



Oil and Gas Conservation Commission

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

#7368

RECEIVED
OCT 23 2012
COGCC

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): Pit Closure

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No:

GENERAL INFORMATION

OGCC Operator Number: 7800		Contact Name and Telephone	
Name of Operator: Beren Corporation		Name: Rodney Reynolds	
Address: 2020 North Bramblewood Street		No: (316) 337-8340	
City: Wichita State: KS Zip: 67206		Fax: (316) 681-4740	
API/Facility No: 05-121-05259		County: Washington	
Facility Name: Wright		Facility Number: 107607	
Well Name: Wright DM-1		Well Number: NA	
Location (QtrQtr, Sec, Twp, Rng, Meridian): SWSW 31 3S 53W 6 PM		Latitude: 39.742503 Longitude: -103.36733	

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): crude oil

Site Conditions: Is location within a sensitive area (according to Rule 901e)? ☐ Y ☒ N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Open Pasture

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Stoneham loams, 6 to 9 percent slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Drainage located 1,200' southwest of the site and 2,000 northwest

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	20 feet X 20 feet (pit bottom)	Excavation, sampling, laboratory analysis
<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):

NA

Describe how source is to be removed:

See Attached Letter

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.:

Approximately 600 yards of impacted soil was stockpiled and sampled to determine an effective and efficient remediation plan. A waste management plan will be submitted via Form 4 to lay out the plan for remediation of the remaining onsite stockpiled soil.

State of Colorado
Oil and Gas Conservation Commission

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



Tracking Number: 1761352
Name of Operator: Beren Corporation
OGCC Operator No: 7800
Received Date: 10/23/12
Well Name & No: _____
Facility Name & No.: Wright

REMEDIAL WORKPLAN (CONT.)

OGCC Employee: John Axelson

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):
Groundwater was not encountered during excavation and sampling activities.

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 pit will be backfilled with clean soil. The ground surface will be contoured to match the existing grade and reseeded.

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:
Analytical results for the oil skim pit bottom indicate benzene, toluene, ethylbenzene, and total xylenes (BTEX) as well as total petroleum hydrocarbons (TPH) as gasoline range organics and diesel range organics were in compliance with Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 concentration levels.
As the oil skim pit has been remediated to meet cleanup levels specified in COGCC Table 910-1, Beren is requesting a No Further Action determination for the pit closure.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):
Approximately 600 yards of impacted soil was stockpiled and sampled to determine an effective and efficient remediation plan. A waste management plan will be submitted via Form 4 to lay out the plan for remediation of the remaining onsite stockpiled soil.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began:	<u>10/3/2012</u>	Date Site Investigation Completed:	<u>10/3/2012</u>	Remediation Plan Submitted:	<u>10/23/2012</u>
Remediation Start Date:	<u>10/3/2012</u>	Anticipated Completion Date:	<u>NA</u>	Actual Completion Date:	<u>10/1/2012</u>

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: [Signature] Title: Division Engineer Date: 10/23/2012

OGCC Approved: [Signature] Title: EPS Date: 10/24/12

See conditions of approval. [Signature]

Beren Corporation - #7800
Scott Skim Pit Facility #107607
Wright DM1, API #121-05259
Form 27 – Document #1761352

Skim Pit Closure – Conditions of Approval

The Form 27 documenting skim pit closure and remediation at the referenced facility is approved with the following conditions:

- Based on the confirmation sample results, the skim pits can be backfilled with clean fill material and the surface restored. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if ground water is found to be impacted, then further investigation and/or remediation may be required.
- Based on the confirmation sample results, the material from stockpile SP-02 can be used to backfill the pit.
- Provide a detailed remediation plan no later than December 31, 2012, to properly treat or dispose the estimated 600 cubic yards of impacted material excavated from the skim pits and remaining on site in stockpile SP-01.
- Until such time that remediation of the 600 cubic yards of impacted material begins, the stockpile shall be properly maintained to prevent contamination of stormwater runoff, ground water or surface water.
- The Form 27 (document #1761352) shall remain open until the 600 cubic yards of impacted material is properly treated or disposed and sufficient documentation is provided to verify completion.



October 23, 2012

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

**RE: No Further Action Request
Beren Corporation
Wright Oil Skim Pit Closure
Facility ID: 256227
SWSW Sec. 31 3S 53W, 6th Principal Meridian
Washington County, Colorado**

Dear Mr. Axelson:

LT Environmental, Inc. (LTE), under the direction of Beren Corporation (Beren), conducted environmental remediation and sampling activities following the identification of petroleum hydrocarbon impacted soil during oil skim pit closure activities at the Wright Tank Battery (Site). The Site is located 0.2 miles north of the intersection of County Road U and U.S. Highway 36 in Washington County, Colorado (Figure 1).

On October 3, 2012, LTE personnel were on site to oversee excavation activities, field screen soil, document site activities, conduct health and safety monitoring, and collect confirmation samples for laboratory analysis. Composite soil samples were collected from the excavation and were field screened for volatile organic compounds and total petroleum hydrocarbons (TPH) with a photo-ionization detector and a PetroFLAG TPH screening kit to evaluate if additional excavation was required. Once field screening indicated all the impacted soil had been removed from the oil skim pit, confirmation sample OS-01 was collected from the pit as illustrated in Figure 2. Samples were submitted to Summit Scientific (Summit) of Golden, Colorado, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), and TPH as gasoline range organics (GRO) by United States Environmental Protection Agency (EPA) Method 8260B, and TPH as diesel range organics (DRO) by United States Environmental Protection Agency (EPA) Modified Method 8015. 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.

Soil analytical results from the pit bottom indicated OS-01 was in compliance with the Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 Concentration Levels, with the exception of pH. Sample OS-01 slightly exceeds the required pH range of 6-9 at 9.2. However, the sample was collected at a depth of 15 feet below ground surface, which is well below the root zone. A slight exceedance of pH at this depth will not affect surface reclamation. Analytical results are summarized in Table 1. The laboratory analytical report is attached. As soil has now



been remediated to achieve COGCC cleanup goals, Beren is requesting a No Further Action determination for the pit closure activities.

LTE personnel also collected composite samples (SP-01 and SP-02) from the two onsite impacted soil stockpiles depicted on Figure 2. There are approximately 600 cubic yards of impacted soil currently stockpiled at the Site. The stockpile samples were collected to characterize the impacted soil removed from the excavation and determine which on site remediation options best fit the stockpiled soil. Samples were submitted to Summit for analysis of BTEX, TPH-GRO, TPH-DRO, pH, EC, and SAR. Analytical results indicated TPH concentrations exceeded the COGCC Table 910-1 Concentration Level for the stockpile characterized by sample SP-01. The TPH concentration exhibited by sample SP-01 was 2,400 milligrams per kilogram.

LTE is currently designing the best fit remedial option for the stockpile characterized by sample SP-01. A waste management plan will be prepared and submitted with a Form 4 to layout the stockpile remediation plan and future confirmation data submittals.

The second smaller stockpile characterized by sample SP-02 exhibited BTEX and TPH concentrations compliant with COGCC Table 910-1 Concentration Levels. As a result of the compliant status of the stockpile, this soil will be used during backfilling of the pit at the Site.

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 read "Michael Wicker".

Michael Wicker
Staff Geologist

A handwritten signature in black ink, appearing to read "Brian Dodek".

Brian Dodek, P.G.
Client Manager/Senior Geologist

Attachments

Figure 1	Site Location Map
Figure 2	Site Map
Table 1	Soil Analytical Results
Attachment 1	Laboratory Analytical Reports

FIGURE



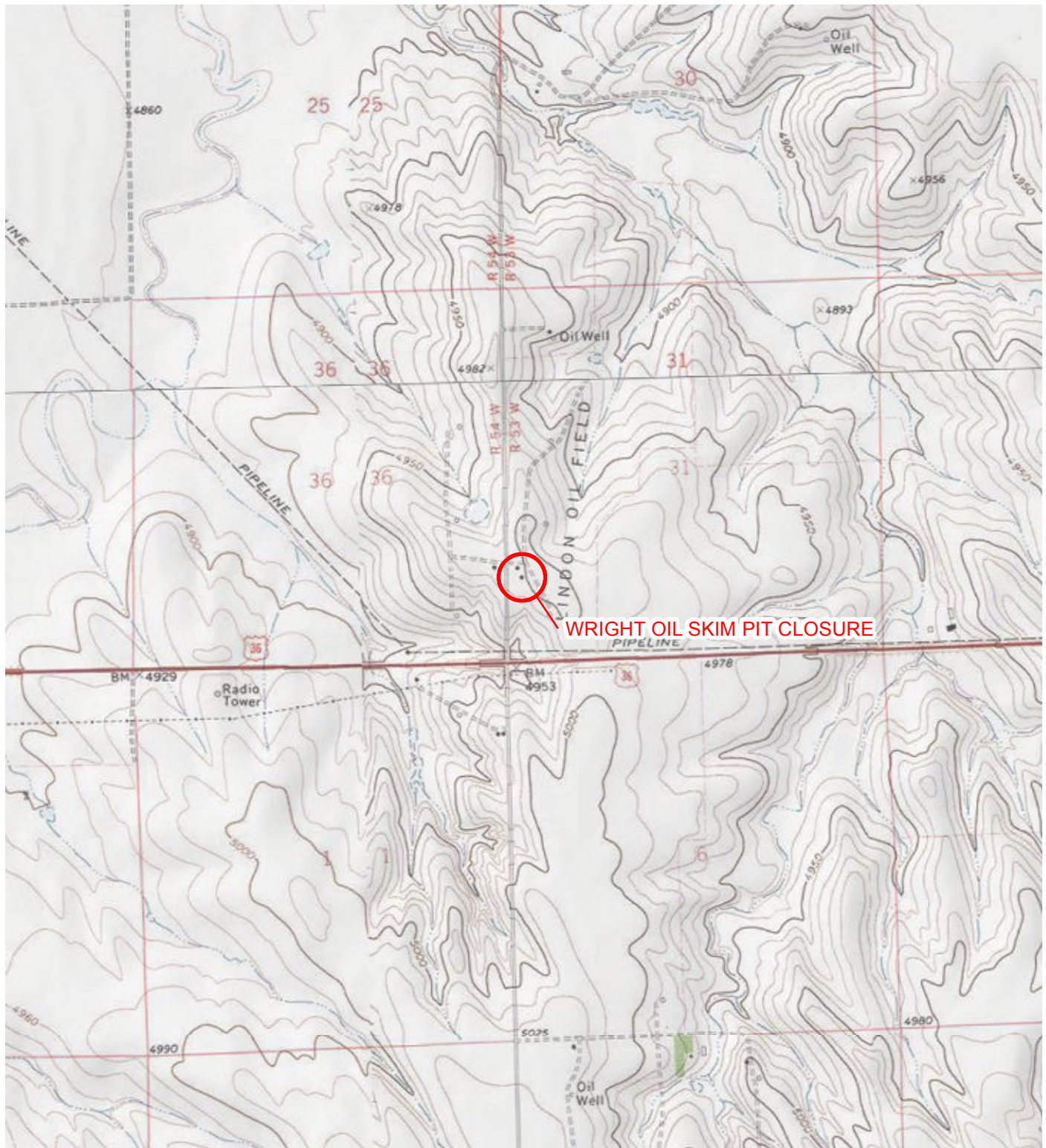


IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

○ SITE LOCATION

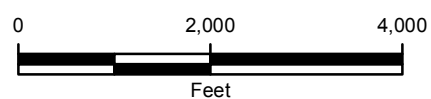


FIGURE 1
SITE LOCATION MAP
WRIGHT OIL SKIM PIT CLOSURE
WASHINGTON COUNTY, COLORADO

BEREN CORPORATION





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- OIL SKIM SAMPLE
- STOCK PILE SAMPLE
- OIL SKIM PIT
- STOCK PILE

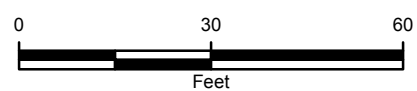


FIGURE 2
SITE MAP
WRIGHT OIL SKIM PIT CLOSURE
WASHINGTON COUNTY, COLORADO

BEREN CORPORATION



TABLE

TABLE 1
SOIL ANALYTICAL RESULTS
WRIGHT OIL SKIM PIT CLOSURE
WASHINGTON COUNTY, COLORADO
BEREN CORPORATION

Parameter	COGCC Table 910-1 Concentration Level	Units	OS-01	SP-01	SP-02
Sample Date			10/3/2012	10/3/2012	10/3/2012
TPH-GRO		mg/kg	<0.50	500	22
TPH-DRO		mg/kg	<50	1,900	320
Total TPH	500	mg/kg	<50.5	2,400	342
Benzene	0.17	mg/kg	<0.0050	0.0054	<0.0050
Toluene	85	mg/kg	<0.0050	<0.0050	<0.0050
Ethylbenzene	100	mg/kg	<0.0050	0.015	<0.0050
Total Xylenes	175	mg/kg	<0.0050	0.034	<0.0050
EC	4	mmhos/cm	1.16	1.29	
SAR	12	unitless	3.79	10.0	
pH	6-9	SU	9.2	9.2	

NOTES:

COGCC - Colorado Oil and Gas Conservation Commission

TPH-GRO - Total Petroleum Hydrocarbons-Gasoline Range Organics

TPH-DRO - Total Petroleum Hydrocarbons-Diesel Range Organics

mg/kg - milligrams per kilograms

mmhos/cm - millimhos per centimeter

< - less than the stated laboratory method reporting limit

SU - standard units



ATTACHMENT 1
LABORATORY ANALYTICAL REPORTS



Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 10, 2012

Brian Dodek
LT Environmental, Inc.
4600 West 60th Avenue
Arvada, CO 80003
RE: BNC - Wright

Enclosed are the results of analyses for samples received by Summit Scientific on 10/04/12 16:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Joseph J. Egry IV". The signature is stylized with a large, sweeping "J" and "E".

Joseph J Egry IV
Laboratory Director



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

Project: BNC - Wright
Project Number: 0415-12004
Project Manager: Brian Dodek

Reported:
10/10/12 10:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
OS-01	R210043-01	Soil	10/03/12 08:50	10/04/12 16:55
SP-01	R210043-02	Soil	10/03/12 13:00	10/04/12 16:55
SP-02	R210043-03	Soil	10/03/12 13:05	10/04/12 16:55

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 - Wright
Project Number: 0415-12004
Project Manager: Brian Dodek

Reported:
10/10/12 10:13

OS-01
R210043-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 10/03/12 08:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2100511	10/05/12	10/06/12	8015 Full Carbon Chain	

Date Sampled: 10/03/12 08:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		82.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/03/12 08:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0050	mg/kg	1	2100603	10/06/12	10/06/12	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 10/03/12 08:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		92.8 %	30-150		"	"	"	"	
Surrogate: Toluene-d8		95.8 %	30-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.4 %	30-150		"	"	"	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 10/03/12 08:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.16	0.00100	mmhos/cm	1	2100803	10/08/12	10/08/12	SM 2510B	

Summit Scientific

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

Project: BNC - Wright
Project Number: 0415-12004
Project Manager: Brian Dodek

Reported:
10/10/12 10:13

OS-01
R210043-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 10/03/12 08:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.2		pH Units	1	2100804	10/08/12	10/08/12	EPA 9045B	

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: 10/03/12 08:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	2590	2.50	mg/kg	1	2100505	10/06/12	10/06/12	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	152	1.00	"	"	"	"	"	"	
Sodium	733	5.00	"	"	"	"	"	"	

Date Sampled: 10/03/12 08:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.79		units	"	2100701	10/07/12	10/07/12	"	

Summit Scientific

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

Project: BNC - Wright
Project Number: 0415-12004
Project Manager: Brian Dodek

Reported:
10/10/12 10:13

SP-01
R210043-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 10/03/12 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1900	50	mg/kg	1	2100511	10/05/12	10/06/12	8015 Full Carbon Chain	

Date Sampled: 10/03/12 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		95.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 10/03/12 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.0054	0.0050	mg/kg	1	2100603	10/06/12	10/07/12	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.015	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.034	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	500	50	"	100	"	"	"	"	

Date Sampled: 10/03/12 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	30-150		"	"	"	"	
Surrogate: Toluene-d8		83.6 %	30-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		191 %	30-150		"	"	"	"	S-02

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 10/03/12 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.29	0.00100	mmhos/cm	1	2100803	10/08/12	10/08/12	SM 2510B	

Summit Scientific

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

Project: BNC - Wright
Project Number: 0415-12004
Project Manager: Brian Dodek

Reported:
10/10/12 10:13

SP-01
R210043-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 10/03/12 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	9.2		pH Units	1	2100804	10/08/12	10/08/12	EPA 9045B	

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: 10/03/12 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	353	2.50	mg/kg	1	2100505	10/06/12	10/06/12	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	83.4	1.00	"	"	"	"	"	"	
Sodium	808	5.00	"	"	"	"	"	"	

Date Sampled: 10/03/12 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	10.0		units	"	2100701	10/07/12	10/07/12	"	

Summit Scientific

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

Project: BNC - Wright
Project Number: 0415-12004
Project Manager: Brian Dodek

Reported:
10/10/12 10:13

SP-02
R210043-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/03/12 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	320	50	mg/kg	1	2100511	10/05/12	10/06/12	8015 Full Carbon Chain	

Date Sampled: **10/03/12 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		88.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/03/12 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0050	mg/kg	1	2100603	10/06/12	10/06/12	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	22	0.50	"	"	"	"	"	"	

Date Sampled: **10/03/12 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.3 %	30-150		"	"	"	"	
Surrogate: Toluene-d8		91.3 %	30-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		38.0 %	30-150		"	"	"	"	

Summit Scientific

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

Project: BNC - Wright
Project Number: 0415-12004
Project Manager: Brian Dodek

Reported:
10/10/12 10:13

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 2100511 - EPA 3550A

Blank (2100511-BLK1)

Prepared & Analyzed: 10/05/12

C10-C28 (DRO) ND 50 mg/kg

LCS (2100511-BS1)

Prepared & Analyzed: 10/05/12

C10-C28 (DRO) 522 50 mg/kg 501 104 73-134

LCS Dup (2100511-BSD1)

Prepared & Analyzed: 10/05/12

C10-C28 (DRO) 511 50 mg/kg 501 102 73-134 1.99 11

Matrix Spike (2100511-MS1)

Source: R210047-01

Prepared & Analyzed: 10/05/12

C10-C28 (DRO) 489 50 mg/kg 473 43.5 94.2 50-148

Matrix Spike Dup (2100511-MSD1)

Source: R210047-01

Prepared & Analyzed: 10/05/12

C10-C28 (DRO) 452 50 mg/kg 476 43.5 85.9 50-148 7.68 13

Summit Scientific

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

Project: BNC - Wright
Project Number: 0415-12004
Project Manager: Brian Dodek

Reported:
10/10/12 10:13

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 2100603 - EPA 5030 Soil MS

Blank (2100603-BLK1)

Prepared & Analyzed: 10/06/12

Benzene	ND	0.0050	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	0.0344		"	0.0397	86.7	30-150				
Surrogate: Toluene-d8	0.0382		"	0.0400	95.6	30-150				
Surrogate: 4-Bromofluorobenzene	0.0372		"	0.0400	93.0	30-150				

LCS (2100603-BS1)

Prepared & Analyzed: 10/06/12

Benzene	0.106	0.0050	mg/kg	0.100	106	58-130				
Toluene	0.115	0.0050	"	0.100	115	61-134				
Ethylbenzene	0.122	0.0050	"	0.100	122	74-139				
m,p-Xylene	0.251	0.010	"	0.200	125	73-137				
o-Xylene	0.119	0.0050	"	0.100	119	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0269		"	0.0397	67.7	30-150				
Surrogate: Toluene-d8	0.0389		"	0.0400	97.2	30-150				
Surrogate: 4-Bromofluorobenzene	0.0357		"	0.0400	89.2	30-150				

LCS Dup (2100603-BSD1)

Prepared & Analyzed: 10/06/12

Benzene	0.101	0.0050	mg/kg	0.100	101	58-130	5.37	13		
Toluene	0.108	0.0050	"	0.100	108	61-134	6.20	16		
Ethylbenzene	0.113	0.0050	"	0.100	113	74-139	7.85	12		
m,p-Xylene	0.232	0.010	"	0.200	116	73-137	8.01	14		
o-Xylene	0.113	0.0050	"	0.100	113	73-141	5.04	12		
Surrogate: 1,2-Dichloroethane-d4	0.0349		"	0.0397	87.8	30-150				
Surrogate: Toluene-d8	0.0388		"	0.0400	97.1	30-150				
Surrogate: 4-Bromofluorobenzene	0.0376		"	0.0400	94.0	30-150				

Summit Scientific

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

Project: BNC - Wright
Project Number: 0415-12004
Project Manager: Brian Dodek

Reported:
10/10/12 10:13

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 2100603 - EPA 5030 Soil MS

Matrix Spike (2100603-MS1)		Source: R210043-01			Prepared & Analyzed: 10/06/12					
Benzene	0.101	0.0050	mg/kg	0.0996	ND	101	30-131			
Toluene	0.109	0.0050	"	0.0996	ND	109	30-134			
Ethylbenzene	0.112	0.0050	"	0.0996	ND	113	22-153			
m,p-Xylene	0.229	0.010	"	0.199	ND	115	10-159			
o-Xylene	0.112	0.0050	"	0.0996	ND	113	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0373		"	0.0395		94.3	30-150			
Surrogate: Toluene-d8	0.0380		"	0.0398		95.4	30-150			
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0398		95.5	30-150			
Matrix Spike Dup (2100603-MSD1)		Source: R210043-01			Prepared & Analyzed: 10/06/12					
Benzene	0.0931	0.0050	mg/kg	0.0969	ND	96.1	30-131	8.12	34	
Toluene	0.101	0.0050	"	0.0969	ND	104	30-134	7.22	30	
Ethylbenzene	0.103	0.0050	"	0.0969	ND	106	22-153	8.53	24	
m,p-Xylene	0.210	0.010	"	0.194	ND	108	10-159	8.84	68	
o-Xylene	0.103	0.0050	"	0.0969	ND	107	31-151	8.27	38	
Surrogate: 1,2-Dichloroethane-d4	0.0366		"	0.0385		95.2	30-150			
Surrogate: Toluene-d8	0.0377		"	0.0388		97.4	30-150			
Surrogate: 4-Bromofluorobenzene	0.0359		"	0.0388		92.6	30-150			

Summit Scientific

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

Project: BNC - Wright

Project Number: 0415-12004

Project Manager: Brian Dodek

Reported:
10/10/12 10:13

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
Summit Scientific

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

Batch 2100803 - General Preparation

Duplicate (2100803-DUP1)

Source: R210041-01

Prepared & Analyzed: 10/08/12

Specific Conductance (EC)	0.628	0.00100	mmhos/cm		0.605			3.65	15.5	
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Batch 2100804 - General Preparation

Duplicate (2100804-DUP1)

Source: R210041-01

Prepared & Analyzed: 10/08/12

pH	8.7		pH Units		8.7			0.459	4.95	
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Summit Scientific

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

Project: BNC - Wright
Project Number: 0415-12004
Project Manager: Brian Dodek

Reported:
10/10/12 10:13

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control
Summit Scientific

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

Batch 2100505 - General Preparation

Blank (2100505-BLK1)

Prepared & Analyzed: 10/06/12

Calcium	ND	2.50	mg/kg
Magnesium	ND	1.00	"
Sodium	ND	5.00	"

LCS (2100505-BS1)

Prepared & Analyzed: 10/06/12

Calcium	382	2.50	mg/kg	400	95.5	77-118
Magnesium	194	1.00	"	200	97.2	77-117
Sodium	650	5.00	"	700	92.8	80-119

LCS Dup (2100505-BSD1)

Prepared & Analyzed: 10/06/12

Calcium	381	2.50	mg/kg	400	95.3	77-118	0.269	14
Magnesium	193	1.00	"	200	96.7	77-117	0.498	12
Sodium	648	5.00	"	700	92.6	80-119	0.243	14

Matrix Spike (2100505-MS1)

Source: R210030-01

Prepared & Analyzed: 10/06/12

Calcium	1170	2.50	mg/kg	253	763	160	13-170
Magnesium	379	1.00	"	126	250	102	34-152
Sodium	400	5.00	"	442	35.8	82.4	43-155

Matrix Spike Dup (2100505-MSD1)

Source: R210030-01

Prepared & Analyzed: 10/06/12

Calcium	1410	2.50	mg/kg	282	763	229	13-170	18.8	37	QM-07
Magnesium	451	1.00	"	141	250	142	34-152	17.3	33	
Sodium	469	5.00	"	494	35.8	87.7	43-155	15.8	25	

Summit Scientific

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

Project: BNC - Wright
Project Number: 0415-12004
Project Manager: Brian Dodek

Reported:
10/10/12 10:13

Notes and Definitions

S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

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