRO)	ND	4.3	mg/Kg	1	3/6/2014 2:46:58 PM	R17144
Surr: BFB	96.3	74.5-129	%REC	1	3/6/2014 2:46:58 PM	R17144
EPA METHOD 8021B: VOLATILES					Anatys	t: JMP
Benzene	ND	0.043	mg/Kg	1	3/6/2014 2:46:58 PM	R17144
Toluene	ND	0.043	mg/Kg	1	3/6/2014 2:46:58 PM	R17144
Ethylbenzene	ND	0.043	mg/Kg	1	3/6/2014 2:46:58 PM	R17144
Xylenes, Total	ND	0.085	mg/Kg	1	3/6/2014 2:46:58 PM	R17144
Surr: 4-Bromofluorobenzene	108	80-120	%REC	1	3/6/2014 2:46:58 PM	R17144

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 3/7/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Southwest Geoscience

Client Sample ID: S-11

Project: Fed 2E

Collection Date: 3/5/2014 12:15:00 PM

Lab ID: 1403224-011

Matrix: MEOH (SOIL) Received Date: 3/6/2014 10:20:00 AM

Analyses	Result	RL Qı	ual_Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	SE ORGANICS				Analys	t: BCN
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	3/6/2014 12:07:15 PM	12048
Surr: DNOP	88.6	66-131	%REC	1	3/6/2014 12:07:15 PM	12048
EPA METHOD 8015D: GASOLINE RA	ANGE				Analys	: JMP
Gasoline Range Organics (GRO)	ND	4.1	mg/Kg	1	3/6/2014 3:17:13 PM	R17144
Surr: BFB	109	74.5-129	%REC	1	3/6/2014 3:17:13 PM	R17144
EPA METHOD 8021B: VOLATILES					Analysi	: JMP
Benzene	ND	0.041	mg/Kg	1	3/6/2014 3:17:13 PM	R17144
Toluene	ND	0.041	mg/Kg	1	3/6/2014 3:17:13 PM	R17144
Ethylbenzene	ND	0.041	mg/Kg	1	3/6/2014 3:17:13 PM	R17144
Xylenes, Total	ND	0.082	mg/Kg	1	3/6/2014 3:17:13 PM	R17144
Surr: 4-Bromofluorobenzene	110	80-120	%REC	1	3/6/2014 3:17:13 PM	R17144

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit D

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403224

07-Mar-14

Client:	Southwe	st Geoscien	ce										
Project:	Fed 2E												
Sample ID	MB-12048	SampTy	me: N	IDI K	Ton	tCodo: I	EDA Mathad	l 8015D: Dies	al Banga	Organias			
Client ID:	PBS		/pe. m // 12: 12			RunNo:		(00 13D: DI68	er Kange	Organics			
Prep Date:		Analysis Da				SegNo: 4		Units: mg/l	(~				
,	0.012017					•		_	-				
Analyte Diesel Range (Organics (DRO)	Result ND	PQL 10		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Sun: DNOP	o.gamoo (5110)	7.7	,,,	10.00		76.8	66	131					
Sample ID	LCS-12048	SampTy	me: 14	re .	Too	tCada: E	EDA Mathad	PA4ED, Dies	ol Dones (
,	LCSS		ID: 12			RunNo:		8015D: Dies	ei Kange i	Organics			
Prep Date:		Analysis Da				SegNo: 4		Unite: marile	C				
	3/0/2014	-				•		Units: mg/ł	_				
Analyte Discol Banga	Organics (DRO)	Result 52	PQL 10		SPK Ref Val	%REC 104		HighLimit 145	%RPD	RPDLimit	Qual		
Surr. DNOP	organics (DRO)	4.0	10	5.000	•	79.2		131					
2 / /2													
Sample ID		SampTy						8015D: Dies	el Range (Organics			
	PBS	Batch				RunNo: 1							
Prep Date:	3/6/2014	Analysis Da	ite: 3	/6/2014	8	SeqNo: 4	492587	Units: %RE	C				
Analyte		Result	PQL		SPK Ref Val			HighLimit	%RPD	RPDLimit	Qual		
Surr: DNOP		9.4		10.00		94.4	66	131					
Sample ID	LCS-12049	SampTy	pe: L0	cs	Tes	tCode: E	PA Method	8015D: Dies	el Range (Organics			
Client ID:	LCSS	Batch	ID: 12	:049	F	RunNo: 1	17130						
Prep Date:	3/6/2014	Analysis Da	ite: 3 .	/6/2014	S	eqNo: 4	192697	Units: %RE	С				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	Lowl.imit	HighLimit	%RPD	RPDLimit	Qual		
Sum: DNOP		4.8		5.000		97.0	66	131					
Sample ID	MB-12024	SampTy	pe: Mi	BLK	Test	Code: F	PA Method	8015D: Diese	el Range ()rganics			
Client ID:	PBS	Batch				unNo: 1							
Prep Date:	3/5/2014	Analysis Da	te: 3	6/2014		eqNo: 4		Units: %RE	c				
Analyte		Result	PQL		SPK Ref Val	%REC	LowLimit			RPDLimit	Ouel		
Sum: DNOP	· <u> </u>	9.6	FGE	10.00	OFK REI Val	95.8	66	HighLimit 131	%RPD	RPULIMIL	Qual		
Oamel: ID	1.00.40001												
Sample ID		SampTy						8015D: Diese	al Range C	Organics			
	LCSS	Batch I				unNo: 1		Heita: 8/ DEO					
Prep Date:	3/3/2014	Analysis Da	te: 3/	6/2014	S	eqNo: 4	192769	Units: %RE	Ü		1		
Analyte													

Qualifiers:

Surr: DNOP

Value exceeds Maximum Contaminant Level.

5.8

5.000

- Е Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank

66

131

- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

117

- Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1403224

07-Mar-14

Client:

Southwest Geoscience

Project:

Fed 2E

Sample ID MB-12059

SampType: MBLK

TestCode: EPA Method 8015D: Diesel Range Organics

Client ID: PBS

Batch ID: 12059

RunNo: 17125

Prep Date: 3/6/2014 Analysis Date: 3/6/2014

SeqNo: 493441

Units: %REC

Analyte

Result PQL

LowLimit

66

Qual

Sum: DNOP

8.2

SPK value SPK Ref Val %REC 10.00

81.6

HighLimit %RPD RPDLimit 131

Sample ID LCS-12059

SampType: LCS

TestCode: EPA Method 8015D: Diesel Range Organics

%RPD

Client ID: LCSS Batch ID: 12059

RunNo: 17125

Prep Date: 3/6/2014 Analysis Date: 3/6/2014

PQL

SeqNo: 493442

Units: %REC

Analyte

Result

SPK value SPK Ref Val

%REC LowLimit HighLimit

RPDLimit Qual

Surr: DNOP

4.2

5.000

84.3

66

131

Qualifiers:

Value exceeds Maximum Contaminant Level.

Ε Value above quantitation range

J Analyte detected below quantitation limits

0 RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits В Analyte detected in the associated Method Blank

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Sample pH greater than 2.

Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1403224

07-Mar-14

Client.

Southwe	est Geoscienc	e								
Fed 2E										
MB-12030 MK	SampTyp	e: N	IBLK	Te	stCode:	EPA Method	d 8015D: Gas	oline Ran	ge	
PBS	Batch li	D: R	17143		RunNo:	17143				
:	Analysis Dat	e: 3	3/6/2014		SeqNo:	493525	Units: mg/	Kg		
	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
ge Organics (GRO)	ND	5.0			00.5	74.5	400		-	
			_							
							i 8015D: Gas	oline Rang	ge	
:	Analysis Date	e: 3			•		Units: mg/	Kg		
0							HighLimit	%RPD	RPDLimit	Qual
ge Organics (GRO)		5.0		_						
	910		1000		90.5	/4.5	129			
	SampTyp	e: M	S	Tes	stCode: E	PA Method	8015D: Gas	oline Rang	3 0	
S-1	Batch ID): R	17143	I	RunNo: 1	17143				
	Analysis Date	e: 3	/6/2014	;	SeqNo: 4	493536	Units: mg/l	Kg		
	Result F	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
je Organics (GRO)	20	3.8		0	104	69.5	145			
	710		768.6		92.9	74.5	129			
1403224-001AMS	D SampType	e: M :	SD	Tes	tCode: E	PA Method	8015D: Gase	oline Rang	9	
S-1	Batch ID): R1	17143	F	RunNo: 1	17143				
	Analysis Date	: 3	/6/2014	5	SeqNo: 4	193537	Units: mg/l	(g		
	Result F	QL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
e Organics (GRO)	19	3.8	19.22	0	99.7	69.5	145	3.82	20	
	710		768.6		92.3	74.5	129	0	0	
5ML RB	SampType	e: MI	BLK	Tes	tCode: E	PA Method	8015D: Gaso	iine Rang	9	
PBS	Batch ID	: R1	7144	F	RunNo: 1	7144				
	Analysis Date	: 3/	6/2014	8	SeqNo: 4	93621	Units: mg/k	(g		
		QL	SPK value	SPK Ref Vai	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
e Organics (GRO)		5.0								
	940		1000		93.6	74.5 ———	129			_
2.5UG GRO LCS	SampType	: LC	s	Tes	tCode: E	PA Method	8015D: Gaso	line Range	e	
LCSS	Batch ID	: R1	7144	F	RunNo: 1	7144				
	Analysis Date	: 3/	6/2014	S	eqNo: 4	93623	Units: mg/K	g		
	Result P	QL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
	Fed 2E MB-12030 MK PBS : ge Organics (GRO) LCS-12030 MK LCSS : ge Organics (GRO) 1403224-001AMS S-1	Fed 2E MB-12030 MK SampType PBS Batch II Analysis Date Result Ge Organics (GRO) ND 820 LCS-12030 MK SampType LCSS Batch II Analysis Date Result II Analysis Date	MB-12030 MK PBS Batch ID: R Analysis Date: ; Result PQL ge Organics (GRO) ND 5.0 820 LCS-12030 MK LCSS Batch ID: R Analysis Date: 3 Result PQL ge Organics (GRO) 28 5.0 910 1403224-001AMS S-1 Batch ID: R Analysis Date: 3 Result PQL ge Organics (GRO) 20 3.8 710 1403224-001AMSD SampType: M S-1 Batch ID: R Analysis Date: 3 Result PQL ge Organics (GRO) 19 3.8 710 5ML RB SampType: MI Analysis Date: 3 Result PQL ge Organics (GRO) 19 3.8 710 5ML RB SampType: MI Analysis Date: 3 Result PQL ge Organics (GRO) 19 3.8 710 5ML RB SampType: MI Analysis Date: 3 Result PQL ge Organics (GRO) 19 3.8 710 5ML RB SampType: MI Analysis Date: 3 Result PQL ge Organics (GRO) 19 3.8 710 5ML RB SampType: MI Analysis Date: 3 Result PQL SAMPType: MI	Ped 2E	MB-12030 MK	Ped 2E	Ped 2E Pad 25	Ped 2E	MB-12030 MK	MB-12030 MK

Qualifiers:

Value exceeds Maximum Contaminant Level.

- E Value above quantitation range
- Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded

- Not Detected at the Reporting Limit ND
- Sample pH greater than 2.
- Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1403224 07-Mar-14

Client:

Southwest Geoscience

Project:

Fed 2E

Sample ID 2.5UG GRO LCS

SampType: LCS

TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS

Batch iD: R17144

5.0

RunNo: 17144

Prep Date:

%REC

Analyte

Analysis Date: 3/6/2014

SeqNo: 493623

Units: mg/Kg HighLimit

Gasoline Range Organics (GRO)

Result **PQL** 23

25.00

93.0

71.7

134

%RPD

RPDLimit Qual

Surr: BFB

960

1000

SPK value SPK Ref Val

95.9

74.5

LowLimit

129

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н
- Not Detected at the Reporting Limit ND
- P Sample pH greater than 2,
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1403224

07-Mar-14

Client:

Southwest Geoscience

Project:

Fed 2E

Sample ID MB-12030 MK	Samp	Type: MI	BLK	Tes	tCode: E	PA Method	8021B: Vola	tiles		
Client ID: PBS	Batc	h ID: R1	7143	F	RunNo: 1	7143				
Prep Date:	Analysis [Date: 3/	6/2014	S	SeqNo: 4	93577	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Kylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.97		1.000		96.7	80	120			
Sample ID I CS 42020 HK	CompT	imai I O		~						

Sample ID LCS-12030 MK	Samp ⁻	Type: LC	S	Tes	tCode: E	PA Method	8021B: Vola	tiles		
Client ID: LCSS	Batc	h ID: R1	7143	F	RunNo: 1	7143				
Prep Date:	Analysis [Date: 3/	6/2014	S	SeqNo: 4	93578	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.050	1.000	0	117	80	120			
Toluene	1.2	0.050	1.000	O	117	80	120			
Ethylbenzene	1.2	0.050	1.000	0	118	80	120			
Xylenes, Total	3.6	0.10	3.000	0	119	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Sample ID 5ML RB	SampT	ype: MI	BLK	Tes	tCode: E	PA Method	8021B: Vola	tiles		_
Client ID: PBS	Batcl	n ID: R1	7144	F	RunNo: 1	7144				
Prep Date:	Analysis D	ate: 3/	6/2014	S	eqNo: 4	93688	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Sample ID 100NG BTEX LC	CS Samp	Type: LC	s	Tes	tCode: E	PA Method	8021B: Vola	tiles		<u> </u>
Client ID: LCSS	Bate	ch ID: R1	7144	F	RunNo: 1	7144				
Prep Date:	Analysis	Date: 3/	6/2014	9	SeqNo: 4	93689	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.050	1.000	0	92.7	80	120			_
Toluene	0.93	0.050	1.000	0	93.4	80	120			
Ethylbenzene	0.94	0.050	1.000	0	94.1	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.6	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		105	80	120			

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquergue, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

Sample Log-In Check List

Southwest Geoscience Client Name: Work Order Number: 1403224 RcptNo: 1 Received by/date: Logged By: Ashley Gallegos 3/8/2014 10:20:00 AM Completed By: Ashley Gallegos 3/6/2014 10:21:22 AM Reviewed By: Chain of Custody Yes No Not Present M. 1 Custody seals intact on sample bottles? No 2. Is Chain of Custody complete? Not Present 3. How was the sample delivered? Courier Log In 4. Was an attempt made to cool the samples? No 🗔 NA 🛄 Yes 🛂 No L NA : Were all samples received at a temperature of >0° C to 6.0°C Yes V 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? No 🔽 NA 🗌 9. Was preservative added to bottles? Yes 10.VOA vials have zero headspace? Yes No No VOA Vials Yes 🗆 No 🗹 11. Were any sample containers received broken? # of preserved bottles checked 12. Does paperwork match bottle labels? No for pH: (<2 or >12 unless noted) (Note discrepancies on chain of custody) Adjusted? No ... 13. Are matrices correctly identified on Chain of Custody? Yes 🗸 14. Is it clear what analyses were requested? Yes 🔀 No 🗀 No 🗆 Checked by: 15. Were all holding times able to be met? Yes 🔽 (If no, notify customer for authorization.) Special Handling (if applicable) Yes [] 16. Was client notified of all discrepancies with this order? No [] NA M Person Notified: Date: By Whom: Via: eMail Phone Fax In Person Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp C Condition Seal Intact Seal No Seal Date Good

Laboratory:	Contact: FRECMAN Phone: Phone: 64/3602	Sampler's Signature Control	Project Name No/Type of Conteiners	C G I Identifying Marks of Sample(s) 본 을 열 VOA A/G 250 P/O	, v	X	X		\ \ \	2-5 X X	×	x S-9		Date: Received by: (Sign	Date: Time: (Repélved'by: (Sighatura) Date:	Days: Time: Received by: (Signature) D		And Advanced by 13f 13f 15
Southwest GEOSCIENCE Environmental & Hydrogeologic Consultants	Office Location H2TEC, NM Project Manager Kult CommERS	Sampler's Name DAKON BRYANT	Proj. No. Proje	Time			3-3-14 1520	3-4-14 (6446	5-4-4 1660	○ 27-14 1450 < 24-14 1425			5 3-5-4/2/6 X	EV.	Retinquished by (Signature)	Relinquished by (Signature)	hed	Motify Market Market

SOUTHWEST GEOSCIENCE • 2351 W. Northwest Hwy., Suite 3321 • Dallas, Texas 75220 • Office: 214-350-5469 • Fax 214-350-2914

	Thydrogeologic S C I E 1-tydrogeologic My LE A 27EC 10 Normal (S C I E 1-tydrogeologic acture) acture) acture)	CHAIN OF CUSTODY RECORD		Phone: Phone: Sampler's Signar Ref.)	Marks of Sample(s) # PD WOA AVG 250 PVO PVO	75/ XX 1						D 25% Rush	3-5-4 3 Time.	Time: (Becaved by: (Signature) Date:	Time: Received by: (Signature) Date:		
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