

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303) 894-2100 Fax 894-2109



FOR OGCC USE ONLY

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☒ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☒ Other (describe): _____ No Further Action Request

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No:

GENERAL INFORMATION

OGCC Operator Number: 7800		Contact Name and Telephone	
Name of Operator: <u>Beren Corporation</u>		Name: <u>Rodney Reynolds</u>	
Address: <u>2020 North Bramblewood Street</u>		No: <u>(316) 337-8340</u>	
City: <u>Wichita</u> State: <u>KS</u> Zip: <u>67206</u>		Fax: <u>(316) 681-4740</u>	
API/Facility No: <u>05-123-05975</u>		County: <u>Weld</u>	
Facility Name: <u>Moyer #16-30</u>		Facility Number: _____	
Well Name: <u>Moyer #16-30</u>		Well Number: <u>#16-30</u>	
Location (QtrQtr, Sec, Twp, Rng, Meridian): <u>SESE Sec. 30 T12N R56W 6th PM</u>		Latitude: <u>40.97795</u> Longitude: <u>-103.673452</u>	

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): <u>Crude oil</u>		
Site Conditions: Is location within a sensitive area (according to Rule 901e)? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If yes, attach evaluation. Surface water adjacent to site		
Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): <u>Pasture</u>		
Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: <u>Eckley-Dix-Blakeland complex, 6-20% slopes, Bankard loamy fine sand, 0-3% slopes</u>		
Potential receptors (water wells within 1/4 mi, surface waters, etc.): <u>An unnamed intermittent stream is located 200' north and east of the site.</u>		
Description of Impact (if previously provided, refer to that form or document):		
Impacted Media (check):	Extent of Impact:	How Determined:
<input checked="" type="checkbox"/> Soils	<u>Intermittent stream bed ~ 0.5' bgs</u>	<u>Sampling and laboratory analysis</u>
<input type="checkbox"/> Vegetation	_____	_____
<input type="checkbox"/> Groundwater	_____	_____
<input type="checkbox"/> Surface water	_____	_____

REMEDIATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):	
<u>On July 12, 2013, the Colorado Oil & Gas Conservation Commission (COGCC) issued Beren Corporation (Beren) a Notice of Alleged Violation (NOAV) following an on-site field inspection (Document #667500201). The COGCC opened Remediation Project #7985 for this site.</u>	
Describe how source is to be removed:	
<u>Beren has conducted excavation activities to remove soils non-compliant with the COGCC Table 910-1 Concentration Levels. Additional confirmation samples were taken to confirm the removal of non-compliant soils. Currently, Beren is in the process of closing the produced water pit and oil skim pit associated with the adjacent Gerry lease in accordance with Rule 905. At the time when these site features are closed, appropriate sampling and forms will be submitted and all impacted soils will be landfarmed in accordance with a submitted and approved Waste Management Plan.</u>	
Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:	
<u>All hydrocarbon material exceeding the COGCC Table 910-1 Concentration Levels was removed and added to existing stockpiles from facility decommissioning activities to be landfarmed once appropriate forms and waste management plans are submitted and approved by the COGCC</u>	



Tracking Number:	_____
Name of Operator:	Beren Corporation
OGCC Operator No:	7800
Received Date:	_____
Well Name & No:	Moyer #16-30
Facility Name & No.:	_____

REMEDIAL WORKPLAN (CONT.)

OGCC Employee: _____

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Not applicable

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

The excavated areas will be backfilled with COGCC Table 910-1 compliant soil and the ground surface will be contoured to match previous grade.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☐ Y ☒ N If yes, describe:

On July 25, 2013, and August 1, 2013, on behalf of Beren, LT Environmental, Inc. (LTE) personnel were on site (Figure 1) for an initial site assessment in accordance with Rules 909 and 910 to determine the vertical and lateral extent of impacts to the drainage. Soil samples were collected from the surface (Figure 2) and a depth determined to be compliant by visual observation and field screening for volatile organic compounds and total petroleum hydrocarbons (TPH) using a flame ionization detector. During remediation activities, additional areas of impact were observed. These areas were removed and remaining soils were sampled and were compliant with Table 910-1. Soil samples were submitted to Summit Scientific, Inc. (Summit) of Golden, Colorado, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and TPH-gasoline range organics (GRO) by United States Environmental Protection Agency (EPA) Method 8260B and TPH-diesel range organics (DRO) by EPA Modified Method 8015. Select soil samples were also analyzed for pH by EPA Method 9045, specific conductance (EC) by Standard Method 2510B, and sodium adsorption ratio (SAR) by the United States Department of Agriculture Handbook 60 Method.

Please refer to the attached Remediation Results report for more detail.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

All hydrocarbon material exceeding the COGCC Table 910-1 Concentration Levels was removed and was placed on the associated and adjacent Gerry lease to be landfarmed onsite concurrently with additional soils generated from the decommissioning of facility features associated with the Gerry lease until soil is compliant with COGCC Table 910-1 concentration levels.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began:	7/25/2013	Date Site Investigation Completed:	8/1/2013	Remediation Plan Submitted:	9/18/2013
Remediation Start Date:	7/25/2013	Anticipated Completion Date:	NA	Actual Completion Date:	4/22/2014

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Rodney Reynolds

Signed: R. R. Reynolds Title: Division Engineer Date: 6/3/14

OGCC Approved: _____ Title: _____ Date: _____



May 31, 2014

Mr. John Axelson
Northeast Region Environmental Protection Specialist
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, Colorado 80203

**RE: Remediation Results
Beren Corporation
Moyer #16-30 Release
API: 05-123-05975
NOAV: 200382925
Remediation Project #7985
SESE Sec. 30-T12N-R56W 6 PM
40.977950, -103.673452
Weld County, Colorado**

Dear Mr. Axelson:

LT Environmental, Inc. (LTE), under the direction of Beren Corporation (Beren), conducted remediation activities at the Moyer #16-30 Tank Battery (Site) in regards to Remediation Project #7985 related to the Notice of Alleged Violation (NOAV #200382925) issued by the Colorado Oil and Gas Conservation Commission (COGCC). The COGCC identified petroleum hydrocarbon impacts indicative of historical releases in the drainage east of the Site, which is located approximately 1.2 miles southeast of the intersection of Colorado State Highway 71 and Weld County Road 138 in Weld County, Colorado. The legal site description is the southeast quarter of the southeast quarter of Section 30, Township 12 North, and Range 56 West of the 6th Principal Meridian. The Site Location Map is provided as Figure 1.

Previous Site Investigation

On July 25 and August 1, 2013, LTE personnel collected soil samples from ten locations (SS01 through SS10) along the estimated flow path. Two samples were collected from each sample location: one sample was composited from the first six inches of soil and one sample was composited from a depth visually determined to be free of petroleum hydrocarbon impact. The samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) by United States Environmental Protection Agency (EPA) Method 8260B, and TPH-diesel range organics (DRO) by EPA Modified Method 8015. Sample locations SS01, SS03, SS04, SS07, and SS10 were also analyzed for pH by EPA Method 9045, specific conductance (EC) by Standard Method 2510B, and sodium adsorption ratio (SAR) by the United States Department of Agriculture Handbook 60 Method.



Laboratory analytical results indicate soil samples SS02@0-0.5", SS04@0-0.5", SS06@0-0.5", and SS07@0-0.5" exceed the COGCC Table 910-1 Concentration Level for TPH (Table 1) with concentrations ranging from 1,700.73 to 4,900 milligrams per kilogram (mg/kg). However, analytical results from all ten deep soil sample locations are compliant with COGCC Table 910-1 Concentration Level for TPH (Table 1). Laboratory analytical results also indicate soil samples SS07@2-2.5' and SS10@0-0.5" exceed the COGCC Table 910-1 Concentration Level for pH at 9.13 and 9.16, respectively. These slight pH exceedances appear to be representative of background pH. Additionally, analytical results for EC and SAR are low indicating no impact at that level

All other samples were compliant with the COGCC Table 910-1 Concentration Levels. The soil analytical results are summarized in Table 1. The laboratory analytical report is included as an attachment.

Remediation Results

On April 22, 2014, LTE visited the area to confirm the excavation of the COGCC Table 910-1 non-compliant soil at sample locations SS02, SS04, SS06, and SS07 to the depths determined to be compliant by the second deeper sample location. During this time, an additional section of impacted material in the vicinity of sample location SS11 was excavated. Beren excavated approximately 822 cubic yards of soil from the impacted areas within the draw as shown on Figure 2. The 822 cubic yards of impacted soil was placed on the associated Gerry production pad and will be incorporated with the soil stockpiles currently being generated onsite from the decommissioning of onsite equipment associated with this lease. The excavated sections of the drainage will be backfilled to match the current grade and contour with COGCC Table 910-1 compliant soil.

Beren is currently in the process of closing the produced water pit and oil skim pit on site in accordance with the COGCC Rule 905. Once Beren has visually determined all impacted soil has been removed from the oil skim pit and produced water pit, LTE personnel will return to the site to collect confirmation samples to be submitted to Summit for laboratory analysis. Upon receipt of compliant confirmation results, Beren will request approval to backfill the produced water and oil skim pits to previous grade and contour with COGCC Table 910-1 compliant soil. At that time, Beren will also submit a Waste Management Plan for the waste generated from the Moyer Release remediation (associated with the Gerry produced water pit) and the decommissioning of the pits and infrastructure at the Gerry lease.



Please call LTE at 303-433-9788 if you have any questions or comments regarding this report.

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in black ink, appearing to be "EL", with a long horizontal stroke extending to the right.

Eric Lang, P.G.
Project Geologist

A handwritten signature in black ink, appearing to be "C. Purcell", with a double vertical line at the end.

Chris Purcell, C.P.G.
Client Manager/Project Geologist

Attachments:

Figure 1 – Site Location Map

Figure 2 – Site Map

Table 1 – Soil Analytical Results

Attachment – Laboratory Analytical Reports

FIGURES

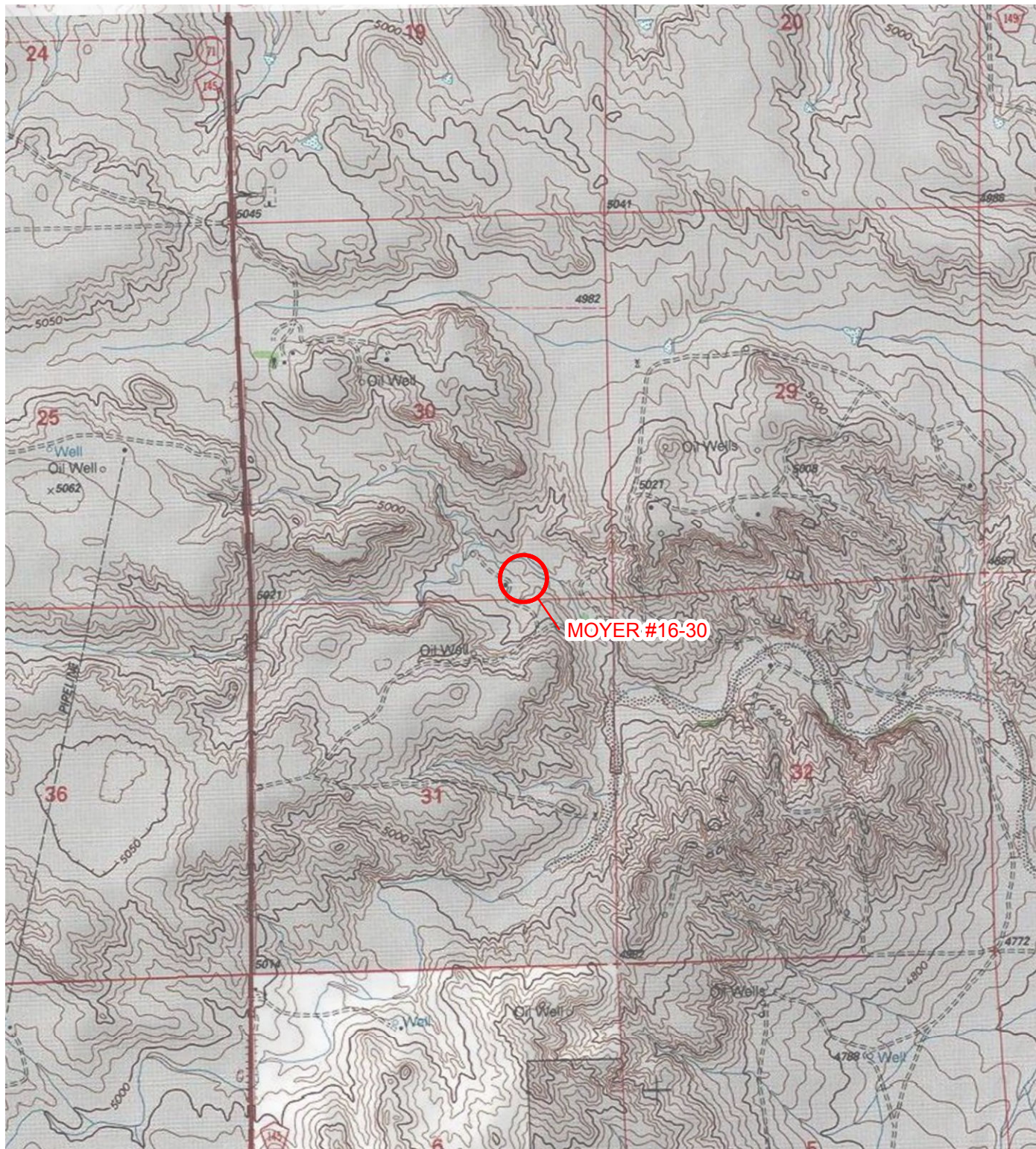


IMAGE COURTESY OF ESRI/USGS

LEGEND

○ SITE LOCATION

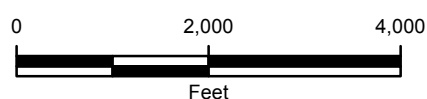


FIGURE 1
SITE LOCATION MAP
MOYER #16-30
SESE SEC 30-T12N-R56W
WELD COUNTY, COLORADO
BEREN CORPORATION





IMAGE COURTESY OF ESRI

LEGEND

- SOIL SAMPLE
- SPILL PATH
- DRAW SCRAPED EXTENT

INITIAL SOIL SAMPLES WERE COLLECTED FROM SS01-SS10 ON JULY 25, 2013.

SUBSEQUENT SOIL SAMPLES WERE COLLECTED FROM SS03-SS07 AND AN INITIAL SOIL SAMPLE WAS COLLECTED FROM SS11 ON APRIL 22, 2014.

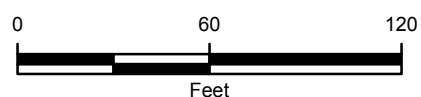


FIGURE 2
SITE MAP
 MOYER #16-30
 SESE SEC 30-T12N-R56W
 WELD COUNTY, COLORADO
BEREN CORPORATION



TABLE



TABLE 1
SOIL ANALYTICAL RESULTS
MOYER #16-30 RELEASE
WELD COUNTY, COLORADO
BEREN CORPORATION

PARAMETER	COGCC Table 910-1 Concentration Level	UNITS	Sample ID: SS01@0-0.5'	Sample ID: SS01@7.5-8'	Sample ID: SS02@0-0.5'	Sample ID: SS02@1.5-2'	Sample ID: SS03@0-0.5'	Sample ID: SS03@1-1.5'	Sample ID: SS03@3-4'	Sample ID: SS04@0-0.5'	Sample ID: SS04@1.5-2'	Sample ID: SS04@2.5-3.5'
Sample Date			7/25/2013	7/25/2013	7/25/2013	7/25/2013	8/1/2013	8/1/2013	4/22/2013	7/25/2013	7/25/2013	4/22/2014
Benzene	0.17	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Toluene	85	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	100	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Xylenes	175	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
TPH-GRO		mg/kg	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.73	<0.50	<0.50
TPH-DRO		mg/kg	<50	<50	2,000	<50	<50	<50	<50	1,700	350	<50
Total TPH	500	mg/kg	2.2	<50.50	2,000	<50.50	<50.50	<50.50	<50.5	1,700.73	350	<50.5
EC	<4	mmhos/cm	0.295	--	--	--	0.106	0.0680	--	--	0.107	--
pH	6 - 9	SU	8.53	--	--	--	7.87	7.79	--	--	8.57	--
SAR	<12	unitless	0.200	--	--	--	0.200	0.290	--	--	3.16	--

NOTES:
< - less than the stated laboratory reporting limit
-- - not analyzed
EC - specific conductance
mg/kg - milligrams per kilogram
mmhos/cm - millimhos per centimeter in saturated paste extract
SAR - sodium adsorption ratio
SU - standard unit on saturated paste
TPH-DRO - total petroleum hydrocarbons-diesel range organics
TPH-GRO - total petroleum hydrocarbons-gasoline range organics
Total TPH - sum of TPH-DRO and TPH-GRO
BOLD - indicates result exceeds the applicable Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 Concentration Level



TABLE 1
SOIL ANALYTICAL RESULTS
MOYER #16-30 RELEASE
WELD COUNTY, COLORADO
BEREN CORPORATION

PARAMETER	COGCC Table 910-1 Concentration Level	UNITS	Sample ID: SS05@0-0.5'	Sample ID: SS05@1.5-2'	Sample ID: SS05@2-3'	Sample ID: SS06@0-0.5'	Sample ID: SS06@1.5-2'	Sample ID: SS06@3-4'	Sample ID: SS07@0-0.5'	Sample ID: SS07@3-4'	Sample ID: SS07@2-2.5'	Sample ID: SS08@0-0.5'
Sample Date			7/25/2013	7/25/2013	4/22/2014	7/25/2013	7/25/2013	4/22/2014	7/25/2013	7/25/2013	4/22/2014	7/25/2013
Benzene	0.17	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0017	<0.0020
Toluene	85	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0043	<0.0050
Ethylbenzene	100	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0043	<0.0050
Total Xylenes	175	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0043	<0.0050
TPH-GRO		mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.9	1.2	<0.43	<0.50
TPH-DRO		mg/kg	<50	<50	<50	4,900	<50	<50	2,900	<50	<50	<50
Total TPH	500	mg/kg	<50.50	<50.50	<50.5	4,900	<50.50	<50.5	2,901.9	1.2	<50.43	<50.50
EC	<4	mmhos/cm	--	--	--	--	--	--	--	0.134	--	--
pH	6 - 9	SU	--	--	--	--	--	--	--	9.13	--	--
SAR	<12	unitless	--	--	--	--	--	--	--	0.130	--	--

NOTES:
< - less than the stated laboratory reporting limit
-- - not analyzed
EC - specific conductance
mg/kg - milligrams per kilogram
mmhos/cm - millimhos per centimeter in saturated paste extract
SAR - sodium adsorption ratio
SU - standard unit on saturated paste
TPH-DRO - total petroleum hydrocarbons-diesel range organics
TPH-GRO - total petroleum hydrocarbons-gasoline range organics
Total TPH - sum of TPH-DRO and TPH-GRO
BOLD - indicates result exceeds the applicable Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 Concentration Level



TABLE 1
SOIL ANALYTICAL RESULTS
MOYER #16-30 RELEASE
WELD COUNTY, COLORADO
BEREN CORPORATION

PARAMETER	COGCC Table 910-1 Concentration Level	UNITS	Sample ID: SS08@1.5-2'	Sample ID: SS09@0-0.5'	Sample ID: SS09@1.5-2'	Sample ID: SS10@0-0.5'	Sample ID: SS10@1.5-2'
Sample Date			7/25/2013	7/25/2013	7/25/2013	7/25/2013	7/25/2013
Benzene	0.17	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Toluene	85	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	100	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Xylenes	175	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
TPH-GRO		mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
TPH-DRO		mg/kg	<50	<50	<50	<50	<50
Total TPH	500	mg/kg	<50.50	<50.50	<50.50	<50.50	<50.50
EC	<4	mmhos/cm	--	--	--	0.0738	--
pH	6 - 9	SU	--	--	--	9.16	--
SAR	<12	unitless	--	--	--	0.0500	--

NOTES:
< - less than the stated laboratory reporting limit
-- - not analyzed
EC - specific conductance
mg/kg - milligrams per kilogram
mmhos/cm - millimhos per centimeter in saturated paste extract
SAR - sodium adsorption ratio
SU - standard unit on saturated paste
TPH-DRO - total petroleum hydrocarbons-diesel range organics
TPH-GRO - total petroleum hydrocarbons-gasoline range organics
Total TPH - sum of TPH-DRO and TPH-GRO
BOLD - indicates result exceeds the applicable Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 Concentration Level



ATTACHMENT
LABORATORY ANALYTICAL REPORTS



Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

May 01, 2014

Eric Lang

LT Environmental, Inc.

4600 West 60th Avenue

Arvada, CO 80003

RE: BNC - Moyer Unit 16-30 Release

Enclosed are the results of analyses for samples received by Summit Scientific on 04/24/14 13:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'BS' or 'Shrewsbury', written in a cursive style.

Ben Shrewsbury

President / Laboratory Manager



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: BNC - Moyer Unit 16-30 Release

Project Number: 0415-13001
Project Manager: Eric Lang

Reported:
05/01/14 21:56

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS03	1404179-01	Soil	04/22/14 14:25	04/24/14 13:00
SS11	1404179-02	Soil	04/22/14 14:35	04/24/14 13:00
SS04	1404179-03	Soil	04/22/14 15:00	04/24/14 13:00
SS05	1404179-04	Soil	04/22/14 15:10	04/24/14 13:00
SS06	1404179-05	Soil	04/22/14 15:40	04/24/14 13:00
SS07	1404179-06	Soil	04/22/14 15:50	04/24/14 13:00

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: BNC - Moyer Unit 16-30 Release

Project Number: 0415-13001

Project Manager: Eric Lang

Reported:

05/01/14 21:56

Summit Scientific

52

741 Corporate Circle, Suite J&K ♦ Golden, Colorado 80401

303-277-9310 ♦ 303-374-5933

Page 1 of

Client: LT Environmental, Inc.

Project Manager:

Trail

Address: 4600 West 60th Ave

E-M-3

E-Mail: GAN

(a) 145 NY, 600

© | hmv.com

City/State/Zip: Arvada, CO 80003

1

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End of the line

20

Phone: 303-433-9788

Project Name:

Nov - 11-30

Sampler Name:

Provis

Project Number:

483001

Sample Description				Date Sampled	Time Sampled	# of containers	Preservative				Matrix	Analysis Requested	Special Instructions							
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	STEX/LRO							
1	5563	4/22/14	14:25	5	X		X			X			X	STEX/LRO						
2	5511	4/22/14	14:35	3		X		X		X			X							
3	5504	4/22/14	15:00	3		X		X		X			X							
4	5505	4/22/14	15:10	3		X		X		X			X							
5	5506	4/22/14	15:40	3		X		X		X			X							
6	5507	4/22/14	15:50	3		X		X		X			X							
7																				
8																				
9																				
10																				
Relinquished by: <i>[Signature]</i>		Date/Time: 4/24/14	Received by: <i>[Signature]</i>		4/24/14		1300		Date/Time:		Turn Around Time		(Check)		72 hours		Standard		Notes: FAT TRD B	
Relinquished by: <i>[Signature]</i>		Date/Time:	Received by:						Date/Time:		Turn Around Time		(Check)		72 hours		Standard		Notes: <u>4.2</u>	
Relinquished by:		Date/Time:	Received by:						Date/Time:		Turn Around Time		(Check)		72 hours		Standard		Notes: <u>4.2</u>	

www.s2scientific.com

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: BNC - Moyer Unit 16-30 Release
Project Number: 0415-13001
Project Manager: Eric Lang

Reported:
05/01/14 21:56

SS03
1404179-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/22/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1404193	04/28/14	04/28/14	8015M	

Date Sampled: **04/22/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		109 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/22/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1404194	"	04/28/14	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/22/14 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: BNC - Moyer Unit 16-30 Release
Project Number: 0415-13001
Project Manager: Eric Lang

Reported:
05/01/14 21:56

SS11
1404179-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/22/14 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1404193	04/28/14	04/29/14	8015M	

Date Sampled: **04/22/14 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		89.1 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/22/14 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1404194	"	04/28/14	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/22/14 14:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Summit Scientific

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Arvada CO, 80003

Project: BNC - Moyer Unit 16-30 Release
Project Number: 0415-13001
Project Manager: Eric Lang

Reported:
05/01/14 21:56

SS04
1404179-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/22/14 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1404193	04/28/14	04/29/14	8015M	

Date Sampled: **04/22/14 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		105 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/22/14 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1404194	"	04/28/14	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/22/14 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		126 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

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Reported:
05/01/14 21:56

SS05
1404179-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/22/14 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1404193	04/28/14	04/29/14	8015M	

Date Sampled: **04/22/14 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		108 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/22/14 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1404194	"	04/28/14	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/22/14 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

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Project Manager: Eric Lang

Reported:
05/01/14 21:56

SS06
1404179-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/22/14 15:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1404193	04/28/14	04/29/14	8015M	

Date Sampled: **04/22/14 15:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		110 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/22/14 15:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1404194	"	04/28/14	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/22/14 15:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane- <i>d</i> 4		121 %	23-173		"	"	"	"	
Surrogate: Toluene- <i>d</i> 8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: BNC - Moyer Unit 16-30 Release
Project Number: 0415-13001
Project Manager: Eric Lang

Reported:
05/01/14 21:56

SS07
1404179-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/22/14 15:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1404193	04/28/14	04/29/14	8015M	

Date Sampled: **04/22/14 15:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		110 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/22/14 15:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0017	mg/kg	1	1404194	"	04/28/14	EPA 8260B	
Toluene	ND	0.0043	"	"	"	"	"	"	
Ethylbenzene	ND	0.0043	"	"	"	"	"	"	
Xylenes (total)	ND	0.0043	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.43	"	"	"	"	"	"	

Date Sampled: **04/22/14 15:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane- <i>d</i> 4		122 %	23-173		"	"	"	"	
Surrogate: Toluene- <i>d</i> 8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

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Arvada CO, 80003

Project: BNC - Moyer Unit 16-30 Release
Project Number: 0415-13001
Project Manager: Eric Lang

Reported:
05/01/14 21:56

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1404193 - EPA 3550A

Blank (1404193-BLK1)

Prepared & Analyzed: 04/28/14

C10-C28 (DRO) ND 50 mg/kg

LCS (1404193-BS1)

Prepared & Analyzed: 04/28/14

C10-C28 (DRO) 517 50 mg/kg 460 112 73-134

Matrix Spike (1404193-MS1)

Source: 1404179-01

Prepared & Analyzed: 04/28/14

C10-C28 (DRO) 530 50 mg/kg 492 ND 108 50-148

Matrix Spike Dup (1404193-MSD1)

Source: 1404179-01

Prepared & Analyzed: 04/28/14

C10-C28 (DRO) 480 50 mg/kg 450 ND 107 50-148 9.87 13

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Project: BNC - Moyer Unit 16-30 Release
Project Number: 0415-13001
Project Manager: Eric Lang

Reported:
05/01/14 21:56

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1404194 - EPA 5030 Soil MS

Blank (1404194-BLK1)

Prepared & Analyzed: 04/28/14

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0434		"	0.0397	109	23-173				
Surrogate: Toluene-d8	0.0398		"	0.0400	99.4	20-170				
Surrogate: 4-Bromofluorobenzene	0.0416		"	0.0400	104	21-167				

LCS (1404194-BS1)

Prepared & Analyzed: 04/28/14

Benzene	0.0870	0.0020	mg/kg	0.0997	87.2	58-130				
Toluene	0.0956	0.0050	"	0.100	95.6	61-134				
Ethylbenzene	0.100	0.0050	"	0.0992	101	74-139				
m,p-Xylene	0.210	0.010	"	0.200	105	73-137				
o-Xylene	0.103	0.0050	"	0.0988	104	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0436		"	0.0397	110	23-173				
Surrogate: Toluene-d8	0.0401		"	0.0400	100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0411		"	0.0400	103	21-167				

LCS (1404194-BS2)

Prepared & Analyzed: 04/28/14

Benzene	0.106	0.0020	mg/kg	0.0997	107	58-130				
Toluene	0.104	0.0050	"	0.100	104	61-134				
Ethylbenzene	0.120	0.0050	"	0.0992	121	74-139				
m,p-Xylene	0.240	0.010	"	0.200	120	73-137				
o-Xylene	0.123	0.0050	"	0.0988	125	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0459		"	0.0397	116	23-173				
Surrogate: Toluene-d8	0.0391		"	0.0400	97.8	20-170				
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400	99.6	21-167				

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Arvada CO, 80003

Project: BNC - Moyer Unit 16-30 Release
Project Number: 0415-13001
Project Manager: Eric Lang

Reported:
05/01/14 21:56

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1404194 - EPA 5030 Soil MS

Matrix Spike (1404194-MS1)		Source: 1404179-01			Prepared & Analyzed: 04/28/14					
Benzene	0.0714	0.0018	mg/kg	0.0893	ND	79.9	30-131			
Toluene	0.0826	0.0045	"	0.0896	ND	92.1	30-134			
Ethylbenzene	0.125	0.0045	"	0.0889	ND	141	22-153			
m,p-Xylene	0.226	0.0090	"	0.179	ND	126	10-159			
o-Xylene	0.133	0.0045	"	0.0885	ND	151	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0402		"	0.0356		113	23-173			
Surrogate: Toluene-d8	0.0345		"	0.0358		96.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0355		"	0.0358		99.1	21-167			

Matrix Spike (1404194-MS2)		Source: 1404179-02			Prepared & Analyzed: 04/28/14					
Benzene	0.102	0.0020	mg/kg	0.0942	ND	108	30-131			
Toluene	0.0989	0.0050	"	0.0945	ND	105	30-134			
Ethylbenzene	0.110	0.0050	"	0.0938	ND	117	22-153			
m,p-Xylene	0.221	0.010	"	0.189	ND	117	10-159			
o-Xylene	0.109	0.0050	"	0.0934	ND	116	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0468		"	0.0375		125	23-173			
Surrogate: Toluene-d8	0.0367		"	0.0378		97.1	20-170			
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0378		100	21-167			

Matrix Spike Dup (1404194-MSD1)		Source: 1404179-01			Prepared & Analyzed: 04/28/14					
Benzene	0.0760	0.0020	mg/kg	0.0946	ND	80.4	30-131	6.28	34	
Toluene	0.0879	0.0050	"	0.0949	ND	92.7	30-134	6.30	30	
Ethylbenzene	0.137	0.0050	"	0.0941	ND	146	22-153	9.19	24	
m,p-Xylene	0.245	0.010	"	0.190	ND	129	10-159	8.02	68	
o-Xylene	0.138	0.0050	"	0.0937	ND	147	31-151	3.49	38	
Surrogate: 1,2-Dichloroethane-d4	0.0417		"	0.0377		111	23-173			
Surrogate: Toluene-d8	0.0368		"	0.0380		97.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0380		99.7	21-167			

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Project Number: 0415-13001
Project Manager: Eric Lang

Reported:
05/01/14 21:56

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1404194 - EPA 5030 Soil MS

Matrix Spike Dup (1404194-MSD2)	Source: 1404179-02			Prepared & Analyzed: 04/28/14						
Benzene	0.100	0.0020	mg/kg	0.0950	ND	106	30-131	1.13	34	
Toluene	0.0951	0.0050	"	0.0952	ND	99.8	30-134	3.97	30	
Ethylbenzene	0.111	0.0050	"	0.0945	ND	117	22-153	0.811	24	
m,p-Xylene	0.223	0.010	"	0.190	ND	117	10-159	0.900	68	
o-Xylene	0.111	0.0050	"	0.0941	ND	118	31-151	2.29	38	
Surrogate: 1,2-Dichloroethane-d4	0.0449		"	0.0378		119	23-173			
Surrogate: Toluene-d8	0.0385		"	0.0381		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0381		"	0.0381		100	21-167			

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Project Number: 0415-13001
Project Manager: Eric Lang

Reported:
05/01/14 21:56

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

A handwritten signature in black ink, appearing to be 'J.M.' with a long, sweeping underline.