

APPROVED

Closure Report Approved, Release Resolved.

**SPILL CLEANUP REPORT FOR
A PIPELINE LEAK NEAR FARFELU #1
WELL SITE**

**LOCATED AT:
SECTION 19, TOWNSHIP 25N, RANGE 11W
SAN JUAN COUNTY, NEW MEXICO**

**FOR:
MR. ALLEN LAIN
ELM RIDGE BEELINE
P.O. BOX 1280
BLOOMFIELD, NEW MEXICO 87412**



**PROJECT NO. 08011-0009
MARCH 2009**



April 13, 2009

Project No. 08011-0009

Mr. Allen Lain
Elm Ridge Beeline
P.O. Box 1280
Bloomfield, New Mexico 87412

Cell: (505) 486-0260

**RE: SPILL CLEANUP REPORT FOR A PIPELINE LEAK NEAR FARFELU #1 WELL SITE,
SAN JUAN COUNTY, NEW MEXICO**

Dear Mr. Lain,

Enclosed please find the *Spill Cleanup Report* for a Pipeline Leak near Farfelu #1 well site located in Section 19, Township 25N, Range 11W, San Juan County, New Mexico. We have included one (1) original and five (5) copies, all unbound per your request. Please review the report and forward one (1) copy to the Bureau of Land Management and one (1) copy to Mr. Brandon Powell with the NMOCD.

We appreciate the opportunity to be of service. If you should have any questions, please contact our office at (505) 632-0615.

Respectfully,
ENVIROTECH, INC.

A handwritten signature in blue ink, reading 'Toni McKnight', written over a horizontal line.

Toni McKnight
Staff Scientist
tmcknight@envirotech-inc.com

Enclosures: One (1) original and five (5) copies

CC: Client file 08011

**ELM RIDGE BEELINE
SPILL CLEANUP REPORT FOR A PIPELINE NEAR FARFELU #1 WELL SITE
SECTION 19, TOWNSHIP 25N, RANGE 11W
SAN JUAN COUNTY, NEW MEXICO**

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INTRODUCTION

Envirotech, Inc. of Farmington, New Mexico, was contracted by Elm Ridge Beeline to perform spill closure activities for contamination found at a pipeline leak near the Farfelu #1 well site, located in Section 19, Township 25N, Range 11W; see **Figure 1, Vicinity Map**. Cleanup activities included confirmation sampling, analysis, and reporting.

DESCRIPTION OF WORK

February 26, 2009

Envirotech, Inc. arrived on site on February 26, 2009, to begin environmental cleanup activities. Upon arrival, a brief site assessment was performed to outline the extent of the spill area; see **Appendix A, Site Photography**. Due to the depth to groundwater being less than 100 feet, but greater than 50 feet at the site, regulatory standards were determined to be 1000 ppm total petroleum hydrocarbons (TPH) and 100 ppm organic vapors, pursuant to the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills, and Releases.

Condensate from the pipeline covered a surface area of 65' x 36' with pooling condensate observed at the surface. A sample of the pooling condensate at the surface was collected and analyzed in the field for total chlorides. The water sample returned results that were above 6,500 ppm total chlorides.

A surface scraping of the contaminated area was conducted by Vaughn Oil Field Trucking to an extent of 65' x 36' x 4" below ground surface (BGS). A 5-point composite sample was collected from the area at 4" BGS and analyzed in the field for TPH via USEPA Method 418.1. The sample returned results below the NMOCD guidelines for TPH via USEPA Method 418.1; see **Table 1, Summary of Analytical Results**. The 5-point composite sample from the surface (4" BGS) was placed into four (4)-ounce jars, capped headspace free, placed on ice, and transported under chain of custody to Envirotech's Laboratory for analysis for total BTEX using USEPA Method 8021 and for total chlorides. All samples collected were below NMOCD requirements for benzene and BTEX but above the regulatory standards for total chlorides.

The area around the leaking pipeline was excavated to approximately 36' x 30' x 8' BGS to expose the pipeline for repairs; see **Figure 2, Site Map**. A 5-point composite sample was collected from the bottom of the excavation at 8' BGS. The sample was analyzed in the field for TPH using USEPA Method 418.1 and returned results above the regulatory limit of 1,000 ppm TPH; therefore excavation continued; see **Table 1, Summary of Analytical Results**. Sandstone was encountered at 10' BGS where a soil sample was collected and placed into a four (4)-ounce jar, capped headspace free, place on ice, and transported under chain of custody to Envirotech's Laboratory for analysis for TPH using USEPA Method 8015 and total BTEX using USEPA Method 8021. All samples collected were below NMOCD requirements for benzene and BTEX. The bottom sample at 10' BGS was above the NMOCD requirements for TPH via USEPA Method 8015; see **Table 1, Summary of Analytical Results**. Sampling and excavation of the four (4) walls was resumed on February 27, 2009.

February 27, 2009

Envirotech, Inc returned to the site on February 27, 2009, to determine the extents of contamination of the four (4) walls of the excavation. Upon arrival, samples were collected from the four (4) walls of the excavation around the pipeline and analyzed in the field for TPH via USEPA Method 418.1 and organic vapors using a Photo Ionization Detector (PID). The sample from the east wall returned results that were below the regulatory limits at 1,000 ppm TPH and 100 ppm organic vapors. The south wall was below 1,000 ppm TPH but above 100 ppm organic vapors. The north and west walls were above 1,000 ppm TPH and 100 ppm organic vapors; see ***Table 1, Summary of Analytical Results.***

The north, south, and west walls were trenched to determine the extents of the contamination in each direction. Samples were taken from the north, south and west trenches and analyzed in the field for TPH via USEPA Method 418.1 and for organic vapors using a PID. The samples were below the regulatory limits of 1,000 ppm TPH and 100 ppm organic vapors. The final extents of the excavation were 52' x 40' x 10' BGS where sandstone was encountered. Samples from the north, south, and west walls were collected and tested in the field for TPH via USEPA Method 418.1 and organic vapors using a PID. All samples were below the NMOCD guidelines for TPH via USEPA Method 418.1. The sample from the west wall returned results below the guidelines for organic vapors, but the samples from the north and south walls returned results above the guidelines for organic vapors; see ***Table 1, Summary of Analytical Results.*** The north and south wall samples were placed into four (4)-ounce jars, capped headspace free, placed on ice, and transported under chain of custody to Envirotech's Laboratory for analysis for total BTEX using USEPA Method 8021 and for total chlorides. The samples returned results below the NMOCD guidelines for benzene and BTEX; see ***Appendix C, Laboratory Results,*** therefore no further excavation was required.

A total of twenty-four (24) cubic yards of contaminated soil were transported to Envirotech's NMOCD Permitted Soil Remediation Facility Landfarm #2 at Hilltop, New Mexico; see ***Appendix D, Bill of Lading.***

STATEMENT OF LIMITATIONS

Envirotech, Inc. performed soil screening and documentation for soil excavated at a pipeline leak near Farfelu #1 well site, located in Section 19, Township 25N, Range 11W, San Juan County, New Mexico. The work and services provided by Envirotech, Inc. were under the guidelines of the NMOCD. All observations and conclusions provided here are based on the information and current site conditions found during this investigation.

The undersigned has conducted this service at the above referenced site. This work has been conducted and reported in accordance with generally accepted professional practices in geology, engineering, environmental chemistry, and hydrogeology.

Respectfully Submitted,
ENVIROTECH, INC.



Toni McKnight
Staff Scientist
tmcknight@envirotech-inc.com

Reviewed by:



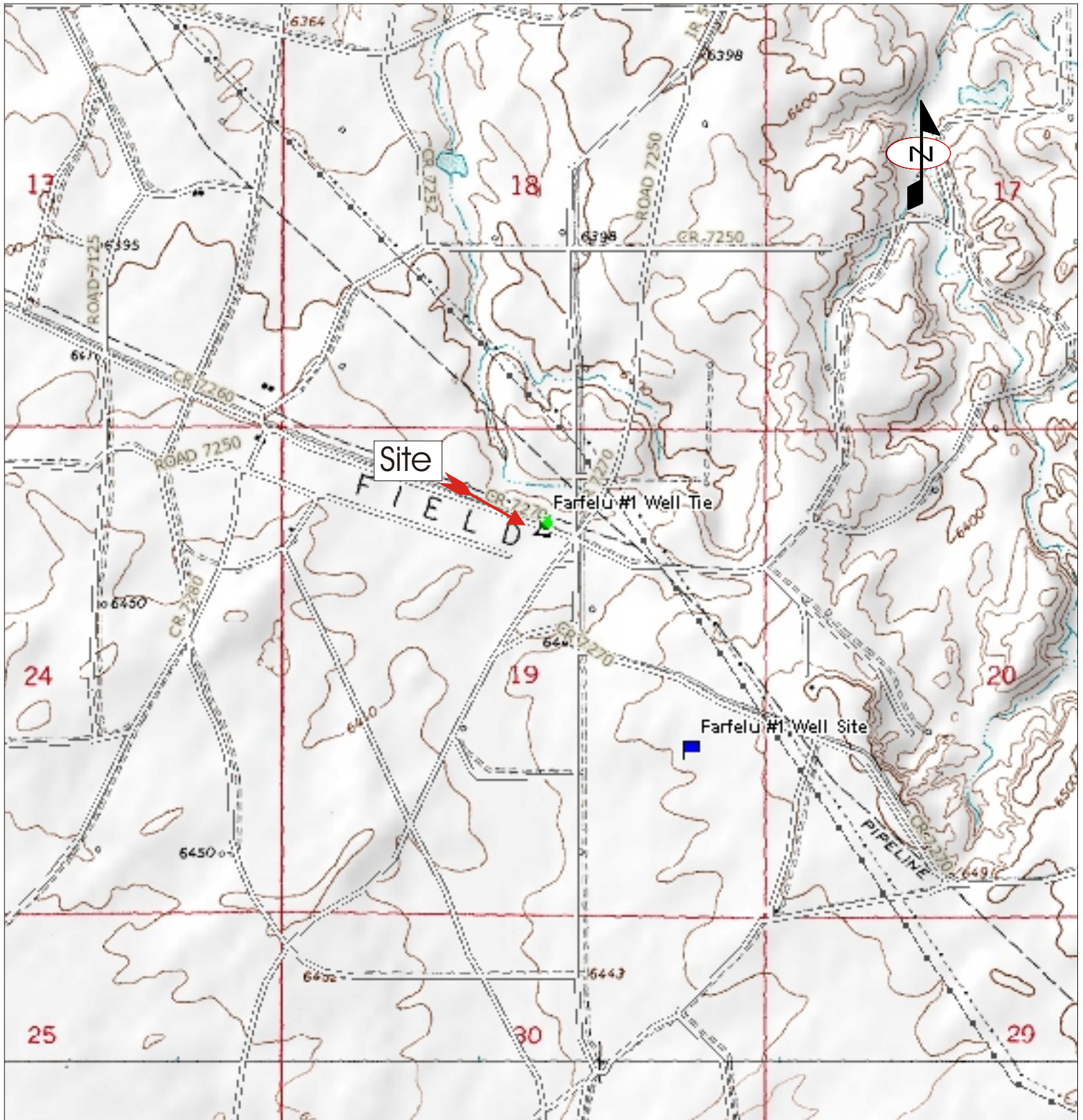
Kyle P. Kerr, CHMM
Senior Environmental Scientist/Manager
kpkerr@envirotech-inc.com



FIGURES

Figure 1, Vicinity Map

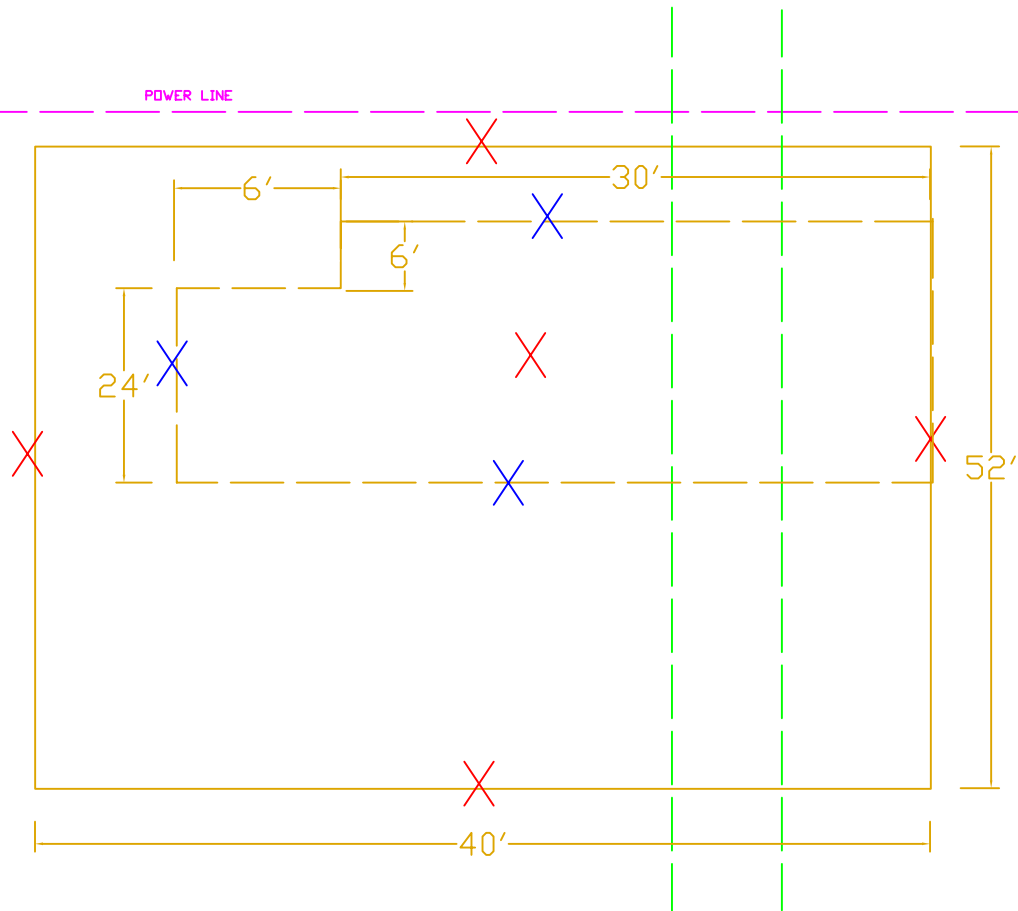
Figure 2, Site Map



Source: Bloomfield, New Mexico 7.5 Minute U.S.G.S. Topographic Quadrangle Map
 Scale: 1:24,000 1" = 2000'

<p>Elm Ridge Beeline Pipeline Leak Near Farfelu #1 Well Site San Juan County, New Mexico</p>	<p>ENVIROTECH INC. <hr/> ENVIRONMENTAL SCIENTISTS & ENGINEERS 5796 U.S. HIGHWAY 64 FARMINGTON, NEW MEXICO 87401 PHONE (505) 632-0615</p>	<p>Vicinity Map</p>	
		<p>Figure 1</p>	
<p>PROJECT No 08011-0009</p>	<p>Date Drawn: 03-20-09</p>	<p>DRAWN BY: Toni McKnight</p>	<p>PROJECT MANAGER: Kyle P. Kerr</p>

CR 7270



LEGEND

-- EXCAVATION 2/26/09

— FINAL EXCAVATION

X INITIAL SAMPLES

X FINAL SAMPLES

= PIPE LINE

SITE MAP
ELM RIDGE BEELINE
 PIPELINE LEAK NEAR FARFELU #1 WELL SITE
 SEC 19, TWN 25N, RNG 11W
 SAN JUAN COUNTY, NEW MEXICO

SCALE: NTS

PROJECT NO08011-0009

FIGURE NO. 2

REV

REVISIONS

NO.	DATE	BY	DESCRIPTION
MAP DRWN	TLM	3-20-09	BASE DRWN

ENVIRONMENTAL SCIENTISTS & ENGINEERS
ENVIROTECH

5796 U.S. HIGHWAY 64, FARMINGTON, NM 87410 505-632-0615

TABLE

Table 1, Summary of Analytical Results

Table 1, Analytical Results
 Elm Ridge Beeline
 Spill Cleanup for a Pipeline Leak Near Farfelu #1 Well Site
 Sec. 19, Twp. 25N, Rng. 11W
 San Juan County, New Mexico
 Project No. 08011-0009

Soil Samples	Sample		USEPA Method 8021	USEPA Method 8021	USEPA Method 418.1	USEPA Method 8015	OVM	Total Chlorides
Sample Description	Number	Date	Benzene (ppm)	BTEX (ppm)	TPH (ppm)	GRO/DRO (ppm)	(ppm)	(ppm)
NMOCD Standards	NA	NA	10	50	1000	1000	100	1000
Background	1	2/26/09	NS	NS	NS	NS	NS	40
Stockpile	2	2/26/09	NS	NS	NS	NS	NS	880
Surface Composite @ 4"	3	2/26/09	0.045	1.230	12	NS	NS	NS
Bottom @ 8'	4	2/26/09	NS	NS	8080	NS	NS	NS
Bottom @ 10'	5	2/26/09	1.590	21.0	NS	5440	NS	NS
North Wall	1	2/27/09	NS	NS	5080	NS	421.0	NS
South Wall	2	2/27/09	NS	NS	2040	NS	346.0	NS
East Wall	3	2/27/09	NS	NS	68	NS	26.0	NS
West Wall	4	2/27/09	NS	NS	4640	NS	409.0	NS
West Trench	5	2/27/09	NS	NS	36	NS	92.0	NS
North Trench	6	2/27/09	NS	NS	56	NS	270.0	NS
South Trench	7	2/27/09	NS	NS	44	NS	40.0	NS
South Wall Final	8	2/27/09	ND	0.041	44	NS	170.0	60.0
North Wall Final	9	2/27/09	ND	0.054	188	NS	268.0	130
West Wall Final	10	2/27/09	NS	NS	68	NS	57.0	NS

NS = Not Sampled

ND = Non-Detect

Values in **BOLD** are above regulatory standards

APPENDIX A

Site Photography

Spill Cleanup Report
Spill Cleanup for a Pipeline Leak Near Farfelu #1 Well Site
San Juan County, New Mexico
Project No. 08011-0009



Photo 1: Pipeline Leak Breaking Ground Surface



Photo 2: Exposing Leaking Pipeline

Spill Cleanup Report
Spill Cleanup for a Pipeline Leak Near Farfelu #1 Well Site
San Juan County, New Mexico
Project No. 08011-0009



Photo 3: During Excavation



Photo 4: During Excavation

Spill Cleanup Report
Spill Cleanup for a Pipeline Leak Near Farfelu #1 Well Site
San Juan County, New Mexico
Project No. 08011-0009



Photo 5: Trenching to Find Extent of Contamination



Photo 6: Leaking Pipeline

Spill Cleanup Report
Spill Cleanup for a Pipeline Leak Near Farfelu #1 Well Site
San Juan County, New Mexico
Project No. 08011-0009



Photo 7: Final Extents of Excavation



Photo 8: Final Extents of Excavation

APPENDIX B

Field Analytical Results



**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample No.:	1	Date Reported:	3/20/2009
Sample ID:	Surface Composite @ 4"	Date Sampled:	2/26/2009
Sample Matrix:	Soil	Date Analyzed:	2/26/2009
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
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Total Petroleum Hydrocarbons	12	5.0
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ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak @ Farfelu Well Tie**

Instrument callibrated to 200 ppm standard. Zeroed before each sample



Analyst

Greg Crabtree
Printed



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Sherry Auckland
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**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample No.:	2	Date Reported:	3/20/2009
Sample ID:	Bottom @ 8'	Date Sampled:	2/26/2009
Sample Matrix:	Soil	Date Analyzed:	2/26/2009
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
-----------	--------------------------	--------------------------

Total Petroleum Hydrocarbons	8,080	5.0
-------------------------------------	--------------	------------

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak at Farfelu Well Tie**

Instrument callibrated to 200 ppm standard. Zeroed before each sample



Analyst

Greg Crabtree

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CONTINUOUS CALIBRATION
EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Cal. Date: 26-Feb-09

Parameter	Standard Concentration mg/L	Concentration Reading mg/L
TPH	100	200
	200	
	500	
	1000	

The accepted percent relative deviation (%RSD) of the calibration factor is less than 20% over the working range.

Greg Crabtree
Analyst

4/1/09
Date

Greg Crabtree
Print Name

Sherry Auckland
Review

4/1/09
Date

Sherry Auckland
Print Name



**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample No.:	1	Date Reported:	3/20/2009
Sample ID:	N Wall	Date Sampled:	2/27/2009
Sample Matrix:	Soil	Date Analyzed:	2/27/2009
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	5,080	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak @ Farfelu Well Tie**

Instrument callibrated to 200 ppm standard. Zeroed before each sample



Analyst

Toni McKnight

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**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample No.:	2	Date Reported:	3/20/2009
Sample ID:	South Wall	Date Sampled:	2/27/2009
Sample Matrix:	Soil	Date Analyzed:	2/27/2009
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	2,040	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak @ Farfelu Well Tie**

Instrument callibrated to 200 ppm standard. Zeroed before each sample



Analyst

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EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample No.:	3	Date Reported:	3/20/2009
Sample ID:	East Wall	Date Sampled:	2/27/2009
Sample Matrix:	Soil	Date Analyzed:	2/27/2009
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	68	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak @ Farfelu Well Tie**

Instrument callibrated to 200 ppm standard. Zeroed before each sample


Analyst

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**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample No.:	4	Date Reported:	3/20/2009
Sample ID:	West Wall	Date Sampled:	2/27/2009
Sample Matrix:	Soil	Date Analyzed:	2/27/2009
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
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Total Petroleum Hydrocarbons	4,640	5.0
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ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak @ Farfelu Well Tie**

Instrument callibrated to 200 ppm standard. Zeroed before each sample


Analyst

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**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample No.:	5	Date Reported:	3/20/2009
Sample ID:	West Trench	Date Sampled:	2/27/2009
Sample Matrix:	Soil	Date Analyzed:	2/27/2009
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
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Total Petroleum Hydrocarbons	36	5.0
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ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak @ Farfelu Well Tie**

Instrument callibrated to 200 ppm standard. Zeroed before each sample



Analyst

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**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample No.:	6	Date Reported:	3/20/2009
Sample ID:	North Trench	Date Sampled:	2/27/2009
Sample Matrix:	Soil	Date Analyzed:	2/27/2009
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	56	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak @ Farfelu Well Tie**

Instrument callibrated to 200 ppm standard. Zeroed before each sample


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**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample No.:	7	Date Reported:	3/20/2009
Sample ID:	South Trench	Date Sampled:	2/27/2009
Sample Matrix:	Soil	Date Analyzed:	2/27/2009
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	44	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak @ Farfelu Well Tie**

Instrument callibrated to 200 ppm standard. Zeroed before each sample


Analyst

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**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client: Elm Ridge Beeline
Sample No.: 8
Sample ID: South Wall Final
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 08011-0009
Date Reported: 3/20/2009
Date Sampled: 2/27/2009
Date Analyzed: 2/27/2009
Analysis Needed: TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	44	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak @ Farfelu Well Tie**

Instrument callibrated to 200 ppm standard. Zeroed before each sample


Analyst

Toni McKnight
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**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample No.:	9	Date Reported:	3/20/2009
Sample ID:	North Wall Final	Date Sampled:	2/27/2009
Sample Matrix:	Soil	Date Analyzed:	2/27/2009
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	188	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak @ Farfelu Well Tie**

Instrument callibrated to 200 ppm standard. Zeroed before each sample



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Toni McKnight

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**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample No.:	10	Date Reported:	3/20/2009
Sample ID:	West Wall Final	Date Sampled:	2/27/2009
Sample Matrix:	Soil	Date Analyzed:	2/27/2009
Preservative:	Cool	Analysis Needed:	TPH-418.1
Condition:	Cool and Intact		

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	68	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Pipeline Leak @ Farfelu Well Tie**

Instrument calibrated to 200 ppm standard. Zeroed before each sample

Analyst

Toni McKnight
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APPENDIX C

Laboratory Results



CONTINUOUS CALIBRATION
EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Cal. Date: 27-Feb-09

Parameter	Standard Concentration mg/L	Concentration Reading mg/L
TPH	100	220
	200	
	500	
	1000	

The accepted percent relative deviation (%RSD) of the calibration factor is less than 20% over the working range.

Toni McKnight
Analyst

4/1/09
Date

Toni McKnight
Print Name

Sherry Auckland
Review

4/1/09
Date

Sherry Auckland
Print Name



envirotech

Analytical Laboratory

EPA METHOD 8015 Modified Nonhalogenated Volatile Organics Total Petroleum Hydrocarbons

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample ID:	Bottom @ 10' BGS	Date Reported:	03-04-09
Laboratory Number:	49143	Date Sampled:	02-26-09
Chain of Custody No:	6417	Date Received:	02-26-09
Sample Matrix:	Soil	Date Extracted:	03-02-09
Preservative:	Cool	Date Analyzed:	03-03-09
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	4,360	0.2
Diesel Range (C10 - C28)	1,080	0.1
Total Petroleum Hydrocarbons	5,440	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Farfelu Well Tie.**

Analyst

Review



envirotech

Analytical Laboratory

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	03-03-09 QA/QC	Date Reported:	03-04-09
Laboratory Number:	49122	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	03-03-09
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF	C-Cal RF	% Difference	Accept. Range
Gasoline Range C5 - C10	05-07-07	9.8401E+002	9.8441E+002	0.04%	0 - 15%
Diesel Range C10 - C28	05-07-07	1.0122E+003	1.0126E+003	0.04%	0 - 15%

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	ND	0.2
Diesel Range C10 - C28	ND	0.1
Total Petroleum Hydrocarbons	ND	0.2

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	ND	ND	0.0%	0 - 30%
Diesel Range C10 - C28	4.7	4.6	2.1%	0 - 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	ND	250	250	100%	75 - 125%
Diesel Range C10 - C28	4.7	250	253	99.2%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 49122 - 49124, 49143, 49151 - 49153 and 49169.

Analyst

Review

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample ID:	Bottom @ 10' BGS	Date Reported:	03-04-09
Laboratory Number:	49143	Date Sampled:	02-26-09
Chain of Custody:	6417	Date Received:	02-26-09
Sample Matrix:	Soil	Date Analyzed:	03-03-09
Preservative:	Cool	Date Extracted:	03-02-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	1,590	0.9
Toluene	7,880	1.0
Ethylbenzene	943	1.0
p,m-Xylene	7,630	1.2
o-Xylene	2,980	0.9
Total BTEX	21,000	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	97.0 %
	1,4-difluorobenzene	97.0 %
	Bromochlorobenzene	97.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Farfelu Well Tie.

Analyst

Review



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EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample ID:	Top Composite @ 4"	Date Reported:	03-04-09
Laboratory Number:	49144	Date Sampled:	02-26-09
Chain of Custody:	6417	Date Received:	02-26-09
Sample Matrix:	Soil	Date Analyzed:	03-03-09
Preservative:	Cool	Date Extracted:	03-02-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	45.2	0.9
Toluene	407	1.0
Ethylbenzene	61.2	1.0
p,m-Xylene	535	1.2
o-Xylene	186	0.9
Total BTEX	1,230	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	99.0 %
	1,4-difluorobenzene	99.0 %
	Bromochlorobenzene	99.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Farfelu Well Tie.

Analyst

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EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	03-03-BT QA/QC	Date Reported:	03-04-09
Laboratory Number:	49122	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	03-03-09
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF	C-Cal RF	%Diff	Blank Conc	Detect Limit
		Accept. Range 0 - 15%			
Benzene	2.2416E+005	2.2461E+005	0.2%	ND	0.1
Toluene	2.5727E+005	2.5779E+005	0.2%	ND	0.1
Ethylbenzene	2.6047E+005	2.6099E+005	0.2%	ND	0.1
p,m-Xylene	6.6790E+005	6.6924E+005	0.2%	ND	0.1
o-Xylene	3.1716E+005	3.1780E+005	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff	Accept Range	Detect. Limit
Benzene	6.4	6.2	3.1%	0 - 30%	0.9
Toluene	17.5	17.1	2.3%	0 - 30%	1.0
Ethylbenzene	10.3	10.1	1.9%	0 - 30%	1.0
p,m-Xylene	36.6	36.2	1.1%	0 - 30%	1.2
o-Xylene	18.3	17.8	2.7%	0 - 30%	0.9

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	6.4	50.0	56.0	99.3%	39 - 150
Toluene	17.5	50.0	64.5	95.6%	46 - 148
Ethylbenzene	10.3	50.0	59.3	98.3%	32 - 160
p,m-Xylene	36.6	100	132	96.3%	46 - 148
o-Xylene	18.3	50.0	71.3	104%	46 - 148

ND - Parameter not detected at the stated detection limit.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 49122 - 49124, 49141, 49143, 49144, 49151 - 49153, and 49169.

Analyst

Review



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Chloride

Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample ID:	Background	Date Reported:	03-05-09
Lab ID#:	49145	Date Sampled:	02-26-09
Sample Matrix:	Soil	Date Received:	02-26-09
Preservative:	Cool	Date Analyzed:	03-03-09
Condition:	Intact	Chain of Custody:	6417

Parameter	Concentration (mg/Kg)
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Total Chloride

40

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: Farfelu Well Tie.

Analyst

Review



Client:	Elm Ridge Beeline	Project #:	08011-0009
Sample ID:	Stockpile Comp	Date Reported:	03-05-09
Lab ID#:	49146	Date Sampled:	02-26-09
Sample Matrix:	Soil	Date Received:	02-26-09
Preservative:	Cool	Date Analyzed:	03-03-09
Condition:	Intact	Chain of Custody:	6417

Parameter

Concentration (mg/Kg)

Total Chloride

880

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Farfelu Well Tie.**

Analyst

Review

CHAIN OF CUSTODY RECORD

6417

Client: Elm Ridge Bee Line		Project Name / Location: Farfelu Well Tie				ANALYSIS / PARAMETERS														
Client Address:		Sampler Name: GWC				TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE				Sample Cool	Sample Intact
Client Phone No.:		Client No.: 08011-0009																		
Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative														
						HgCl ₂	HCl													
Bottom @ 10' BGS	2/26/04	1250	49143	Soil Solid	Sludge Aqueous	1-4oz														
Top Composite @ 4"	2/26/04	1300	49144	Soil Solid	Sludge Aqueous	1-4oz														
Background		1520	49145	Soil Solid	Sludge Aqueous	1-bags														
Stockpile Comp		1525	49146	Soil Solid	Sludge Aqueous	1-bags														
				Soil Solid	Sludge Aqueous															
				Soil Solid	Sludge Aqueous															
				Soil Solid	Sludge Aqueous															
				Soil Solid	Sludge Aqueous															
				Soil Solid	Sludge Aqueous															
				Soil Solid	Sludge Aqueous															
				Soil Solid	Sludge Aqueous															
Relinquished by: (Signature) [Signature]				Date 2/26/04	Time 1610	Received by: (Signature) [Signature]				Date 2/26/04	Time 1610									
Relinquished by: (Signature)						Received by: (Signature)														
Relinquished by: (Signature)						Received by: (Signature)														

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EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Elmridge Beeline	Project #:	08011-0009
Sample ID:	N Wall Final	Date Reported:	03-05-09
Laboratory Number:	49156	Date Sampled:	02-27-09
Chain of Custody:	6424	Date Received:	02-27-09
Sample Matrix:	Soil	Date Analyzed:	03-04-09
Preservative:	Cool	Date Extracted:	03-03-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	0.9
Toluene	7.3	1.0
Ethylbenzene	2.7	1.0
p,m-Xylene	32.5	1.2
o-Xylene	11.8	0.9
Total BTEX	54.3	

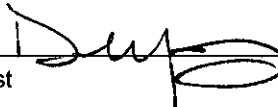
ND - Parameter not detected at the stated detection limit.

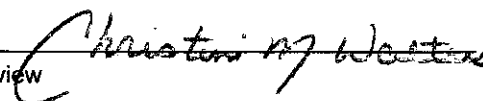
Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	99.0 %
	1,4-difluorobenzene	99.0 %
	Bromochlorobenzene	99.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Sargelu Well Tie - Spill.**

Analyst 

Review 



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EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Elmridge Beeline	Project #:	08011-0009
Sample ID:	S Wall Final	Date Reported:	03-05-09
Laboratory Number:	49157	Date Sampled:	02-27-09
Chain of Custody:	6424	Date Received:	02-27-09
Sample Matrix:	Soil	Date Analyzed:	03-04-09
Preservative:	Cool	Date Extracted:	03-03-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	0.9
Toluene	8.3	1.0
Ethylbenzene	1.5	1.0
p,m-Xylene	21.5	1.2
o-Xylene	9.8	0.9
Total BTEX	41.1	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	97.0 %
	1,4-difluorobenzene	97.0 %
	Bromochlorobenzene	97.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Sargelu Well Tie - Spill.**

Analyst

Review



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EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	03-04-BT QA/QC	Date Reported:	03-05-09
Laboratory Number:	49154	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	03-04-09
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff	Blank Conc	Detect Limit
		Accept. Range 0 - 15%			
Benzene	1.8263E+005	1.8300E+005	0.2%	ND	0.1
Toluene	2.0961E+005	2.1003E+005	0.2%	ND	0.1
Ethylbenzene	2.1066E+005	2.1109E+005	0.2%	ND	0.1
p,m-Xylene	5.6979E+005	5.7093E+005	0.2%	ND	0.1
o-Xylene	2.3028E+005	2.3075E+005	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff	Accept Range	Detect. Limit
Benzene	6.9	6.7	2.9%	0 - 30%	0.9
Toluene	10.9	10.5	3.7%	0 - 30%	1.0
Ethylbenzene	10.7	10.5	1.9%	0 - 30%	1.0
p,m-Xylene	62.2	61.7	0.8%	0 - 30%	1.2
o-Xylene	30.2	29.6	2.0%	0 - 30%	0.9

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	6.9	50.0	56.5	99.3%	39 - 150
Toluene	10.9	50.0	57.9	95.1%	46 - 148
Ethylbenzene	10.7	50.0	59.7	98.4%	32 - 160
p,m-Xylene	62.2	100	157	96.9%	46 - 148
o-Xylene	30.2	50.0	77.1	96.1%	46 - 148

ND - Parameter not detected at the stated detection limit.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 49154 - 49163.

Analyst

Review



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Analytical Laboratory

Chloride

Client:	Elmridge Beeline	Project #:	08011-0009
Sample ID:	N Wall Final	Date Reported:	03-05-09
Lab ID#:	49156	Date Sampled:	02-27-09
Sample Matrix:	Soil	Date Received:	02-27-09
Preservative:	Cool	Date Analyzed:	03-03-09
Condition:	Intact	Chain of Custody:	6424

Parameter	Concentration (mg/Kg)
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Total Chloride

130

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Sargelu Well Tie - Spill.**

Analyst

Review



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Analytical Laboratory

Chloride

Client:	Elmridge Beeline	Project #:	08011-0009
Sample ID:	S Wall Final	Date Reported:	03-05-09
Lab ID#:	49157	Date Sampled:	02-27-09
Sample Matrix:	Soil	Date Received:	02-27-09
Preservative:	Cool	Date Analyzed:	03-03-09
Condition:	Intact	Chain of Custody:	6424

Parameter	Concentration (mg/Kg)
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Total Chloride

60

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Sargelu Well Tie - Spill.**

Analyst

Review

CHAIN OF CUSTODY RECORD

6424

Client: <i>Elmridge Beeline</i>			Project Name / Location: <i>Sargah Welltie - Spill</i>			ANALYSIS / PARAMETERS																
Client Address:			Sample Name: <i>T. McKnight</i>			<div style="display: flex; justify-content: space-between;"> <div> TPH (Method 8015) BTEX (Method 8021) VOC (Method 8260) </div> <div> RCRA 8 Metals Cation / Anion RCI TCLP with H/P PAH TPH (418.1) CHLORIDE </div> <div> Sample Cool Sample Intact </div> </div>																
Client Phone No.:			Client No.: <i>08011-0009</i>																			
Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative																
						HgCl ₂	HCl	NaOH														
<i>N Wall Final</i>	<i>2/27</i>	<i>14:06</i>	<i>49156</i>	<i>Soil</i> Solid	<i>Sludge</i> Aqueous	<i>1/4oz</i>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<i>S Wall Final</i>	<i>2/27</i>	<i>14:09</i>	<i>49157</i>	<i>Soil</i> Solid	<i>Sludge</i> Aqueous	<i>1/4oz</i>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
				Soil Solid	Sludge Aqueous																	
				Soil Solid	Sludge Aqueous																	
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				Soil Solid	Sludge Aqueous																	
Relinquished by: (Signature) <i>Toni [Signature]</i>				Date	Time	Received by: (Signature) <i>Monica [Signature]</i>				Date	Time											
Relinquished by: (Signature)						Received by: (Signature)																
Relinquished by: (Signature)						Received by: (Signature)																

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APPENDIX D

Bill of Lading

ENVIROTECH INC.**Bill of Lading**

MANIFEST #

32811

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

DATE 2-27-09 JOB # 08011-0009

LOAD NO.	COMPLETE DESCRIPTION OF SHIPMENT						TRANSPORTING COMPANY			
	POINT OF ORIGIN	DESTINATION	MATERIAL	GRID	YDS	BBLS	COMPANY	TRK#	TIME	DRIVER SIGNATURE
	Hardwell	LFI	CONF	W-7	12		Vaughn	14	1250	<i>[Signature]</i>
	# 1 pipeline	"	Soil	W-7	12		Vaughn	14	320	<i>[Signature]</i>
	"	"	"	W-7	12					
					24					

RESULTS

283	CHLORIDE TEST	2	LANDFARM EMPLOYEE:
	PAINT FILTER TEST	2	

NOTES:

ENTERED MAR 04 2009

"I certify the material hauled from the above location has not been added to or mixed with, and is the same material received from the above mentioned Generator, and that no additional materials have been added."

NAME Kenny KeiCOMPANY VaughnSIGNATURE *[Signature]*

COMPANY CONTACT

PHONE

DATE 2 27 09