



*LT Environmental, Inc.*

*4600 West 60th Avenue  
Arvada, Colorado 80003  
303.433.9788*

September 23, 2020

Mr. Daniel Silverman  
D90 Energy, LLC  
202 Travis Street, Suite 400  
Houston, Texas 77002

**RE: Soil Sampling Results  
Big Sky 5-11  
Lincoln County, Colorado**

Dear Mr. Silverman,

LT Environmental, Inc. (LTE) prepared this report for D90 Energy, LLC (D90) to summarize the results of soil sampling activities conducted at the Big Sky 5-11 location (Site) following the excavation of contaminated soil from a spill discovered near the well. The Site is located approximately 24 miles northeast of the town of Limon in Lincoln County, Colorado, in the southwest quarter of the northwest quarter of Section 11, Township 6 South, Range 54 West, 6<sup>th</sup> Principal Meridian. A Site Location Map is provided as Figure 1.

### **EXCAVATION AND SOIL SAMPLING ACTIVITIES**

On August 27, 2020, source removal excavation was conducted to remove petroleum hydrocarbon impacted soil. The approximate final extent of the excavation was 50 feet east-west, by 26 feet north-south, and 0.5 feet deep. A technician from LTE screened the excavated soils for evidence of petroleum hydrocarbon impact such as staining and odor. A photo-ionization detector was used to detect elevated volatile organic compound concentrations. Confirmation soil samples were collected from the excavated area (SS01 at a depth of [@] 0-6 inches [“], SS02@0-6”, and SS03@0-6”) and one soil sample was collected from native soil outside the well pad area (BG01@0-6”). The excavation extent and soil sample locations are presented on Figure 2.

Following collection, the soil samples were placed on ice and delivered with a completed chain-of-custody form to Summit Scientific, in Golden, Colorado, for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), and total petroleum hydrocarbons (TPH) as gasoline range organics by United States Environmental Protection Agency (EPA) Method 8260B; TPH as diesel range organics by EPA Method 8015; arsenic by EPA Method 6020B; sodium adsorption ratio (SAR) by EPA Method 6020/US Department of Agriculture Method 60 6(2, 3A), pH, and specific conductance (SC) by EPA Method 120.1.

## SOIL SAMPLE ANALYTICAL RESULTS

The Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 concentration levels for BTEX and TPH in soil are 0.17 milligrams per kilogram (mg/kg), 85 mg/kg, 100 mg/kg, 175 mg/kg, and 500 mg/kg, respectively. Laboratory analytical results of the confirmation soil samples collected on August 27, 2020, were below the laboratory analytical reporting limits and were compliant with the applicable COGCC Table 910-1 concentration levels. However, SS02@0-6" and SS03@0-6" exceeded COGCC limits for SC at 39.0 and 50.5 mmhos/cm, respectively. Additionally, SS02@0-6" and SS03@0-6" exceeded COGCC limits for SAR at 18.1 and 19.9, respectively.

The COGCC Table 910-1 references Colorado Department of Public Health and Environment (CDPHE)-Hazardous Materials and Waste Management Division Table 1 Colorado Soil Evaluation Values for Arsenic. Laboratory analytical results of the confirmation soil samples collected August 27, 2020, were within 20% of the background sample. This region in Colorado historically has high levels of arsenic. The soil sample analytical results are summarized in Table 1 and presented on Figure 2. The laboratory analytical report is attached.

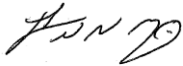
## SUMMARY AND CONCLUSION

Upon discovery of petroleum hydrocarbon impacted soil at the Site, D90 conducted source removal excavation. LTE collected confirmation soil samples from the final extent of the excavation. The confirmation soil sampling analytical results were compliant with applicable COGCC Table 910-1 concentration levels for BTEX and TPH and indicate that excavation activities were successful in removing the identified impacted soil. Inorganic compounds (SC and SAR) failed to achieve compliant levels per COGCC Table 910-1 in soil samples SS02@0-6" and SS03@0-6". However, D90 does not believe this will be an issue at this time because further remediation of the inorganic compounds will be remediated during final reclamation activities when the life of the well is exhausted, and the well is plugged and abandoned.

Please contact the undersigned at 303-433-9788 if you have any questions or comments regarding this report.

Sincerely,

LT ENVIRONMENTAL, INC.



Gentry Muniz  
Project Environmental Scientist



Chris Roy  
Senior Environmental Scientist

#### ATTACHMENTS

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





SAMPLE ID @ DEPTH BELOW GROUND SURFACE  
 SAMPLE DATE  
 B: BENZENE IN MILLIGRAMS PER KILOGRAM (mg/kg)  
 T: TOLUENE (mg/kg)  
 E: ETHYLBENZENE (mg/kg)  
 X: TOTAL XYLENES (mg/kg)  
 TPH: TOTAL PETROLEUM HYDROCARBONS (mg/kg)  
 AS: ARSENIC (mg/kg)  
 pH: SCIENTIFIC UNITS  
 SC: SPECIFIC CONDUCTANCE (mmhos/cm)  
 SAR: SODIUM ADSORPTION RATIO (UNITLESS)  
 <: INDICATES RESULT IS LESS THAN THE LABORATORY REPORTING LIMIT  
**BOLD:** INDICATES RESULT EXCEEDS THE APPLICABLE STANDARD  
 mg/kg: MILLIGRAMS PER KILOGRAM  
 mmhos/cm: MILLIMHOS PER CENTIMETER

SS01@0-6"  
 8/27/2020  
 B: <0.0020  
 T: <0.0050  
 E: <0.0050  
 X: <0.010  
 TPH: <50.5  
 AS: **5.35**  
 pH: 7.95  
 SC: 1.56  
 SAR: 1.70

SS02@0-6"  
 8/27/2020  
 B: <0.0020  
 T: <0.0050  
 E: <0.0050  
 X: <0.010  
 TPH: 180.0  
 AS: **4.16**  
 pH: 7.39  
 SC: **39.0**  
 SAR: **18.1**

SS03@0-6"  
 8/27/2020  
 B: <0.0020  
 T: <0.0050  
 E: <0.0050  
 X: <0.010  
 TPH: <50.5  
 AS: **5.00**  
 pH: 7  
 SC: **50.5**  
 SAR: **19.9**

BG01@0-6"  
 8/27/2020  
 AS: **4.99**  
 pH: 6.85  
 SC: 0.484  
 SAR: 0.370

**LEGEND**

- SOIL SAMPLE
- ▲ BACKGROUND SOIL SAMPLE
- - - EXCAVATION EXTENT

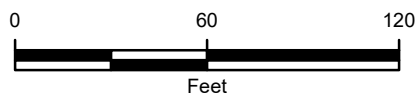


IMAGE COURTESY OF ESRI

**FIGURE 2**  
 SOIL ANALYTICAL RESULTS  
 BIG SKY 5-11  
 SWNW SEC 11-T6S-R54W  
 LINCOLN COUNTY, COLORADO  
 D90 ENERGY, LLC





**TABLE 1  
SOIL ANALYTICAL RESULTS**

**BIG SKY 5-11  
LINCOLN COUNTY, COLORADO  
D90 ENERGY, LLC**

Sample ID	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	TPH (mg/kg)	Arsenic (mg/kg dry)	Sodium Adsorption Ratio	pH	Specific Conductance (mmhos/cm)
SS01@0-6"	8/27/2020	<0.0020	<0.0050	<0.0050	<0.010	<0.50	<50	<50.5	<b>5.35</b>	1.70	7.95	1.56
SS02@0-6"	8/27/2020	<0.0020	<0.0050	<0.0050	<0.010	<0.50	180	180.0	<b>4.16</b>	<b>18.1</b>	7.39	<b>39.0</b>
SS03@0-6"	8/27/2020	<0.0020	<0.0050	<0.0050	<0.010	<0.50	<50	<50.5	<b>5.00</b>	<b>19.9</b>	7.34	<b>50.5</b>
BG01@0-6"	8/27/2020	--	--	--	--	--	--	--	<b>4.99</b>	0.370	6.85	0.484
<b>COGCC Table 910-1 Concentration Level</b>		<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	--	--	<b>500</b>	<b>0.39 mg/kg *</b>	<b>&lt;12</b>	<b>6-9</b>	<b>&lt;4</b>

**Notes:**

COGCC - Colorado Oil and Gas Conservation Commission

DRO - diesel range organics analyzed by EPA Method 8015

EPA - United States Environmental Protection Agency

GRO - gasoline range organics analyzed by EPA Method 8260B

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

SAR - sodium adsorption ratio determined by calculation by EPA Method 6020/US Department of Agriculture Method 60 6(2, 3A)

SC - specific conductance analyzed by EPA Method 120.1

TPH - total petroleum hydrocarbons, sum of GRO and DRO

-- - not applicable/not analyzed

\* indicates concentration taken from CDPHE-HMWMD Table 1 Colorado Soil Evaluation Values

< - indicates result is less than the stated laboratory method reporting limit

**BOLD** - indicates result exceeds the applicable COGCC Table 910-1 concentration level

Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8260B

Arsenic analyzed by EPA method 6020B





# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 03, 2020

Gentry Muniz

LT Environmental, Inc.

4600 West 60th Avenue

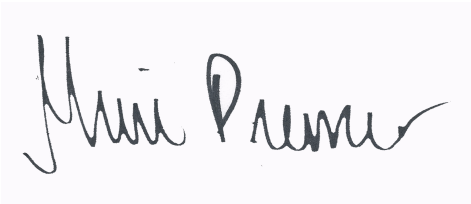
Arvada, CO 80003

RE: Big Sky 5-11

Work Order #2008262

Enclosed are the results of analyses for samples received by Summit Scientific on 08/27/20 14:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial 'M' and a long, sweeping underline.

Muri Premer For Paul Shrewsbury  
President



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

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01	2008262-01	Soil	08/27/20 11:36	08/27/20 14:30
SS02	2008262-02	Soil	08/27/20 11:38	08/27/20 14:30
SS03	2008262-03	Soil	08/27/20 11:40	08/27/20 14:30
BG01	2008262-04	Soil	08/27/20 11:51	08/27/20 14:30

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.*

# Summit Scientific

S<sub>2</sub>

2008262

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310 ♦ 303-374-5933 (f)

Page 1 of 1

Client: LT Environmental

Project Manager: Gentry Muniz

Address: 4600 W 60th Ave

E-Mail: Gmuniz@Ltehv.com

City/State/Zip: Arvada, CO 80003

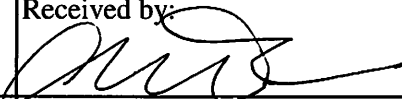
Phone: 303-433-9788

Project Name: Big Sky 5-11

Sampler Name: Drew Bullinger

Project Number: 692420002, 6002

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	GBTX	TPH-PRO/ORO	TPH-ORO	PH	SAR	EC	Al-Schic		
1	SS01	8/27/20	11:36	2			X			X				X	X	X	X	X	X	X	Hold - ORO
2	SS02	8/27/20	11:39	2			X			X				X	X	X	X	X	X	X	Hold - ORO
3	SS03	8/27/20	11:40	2			X			X				X	X	X	X	X	X	X	Hold - ORO
4	B901	8/27/20	11:51	1			X			X						X	X	X	X		
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: Drew Bullinger	Date/Time: 8/27/20 14:30	Received by: 	Date/Time: 8-27-2020 1430	<b>Turn Around Time (Check)</b> Same Day _____ 72 hours 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: 13.4° Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	<b>Notes:</b>
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

**Sample Receipt Checklist**

S2 Work Order 2008262

Client: LTF Client Project ID: Big Sky 5-11

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other Airbill #: \_\_\_\_\_

Matrix (check all that apply):  Air  Soil/Solid  Water  Other: \_\_\_\_\_  
(Describe)

Temp (°C)	13.4
-----------	------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>			on ice
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	

Additional Comments (if any):

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

AT  
Custodian Printed Name or Initials

[Signature]  
Signature of Custodian

8.27.2020  
Date/Time



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

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

**SS01**  
**2008262-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/20 11:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	2008302	08/28/20	08/31/20	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/27/20 11:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		86.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.3 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/27/20 11:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2008311	08/31/20	09/01/20	EPA 8015M	

Date Sampled: **08/27/20 11:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		113 %	30-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **08/27/20 11:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	<b>5.35</b>	0.200	mg/kg dry	1	2008308	08/28/20	08/28/20	EPA 6020B	

Summit Scientific

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

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

**SS01**  
**2008262-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/27/20 11:36**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Calcium</b>	<b>2530</b>	12.0	mg/kg dry	1	2008316	08/31/20	09/01/20	EPA 6020B	
<b>Magnesium</b>	<b>361</b>	6.02	"	"	"	"	"	"	
<b>Sodium</b>	<b>346</b>	6.02	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/27/20 11:36**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>1.70</b>	0.100	units	1	2009038	09/03/20	09/03/20	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/27/20 11:36**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>83.1</b>		%	1	2008293	08/28/20	08/28/20	Calculation	
<b>pH</b>	<b>7.95</b>		pH Units	"	2008295	08/28/20	08/28/20	EPA 9045D	

**Specific Conductance by EPA Method 120.1**

Date Sampled: **08/27/20 11:36**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Specific Conductance (EC)</b>	<b>1.56</b>	0.0100	mmhos/cm	1	2008296	08/28/20	08/28/20	EPA 120.1	

Summit Scientific

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

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

**SS02**  
**2008262-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/20 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	2008302	08/28/20	08/31/20	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/27/20 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.6 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/27/20 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>180</b>	50	mg/kg	1	2008311	08/31/20	09/01/20	EPA 8015M	

Date Sampled: **08/27/20 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		112 %	30-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **08/27/20 11:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Arsenic</b>	<b>4.16</b>	0.200	mg/kg dry	1	2008308	08/28/20	08/28/20	EPA 6020B	

Summit Scientific

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4600 West 60th Avenue  
Arvada CO, 80003

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

**SS02**  
**2008262-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/27/20 11:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Calcium</b>	<b>4940</b>	11.0	mg/kg dry	1	2008316	08/31/20	09/01/20	EPA 6020B	
<b>Magnesium</b>	<b>825</b>	5.51	"	"	"	"	"	"	
<b>Sodium</b>	<b>5220</b>	5.51	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/27/20 11:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>18.1</b>	0.100	units	1	2009038	09/03/20	09/03/20	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/27/20 11:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>90.7</b>		%	1	2008293	08/28/20	08/28/20	Calculation	
<b>pH</b>	<b>7.39</b>		pH Units	"	2008295	08/28/20	08/28/20	EPA 9045D	

**Specific Conductance by EPA Method 120.1**

Date Sampled: **08/27/20 11:38**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Specific Conductance (EC)</b>	<b>39.0</b>	0.0100	mmhos/cm	1	2008296	08/28/20	08/28/20	EPA 120.1	

Summit Scientific

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4600 West 60th Avenue  
Arvada CO, 80003

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

**SS03**  
**2008262-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/27/20 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	2008302	08/28/20	08/31/20	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/27/20 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.1 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/27/20 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2008311	08/31/20	09/01/20	EPA 8015M	

Date Sampled: **08/27/20 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		114 %	30-150		"	"	"	"	

**Total Metals by EPA 6020B**

Date Sampled: **08/27/20 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	<b>5.00</b>	0.200	mg/kg dry	1	2008308	08/28/20	08/28/20	EPA 6020B	

Summit Scientific

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

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

**SS03**  
**2008262-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **08/27/20 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Calcium</b>	<b>5870</b>	11.4	mg/kg dry	1	2008316	08/31/20	09/01/20	EPA 6020B	
<b>Magnesium</b>	<b>1030</b>	5.68	"	"	"	"	"	"	
<b>Sodium</b>	<b>6290</b>	5.68	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/27/20 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Sodium Adsorption Ratio</b>	<b>19.9</b>	0.100	units	1	2009038	09/03/20	09/03/20	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/27/20 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>88.0</b>		%	1	2008293	08/28/20	08/28/20	Calculation	
<b>pH</b>	<b>7.34</b>		pH Units	"	2008295	08/28/20	08/28/20	EPA 9045D	

**Specific Conductance by EPA Method 120.1**

Date Sampled: **08/27/20 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Specific Conductance (EC)</b>	<b>50.5</b>	0.0100	mmhos/cm	1	2008296	08/28/20	08/28/20	EPA 120.1	

Summit Scientific

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4600 West 60th Avenue  
Arvada CO, 80003

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

**BG01**  
**2008262-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/27/20 11:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	4.99	0.200	mg/kg dry	1	2008308	08/28/20	08/28/20	EPA 6020B	

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

Date Sampled: **08/27/20 11:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	324	12.0	mg/kg dry	1	2008316	08/31/20	09/01/20	EPA 6020B	
Magnesium	191	5.99	"	"	"	"	"	"	
Sodium	34.0	5.99	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/27/20 11:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	0.370	0.100	units	1	2009038	09/03/20	09/03/20	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/27/20 11:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	83.5		%	1	2008293	08/28/20	08/28/20	Calculation	
pH	6.85		pH Units	"	2008295	08/28/20	08/28/20	EPA 9045D	

**Specific Conductance by EPA Method 120.1**

Date Sampled: **08/27/20 11:51**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Specific Conductance (EC)	0.484	0.0100	mmhos/cm	1	2008296	08/28/20	08/28/20	EPA 120.1	

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

Project: Big Sky 5-11

Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**

**Summit Scientific**

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

**Batch 2008302 - EPA 5030 Soil MS**

**Blank (2008302-BLK1)**

Prepared: 08/28/20 Analyzed: 08/31/20

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0363		"	0.0400		90.8	23-173			
Surrogate: Toluene-d8	0.0428		"	0.0400		107	20-170			
Surrogate: 4-Bromofluorobenzene	0.0373		"	0.0400		93.2	21-167			

**LCS (2008302-BS1)**

Prepared: 08/28/20 Analyzed: 08/31/20

Benzene	0.0993	0.0020	mg/kg	0.100		99.3	70-130			
Toluene	0.108	0.0050	"	0.100		108	70-130			
Ethylbenzene	0.111	0.0050	"	0.100		111	70-130			
m,p-Xylene	0.220	0.010	"	0.200		110	70-130			
o-Xylene	0.105	0.0050	"	0.100		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0451		"	0.0400		113	23-173			
Surrogate: Toluene-d8	0.0411		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0360		"	0.0400		90.0	21-167			

**Matrix Spike (2008302-MS1)**

Source: 2008221-01

Prepared: 08/28/20 Analyzed: 08/31/20

Benzene	0.0956	0.0020	mg/kg	0.100	ND	95.6	70-130			
Toluene	0.106	0.0050	"	0.100	ND	106	70-130			
Ethylbenzene	0.113	0.0050	"	0.100	ND	113	70-130			
m,p-Xylene	0.224	0.010	"	0.200	ND	112	70-130			
o-Xylene	0.107	0.0050	"	0.100	ND	107	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0417		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0407		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0362		"	0.0400		90.4	21-167			

Summit Scientific

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

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

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

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

**Batch 2008302 - EPA 5030 Soil MS**

**Matrix Spike Dup (2008302-MSD1)**

Source: 2008221-01

Prepared: 08/28/20 Analyzed: 08/31/20

Benzene	0.0947	0.0020	mg/kg	0.100	ND	94.7	70-130	0.977	30	
Toluene	0.104	0.0050	"	0.100	ND	104	70-130	1.63	30	
Ethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130	4.19	30	
m,p-Xylene	0.214	0.010	"	0.200	ND	107	70-130	4.72	30	
o-Xylene	0.106	0.0050	"	0.100	ND	106	70-130	0.905	30	
Surrogate: 1,2-Dichloroethane-d4	0.0462		"	0.0400		116	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0366		"	0.0400		91.5	21-167			

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Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch 2008311 - EPA 3550A**

**Blank (2008311-BLK1)**

Prepared: 08/31/20 Analyzed: 09/01/20

C10-C28 (DRO) ND 50 mg/kg

**LCS (2008311-BS1)**

Prepared: 08/31/20 Analyzed: 09/01/20

C10-C28 (DRO) 502 50 mg/kg 500 100 70-130

**Matrix Spike (2008311-MS1)**

Source: 2008261-07

Prepared: 08/31/20 Analyzed: 09/01/20

C10-C28 (DRO) 884 50 mg/kg 500 441 88.7 70-130

**Matrix Spike Dup (2008311-MSD1)**

Source: 2008261-07

Prepared: 08/31/20 Analyzed: 09/01/20

C10-C28 (DRO) 933 50 mg/kg 500 441 98.5 70-130 5.44 20

Summit Scientific

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

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch 2008308 - EPA 3050B**

**Blank (2008308-BLK1)**

Prepared & Analyzed: 08/28/20

Arsenic ND 0.200 mg/kg wet

**LCS (2008308-BS1)**

Prepared & Analyzed: 08/28/20

Arsenic 39.8 0.200 mg/kg wet 40.0 99.4 80-120

**Duplicate (2008308-DUP1)**

**Source: 2008261-01**

Prepared & Analyzed: 08/28/20

Arsenic 2.83 0.200 mg/kg dry 3.00 5.88 20

**Matrix Spike (2008308-MS1)**

**Source: 2008261-01**

Prepared & Analyzed: 08/28/20

Arsenic 44.0 0.200 mg/kg dry 42.3 3.00 97.0 75-125

**Matrix Spike Dup (2008308-MSD1)**

**Source: 2008261-01**

Prepared & Analyzed: 08/28/20

Arsenic 41.9 0.200 mg/kg dry 42.3 3.00 92.0 75-125 4.92 25

**Post Spike (2008308-PS1)**

**Source: 2008261-01**

Prepared & Analyzed: 08/28/20

Arsenic 51.2 0.200 mg/kg dry 3.00 75-125

Summit Scientific

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Arvada CO, 80003

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

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

**Summit Scientific**

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

**Batch 2008316 - General Preparation**

**Blank (2008316-BLK1)**

Prepared: 08/31/20 Analyzed: 09/01/20

Calcium	ND	10.0	mg/kg wet							
Magnesium	ND	5.00	"							
Sodium	ND	5.00	"							

**LCS (2008316-BS1)**

Prepared: 08/31/20 Analyzed: 09/01/20

Calcium	510	10.0	mg/kg wet	500		102	70-130			
Magnesium	570	5.00	"	500		114	70-130			
Sodium	531	5.00	"	500		106	70-130			

**Duplicate (2008316-DUP1)**

Source: 2008262-01

Prepared: 08/31/20 Analyzed: 09/01/20

Calcium	2460	12.0	mg/kg dry		2530			2.66	20	
Magnesium	355	6.02	"		361			1.84	20	
Sodium	349	6.02	"		346			1.02	20	

**Matrix Spike (2008316-MS1)**

Source: 2008262-01

Prepared: 08/31/20 Analyzed: 09/01/20

Calcium	3290	12.0	mg/kg dry	602	2530	126	70-130			
Magnesium	1020	6.02	"	602	361	110	70-130			
Sodium	933	6.02	"	602	346	97.5	70-130			

**Matrix Spike Dup (2008316-MSD1)**

Source: 2008262-01

Prepared: 08/31/20 Analyzed: 09/01/20

Calcium	3300	12.0	mg/kg dry	602	2530	128	70-130	0.434	25	
Magnesium	1040	6.02	"	602	361	113	70-130	1.49	25	
Sodium	1010	6.02	"	602	346	110	70-130	7.57	25	

Summit Scientific

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

Project: Big Sky 5-11

Project Number: 092420002,0002  
 Project Manager: Gentry Muniz

**Reported:**  
 09/03/20 12:42

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

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

**Batch 2008293 - General Preparation**

<b>Duplicate (2008293-DUP1)</b>		<b>Source: 2008261-01</b>			<b>Prepared &amp; Analyzed: 08/28/20</b>					
% Solids	94.7		%		94.6		0.110	20		

**Batch 2008295 - General Preparation**

<b>LCS (2008295-BS1)</b>					<b>Prepared &amp; Analyzed: 08/28/20</b>					
pH	9.15		pH Units	9.18		99.7	95-105			
<b>Duplicate (2008295-DUP1)</b>		<b>Source: 2008262-01</b>			<b>Prepared &amp; Analyzed: 08/28/20</b>					
pH	7.99		pH Units		7.95		0.502	20		

Summit Scientific

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 4600 West 60th Avenue  
 Arvada CO, 80003

Project: Big Sky 5-11  
 Project Number: 092420002,0002  
 Project Manager: Gentry Muniz

**Reported:**  
 09/03/20 12:42

**Specific Conductance by EPA Method 120.1 - Quality Control**  
**Summit Scientific**

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

**Batch 2008296 - General Preparation**

**Blank (2008296-BLK1)**

Prepared & Analyzed: 08/28/20

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (2008296-BS1)**

Prepared & Analyzed: 08/28/20

Specific Conductance (EC) 0.724 0.0100 mmhos/cm 0.750 96.5 90-110

**Duplicate (2008296-DUP1)**

**Source: 2008262-01**

Prepared & Analyzed: 08/28/20

Specific Conductance (EC) 1.57 0.0100 mmhos/cm 1.56 0.351 20

Summit Scientific

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4600 West 60th Avenue  
Arvada CO, 80003

Project: Big Sky 5-11  
Project Number: 092420002,0002  
Project Manager: Gentry Muniz

**Reported:**  
09/03/20 12:42

### 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