



## **FACILITY CLOSURE REPORT MAY 2015**

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### **PATINA LANDFARM CENTRALIZED E&P WASTE MANAGEMENT FACILITY WELD COUNTY, COLORADO COGCC FACILITY #149008**

LT Environmental, Inc. (LTE), under the direction of Noble Energy, Inc. (Noble), is requesting a Facility Closure Status for the Patina Landfarm Centralized Exploration and Production (E&P) Waste Management Facility (Facility), Colorado Oil and Gas Conservation Commission (COGCC) Facility #149008. The Facility is located along the west side of County Road 41 approximately 0.25 miles south of County Road 28, in Weld County, Colorado. The legal site description is the east half of the northeast quarter of Section 32, Township 3 North, Range 65 West, 6th Principal Meridian. The Site Location Map is included as Figure 1.

On September 17, 2014, LTE, under the direction of Noble, collected a soil sample from each one-acre parcel (Landfarm Grids A through Q) at depths of 6 inches below ground surface (bgs), which were representative of the treated material. The Landfarm Grids are illustrated on Figure 2. Seventeen soil samples (SS1-A-6" through SS17-Q-6") were collected, placed on ice, then submitted with a completed chain of custody form to Origins Laboratory, Inc. of Denver, Colorado, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and total petroleum hydrocarbons (TPH) as gasoline range organics (GRO) by United States Environmental Protection Agency (EPA) Method 8260C and TPH as diesel range organics (DRO) by EPA Method 8015C.

The COGCC Table 910-1 standards 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 soil analytical results indicated soil sample SS5-E-6" exceeded the COGCC Table 910-1 standard for TPH at a concentration of 1,200 mg/kg. All other analytical results were in compliance with applicable COGCC Table 910-1 standards. After receiving the analytical results, Noble conducted additional soil incorporation activities in Landfarm Grid E to further remediate the treated material. On November 11, 2014, LTE, under the direction of Noble, collected a soil sample from Landfarm Grid E (SS5-E-6"). Laboratory soil analytical results indicated compliance with applicable COGCC Table 910-1 standards. The laboratory soil analytical results representative of the native soil (two feet bgs) and treated material (ground surface to two feet bgs) are summarized in Tables 1 and 2, respectively. The historical laboratory groundwater analytical results are summarized in Table 3. The laboratory analytical reports are included as Attachment 1.

On February 13, 2015, the COGCC conducted an inspection of the Facility (Doc # 677900015). As a result, LTE, under the direction of Noble, completed the following requirements from April 28 through May 7, 2015, to achieve facility closure:

1. Characterize and properly dispose of the 55-gallon drum and its contents;
2. Conduct general housekeeping activities to remove and properly dispose of the unnecessary equipment and debris, such as the concrete anchor blocks, manure spreader, hoses, fittings, roper, 5-gallon buckets, timbers, lumber, piping, and concrete debris;
3. Assess the four lined pits by collecting a discrete soil sample from each location and submitting the soil samples (LP-W, LP-E, LP-S, and LP-N) for laboratory analysis of BTEX, naphthalene, TPH, sodium adsorption ratio (SAR), electrical conductivity (EC), and pH;
4. Assess the concrete-lined skim pit by collecting a discrete soil sample and submitting the soil sample (CP01) for laboratory analysis of BTEX, naphthalene, TPH, SAR, EC, and pH;
5. Assess the two 10-foot by 10-foot bermed areas by collecting a discrete soil sample from each location and submitting the soil samples (Berm Area N and Berm Area S) for laboratory analysis of BTEX, naphthalene, and TPH;
6. Remove and properly dispose of the inactive 500-gallon aboveground storage tank (AST) and the inactive vertical separator and assess each location by collecting a discrete soil sample from each location and submitting the soil samples (AST01 and SR01) for analysis of BTEX, naphthalene, and TPH;
7. Assess the six individual stockpiles in the southern portion of the Facility by collecting one 20-point composite sample from each stockpile and submitting the soil samples (SP1 through SP5) for laboratory analysis of BTEX, naphthalene, and TPH (due to the presence of concrete in the stockpile, SP6 was transported to a licensed disposal facility);
8. Assess the windrow located directly south of the Kerr-McGee Endsley 32-8J5 wellhead by collecting one 20-point composite sample representative of each 500 cubic yards of soil and submitting the soil samples (Wind Row North, Wind Row Middle, and Wind Row South) for laboratory analysis of BTEX, naphthalene, and TPH;
9. Assess the soil stockpile located southeast of the Kerr-McGee Endsley 32-8J5 wellhead by collecting one 20-point composite sample representative of each 500 cubic yards of soil and submitting the soil samples (Stock01 and Stock02) for laboratory analysis of BTEX, naphthalene, and TPH.
10. Plug and abandon all monitoring wells (MW01 through MW05) in accordance with COGCC Rule 908-9B and the State of Colorado, Office of the State Engineer, Water Well Construction Rule, Colorado Code of Regulations 402-2 Rule 16.

The aforementioned closure soil sample locations are presented on Figure 3. The former locations of the plugged and abandoned monitoring wells are presented on Figure 2.

The soil samples were collected, placed on ice, then submitted with a completed chain of custody form to Summit Scientific (Summit) of Golden, Colorado, for analysis of BTEX, naphthalene, and TPH as GRO by EPA Method 8260B and TPH as DRO by EPA Method 8015. Additionally, soil samples LP-W, LP-E, LP-S, LP-N, and CP01 were analyzed for SAR by EPA Method 6020/modified USDA60 6(2,3A) and calculation, EC by Standard Method 2510B, and pH by EPA Method 9045.

The COGCC Table 910-1 standards for BTEX in soil are 0.17 milligrams per kilogram (mg/kg), 85 mg/kg, 100 mg/kg, and 175 mg/kg, respectively. The COGCC Table 910-1 standards for naphthalene and TPH in soil are 23 mg/kg and 500 mg/kg, respectively. The COGCC Table 910-1 standards for SAR, EC, and pH are 12 (unitless), 4 millimhos per centimeter (mmhos/cm), and 6 to 9 standard units (SU), respectively. Soil analytical results indicated all soil samples collected from the aforementioned locations are in compliance with applicable COGCC Table 910-1 standards. The closure soil sample laboratory analytical results are summarized in Table 4.

Confirmation soil samples indicated compliance with applicable COGCC Table 910-1 standards for the native soil, the treated material, and the closure soil samples. Groundwater analytical results indicated compliance with the applicable Colorado Department of Public Health and Environment-Water Quality Control Commission's Regulation 41-The Basic Standards for Ground Water. The 55-gallon drum and its contents have been characterized and properly disposed. The debris at the Facility including the concrete anchor blocks, manure spreader, hoses, fittings, roper, 5-gallon buckets, timbers, lumber, piping, concrete debris, and soil stockpile SP6 have been removed and properly disposed of. No further treatment, disposal, recycling, or beneficial reuse of exploration and production waste is planned at the Facility. As a result, Noble respectfully requests a Facility Closure Status for the Patina Landfarm Centralized Exploration and Production Waste Management Facility.

Once the closure request is approved, the perimeter earthen berm and perimeter fencing will be decommissioned and final reclamation will be compliant with COGCC Rule 1004-Final Reclamation of Well Sites and Associated Production Facilities.

LTE appreciates the opportunity to provide environmental services to Noble. If you have any questions or comments please feel free to contact us at 303-433-9788.

## **FIGURES**

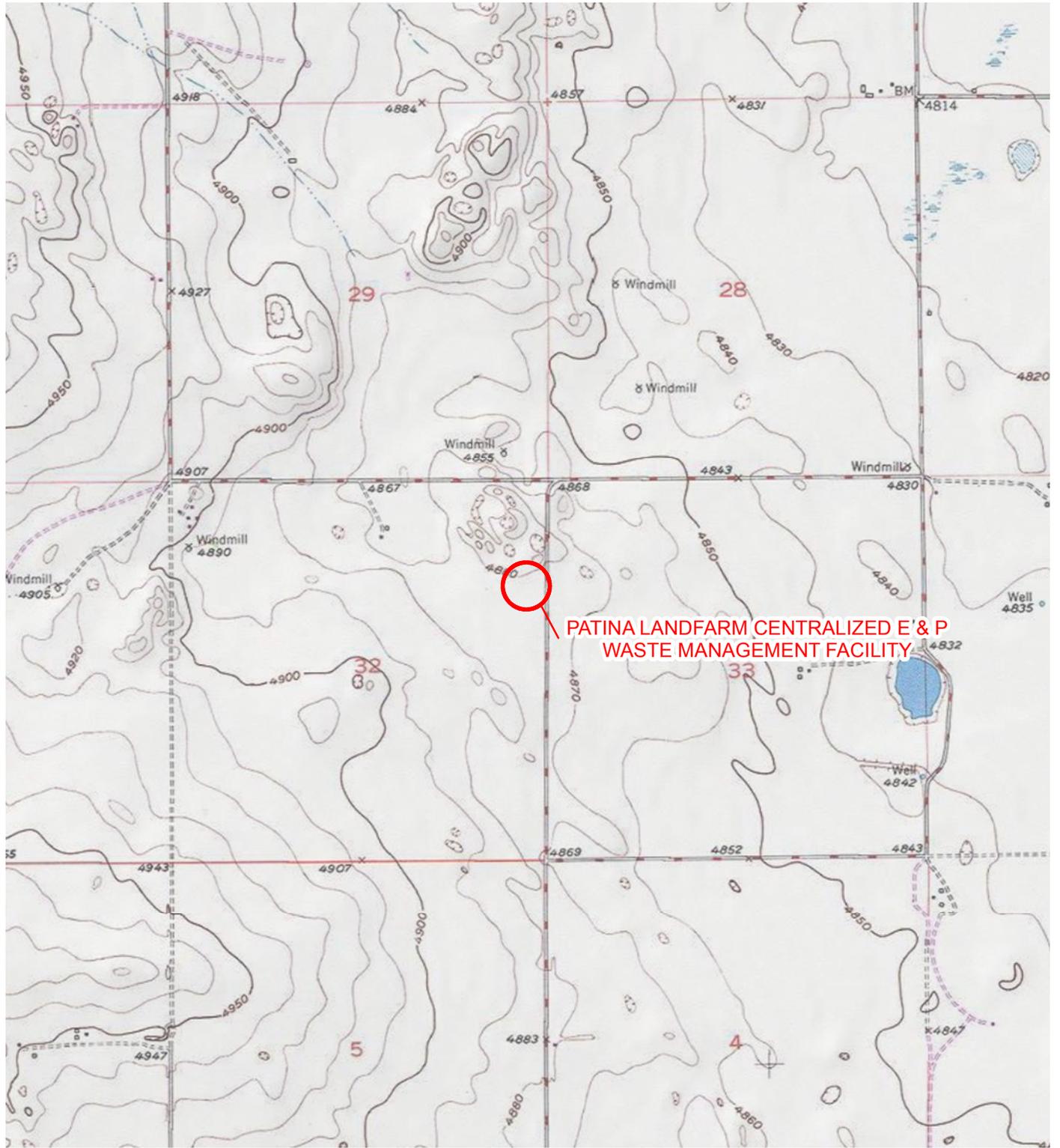
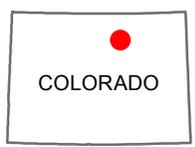
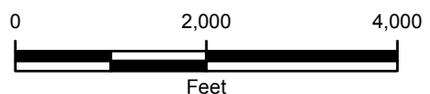


IMAGE COURTESY OF ESRI/USGS

**LEGEND**

 SITE LOCATION



**FIGURE 1**  
**SITE LOCATION MAP**  
**PATINA LANDFARM CENTRALIZED E & P**  
**WASTE MANAGEMENT FACILITY**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**





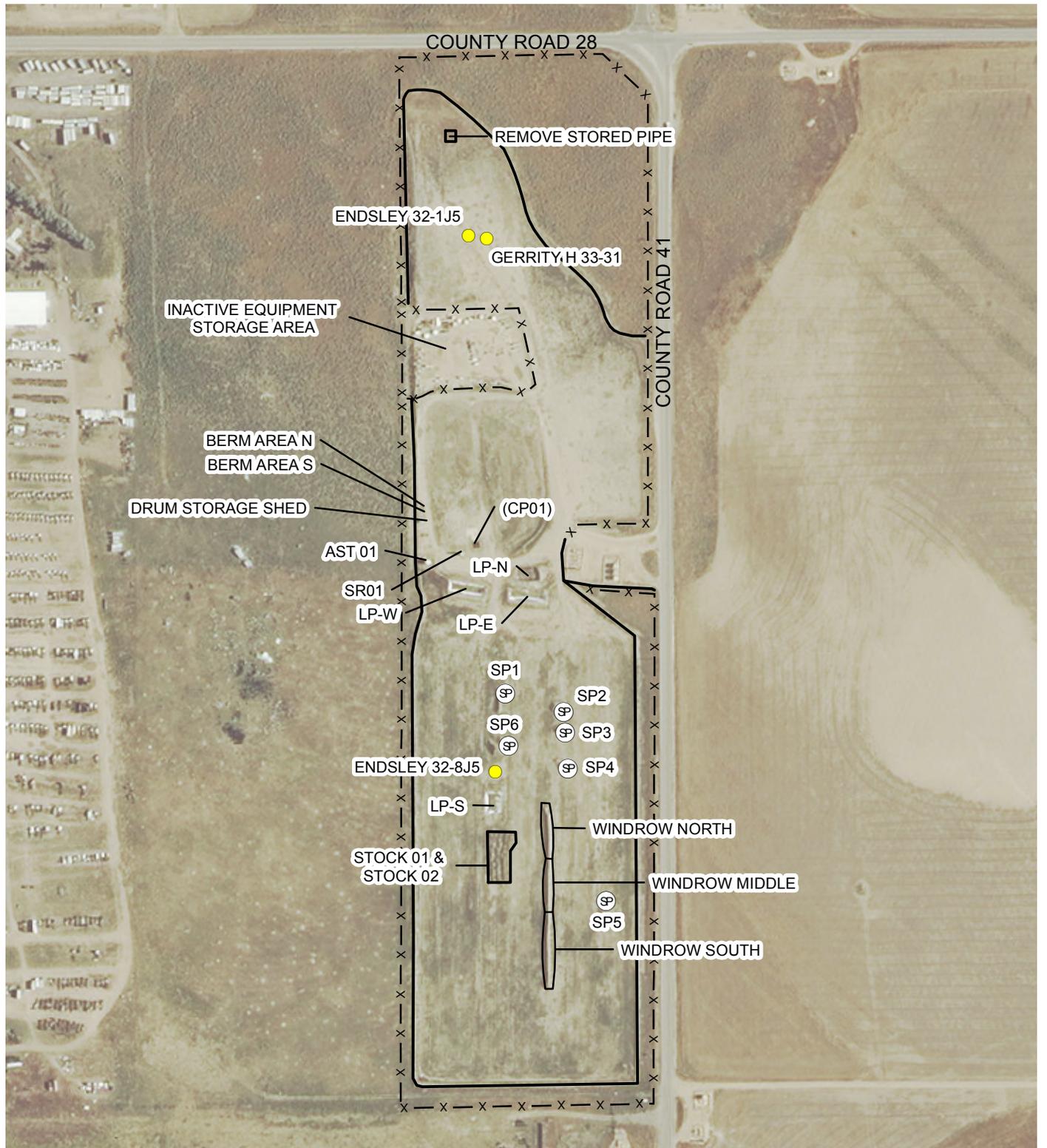
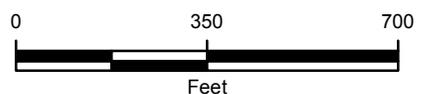


IMAGE COURTESY OF ESRI

**LEGEND**

- ⊕ STOCKPILE
- KERR-MCGEE WELLHEAD
- BERM
- x — x FENCE



**FIGURE 3**  
**CLOSURE SOIL SAMPLE LOCATIONS**  
**PATINA LANDFARM CENTRALIZED E & P**  
**WASTE MANAGEMENT FACILITY**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**



## **TABLES**

TABLE 1

NATIVE SOIL ANALYTICAL RESULTS  
 PATINA LANDFARM CENTRALIZED E&P WASTE MANAGEMENT FACILITY COGCC #149008  
 WELD COUNTY, COLORADO  
 NOBLE ENERGY, INC.

Soil Sample <sup>1</sup>	Date	TVH-GRO (mg/kg)	TEH-DRO (mg/kg)	TPH (mg/kg)
SS1-A-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	<50	<100
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
6/2/2011	<50	<50	<100	
SS2-B-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	<50	<100
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
6/2/2011	<50	<50	<100	
SS3-C-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	237.58	237.58
	6/16/2009	<50	<50	<100
	12/10/2009	<50	<50	<100
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
6/2/2011	<50	<50	<100	
SS4-D-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	<50	<100
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
6/2/2011	<50	<50	<100	
SS5-E-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	237	237
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
6/2/2011	<50	<50	<100	

TABLE 1 (Continued)

NATIVE SOIL ANALYTICAL RESULTS  
 PATINA LANDFARM CENTRALIZED E&P WASTE MANAGEMENT FACILITY COGCC #149008  
 WELD COUNTY, COLORADO  
 NOBLE ENERGY, INC.

Soil Sample <sup>1</sup>	Date	TVH-GRO (mg/kg)	TEH-DRO (mg/kg)	TPH (mg/kg)
SS6-F-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	<50	<100
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
6/2/2011	<50	<50	<100	
SS7-G-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	<50	<100
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
6/2/2011	<50	<50	<100	
SS8-H-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	<50	<100
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
6/2/2011	<50	<50	<100	
SS9-I-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	<50	<100
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
6/2/2011	<50	<50	<100	
SS10-J-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	59.9	59.9
	12/10/2009	<50	<50	<100
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
6/2/2011	<50	<50	<100	

TABLE 1 (Continued)

NATIVE SOIL ANALYTICAL RESULTS  
 PATINA LANDFARM CENTRALIZED E&P WASTE MANAGEMENT FACILITY COGCC #149008  
 WELD COUNTY, COLORADO  
 NOBLE ENERGY, INC.

Soil Sample <sup>1</sup>	Date	TVH-GRO (mg/kg)	TEH-DRO (mg/kg)	TPH (mg/kg)
SS11-K-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	63.3	63.3
	12/10/2009	<50	114	114
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
	6/2/2011	<50	<50	<100
SS12-L-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	79	79
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	<50	<100
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
	6/2/2011	<50	<50	<100
SS13-M-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	656	<b>656</b>
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
	6/2/2011	<50	<50	<100
SS14-N-2'	6/21/2007	<1.0	180	180
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	<50	<100
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
	6/2/2011	<50	<50	<100
SS15-O-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	<50	<50	<100
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	112	112
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
	6/2/2011	<50	<50	<100

TABLE 1 (Continued)

NATIVE SOIL ANALYTICAL RESULTS  
 PATINA LANDFARM CENTRALIZED E&P WASTE MANAGEMENT FACILITY COGCC #149008  
 WELD COUNTY, COLORADO  
 NOBLE ENERGY, INC.

Soil Sample <sup>1</sup>	Date	TVH-GRO (mg/kg)	TEH-DRO (mg/kg)	TPH (mg/kg)
SS16-P-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	NS	NS	NS
	6/27/2008	<50	<50	<100
	12/18/2008	62.2	520.31	<b>582.51</b>
	6/16/2009	<50	<50	<100
	12/10/2009	<50	1,640	<b>1,640</b>
	6/28/2010	<50	<50	<100
	12/23/2010	<50	<50	<100
6/2/2011	<50	60.6	60.6	
SS16-P-4'	6/16/2009	<50	<50	<100
SS17-Q-2'	6/21/2007	<1.0	<14	<15.0
	12/20/2007	NS	NS	NS
	6/27/2008	<50	<50	<100
	12/17/2008	<50	<50	<100
	6/16/2009	<50	<50	<100
	12/10/2009	<50	104	104
	6/28/2010	<50	181	181
	12/23/2010	<50	<50	<100
6/2/2011	<50	<50	<100	
<b>COGCC Table 910-1 Standard</b>		--	--	<b>500</b>

NOTES:

NS - not sampled due to inactive cell

mg/kg - milligrams per kilogram

TVH-GRO - total volatile hydrocarbons-gasoline range organics analyzed by EPA Modified Method 8015

TEH-DRO - total extractable hydrocarbons-diesel range organics analyzed by EPA Modified Method 8015

TPH - total petroleum hydrocarbons is the sum of TVH-GRO and TEH-DRO

**BOLD** indicates the result exceeds the applicable standard

< indicates result is less than the stated laboratory method detection limit

-- - not applicable

<sup>1</sup> Example: SS1-A-2' = soil sample number - one-acre landfarm grid location - depth in feet

TABLE 2

**TREATED SOIL ANALYTICAL RESULTS**  
**PATINA LANDFARM CENTRALIZED E&P WASTE MANAGEMENT FACILITY COGCC #149008**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**

Soil Sample <sup>1</sup>	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	DRO (mg/kg)	GRO (mg/kg)	TPH (mg/kg)
SS1-A-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS2-B-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS3-C-6"	9/17/2014	<0.0020	0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS4-D-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS5-E-6"	9/17/2014	<0.0020	0.0024	<0.0020	<0.0020	1,200	<0.200	<b>1,200</b>
SS5-E-6"	11/11/2014	<0.002	<0.002	<0.002	<0.002	225	<0.200	225
SS6-F-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS7-G-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS8-H-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS9-I-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS10-J-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS11-K-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS12-L-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS13-M-6"	9/17/2014	<0.0020	0.0026	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS14-N-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS15-O-6"	9/17/2014	<0.0020	<0.0020	<0.0020	<0.0020	<50.0	<0.200	<50.200
SS16-P-6"	9/17/2014	<0.0020	0.0028	<0.0020	<0.0020	<50.0	<0.200	<50.200

TABLE 2 (Continued)

**TREATED SOIL ANALYTICAL RESULTS**  
**PATINA LANDFARM CENTRALIZED E&P WASTE MANAGEMENT FACILITY COGCC #149008**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**

Soil Sample <sup>1</sup>	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	DRO (mg/kg)	GRO (mg/kg)	TPH (mg/kg)
SS17-Q-6"	9/17/2014	<0.0020	0.0022	<0.0020	<0.0020	<50.0	<0.200	<50.200
<b>COGCC Table 910-1 Standard</b>		<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>--</b>	<b>--</b>	<b>500</b>

**NOTES:**

DRO - diesel range organics analyzed by EPA Method 8015C

GRO - gasoline range organics analyzed by EPA Method 8260C

mg/kg - milligrams per kilogram

TPH - total petroleum hydrocarbons is the sum of DRO and GRO

< indicates result is less than the stated laboratory method detection limit

-- - not applicable

<sup>1</sup> Example: SS1-A-6" = soil sample number - 1-acre land treatment cell location - depth in inches

TABLE 3

**GROUNDWATER ANALYTICAL RESULTS**  
**PATINA LANDFARM CENTRALIZED E&P WASTE MANAGEMENT FACILITY COGCC #149008**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**

Sample ID	Date	Depth to Water (feet btoc)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW01	3/27/2007	DRY		Monitoring well dry		
	12/21/2007	DRY		Monitoring well dry		
	6/27/2008	DRY		Monitoring well dry		
	12/18/2008	DRY		Monitoring well dry		
	6/15/2009	DRY		Monitoring well dry		
	12/10/2009	DRY		Monitoring well dry		
	6/28/2010	DRY		Monitoring well dry		
	1/5/2011	DRY		Monitoring well dry		
	6/2/2011	DRY		Monitoring well dry		
	12/7/2011	DRY		Monitoring well dry		
	6/7/2012	DRY		Monitoring well dry		
	12/26/2012	DRY		Monitoring well dry		
	6/20/2013	DRY		Monitoring well dry		
	12/27/2013	DRY		Monitoring well dry		
6/16/2014	DRY		Monitoring well dry			
MW02	3/27/2007	33.60	<1.0	<2.0	<2.0	<6.0
	12/21/2007	33.72	<1.0	<1.0	<1.0	<2.0
	6/27/2008	33.59	<1.0	<1.0	<1.0	<3.0
	12/18/2008	32.91	<1.0	<1.0	<1.0	<3.0
	6/15/2009	36.59	<1.0	<1.0	<1.0	<3.0
	12/10/2009	36.77	<1.0	<1.0	<1.0	<3.0
	6/28/2010	36.81	<1.0	<1.0	<1.0	<3.0
	1/5/2011	37.10	<1.0	<1.0	<1.0	<1.0
	6/2/2011	36.85	<1.0	<1.0	<1.0	<3.0
	12/7/2011	36.80	<1.0	<1.0	<1.0	<3.0
	6/7/2012	37.17	<1.0	<1.0	<1.0	<1.0
	12/26/2012	37.00	<1.0	<1.0	<1.0	<1.0
	6/20/2013	36.78	<1.0	<1.0	<1.0	<1.0
	12/27/2013	36.78	<1.0	<1.0	<1.0	<1.0
6/16/2014	38.90	<1.0	<1.0	<1.0	<1.0	
MW03	3/27/2007	56.46	<1.0	<2.0	<2.0	<6.0
	12/21/2007	55.15	<1.0	<1.0	<1.0	<2.0
	6/27/2008	55.19	<1.0	<1.0	<1.0	<3.0
	12/18/2008	59.14	<1.0	<1.0	<1.0	<3.0
	6/15/2009	55.11	<1.0	<1.0	<1.0	<3.0
	12/10/2009	55.26	<1.0	<1.0	<1.0	<3.0
	6/28/2010	54.96	<1.0	<1.0	<1.0	<3.0
	1/5/2011	55.10	<1.0	<1.0	<1.0	<1.0
	6/2/2011	54.62	<1.0	<1.0	<1.0	<3.0
	12/7/2011	55.45	<1.0	<1.0	<1.0	<3.0
	6/7/2012	54.40	<1.0	<1.0	<1.0	<1.0
	12/26/2012	55.52	<1.0	<1.0	<1.0	<1.0
	6/20/2013	53.93	<1.0	<1.0	<1.0	<1.0
	12/27/2013	54.52	<1.0	<1.0	<1.0	<1.0
6/16/2014	53.31	<1.0	<1.0	<1.0	<1.0	

**TABLE 3 (Continued)**

**GROUNDWATER ANALYTICAL RESULTS  
CENTRALIZED E&P WASTE MANAGEMENT FACILITY COGCC #149008  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.**

<b>Sample ID</b>	<b>Date</b>	<b>Depth to Water (feet btoc)</b>	<b>Benzene (µg/L)</b>	<b>Toluene (µg/L)</b>	<b>Ethylbenzene (µg/L)</b>	<b>Total Xylenes (µg/L)</b>
MW04	3/27/2007	43.11	<1.0	<2.0	<2.0	<6.0
	12/21/2007	42.22	<1.0	<1.0	<1.0	<2.0
	6/27/2008	42.54	<1.0	<1.0	<1.0	<3.0
	12/17/2008	42.86	<1.0	<1.0	<1.0	<3.0
	6/15/2009	43.45	<1.0	<1.0	<1.0	<3.0
	12/10/2009	42.50	<1.0	<1.0	<1.0	<3.0
	6/28/2010	41.65	<1.0	<1.0	<1.0	<3.0
	1/5/2011	41.05	<1.0	<1.0	<1.0	<1.0
	6/2/2011	41.00	<1.0	<1.0	<1.0	<3.0
	12/7/2011	41.04	<1.0	<1.0	<1.0	<3.0
	6/7/2012	41.35	<1.0	<1.0	<1.0	<1.0
	12/26/2012	42.20	<1.0	<1.0	<1.0	<1.0
	6/20/2013	41.85	<1.0	<1.0	<1.0	<1.0
	12/27/2013	42.33	<1.0	<1.0	<1.0	<1.0
	6/16/2014	42.30	<1.0	<1.0	<1.0	<1.0
MW05	3/27/2007	45.50	<1.0	<2.0	<2.0	<6.0
	12/21/2007	43.65	<1.0	<1.0	<1.0	<2.0
	6/27/2008	43.88	<1.0	<1.0	<1.0	<3.0
	12/18/2008	43.65	<1.0	<1.0	<1.0	<3.0
	6/15/2009	43.40	<1.0	<1.0	<1.0	<3.0
	12/10/2009	43.88	<1.0	<1.0	<1.0	<3.0
	6/28/2010	43.40	<1.0	<1.0	<1.0	<3.0
	1/5/2011	43.72	<1.0	<1.0	<1.0	<1.0
	6/2/2011	43.77	<1.0	<1.0	<1.0	<3.0
	12/7/2011	43.60	<1.0	<1.0	<1.0	<3.0
	6/7/2012	43.83	<1.0	<1.0	<1.0	<1.0
	12/26/2012	44.05	<1.0	<1.0	<1.0	<1.0
	6/20/2013	43.59	<1.0	<1.0	<1.0	<1.0
	12/27/2013	43.65	<1.0	<1.0	<1.0	<1.0
	6/16/2014	44.00	<1.0	<1.0	<1.0	<1.0
<b>CDPHE WQCC Reg 41</b>			<b>5.0</b>	<b>560</b>	<b>700</b>	<b>1,400</b>

**NOTES:**

btoc - below top of casing

COGCC - Colorado Oil and Gas Conservation Commission

µg/L - micrograms per liter

< indicates result is less than the stated laboratory method detection limit

BTEX - benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8260C

CDPHE WQCC Reg 41 - Colorado Department of Public Health and Environment-Water Quality Control Commission  
Regulation 41-The Basic Standards for Ground Water

TABLE 4

**CLOSURE SAMPLING SOIL ANALYTICAL RESULTS**  
**PATINA LANDFARM CENTRALIZED E&P WASTE MANAGEMENT FACILITY COGCC #149008**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**

Soil Sample <sup>1</sup>	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	DRO (mg/kg)	GRO (mg/kg)	TPH (mg/kg)	SAR (unitless)	EC (mmhos/cm)	pH (SU)
SP1	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	NA	NA	NA
SP2	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	NA	NA	NA
SP3	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	NA	NA	NA
SP4	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	NA	NA	NA
SP5	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	NA	NA	NA
LP-S	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	0.220	0.651	8.07
LP-E	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	0.270	0.492	8.11
LP-W	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	0.290	0.718	7.85
Berm Area N	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	NA	NA	NA
Berm Area S	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	81	<50	81	NA	NA	NA
Wind Row North	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	NA	NA	NA
Wind Row South	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	NA	NA	NA
Wind Row Middle	4/28/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<50	<100	NA	NA	NA
Stock01	5/4/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<0.50	<50.50	NA	NA	NA
Stock02	5/4/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<0.50	<50.50	NA	NA	NA
CP01	5/4/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<0.50	<50.50	0.660	0.120	8.90
AST01	5/4/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	170	<0.50	170	NA	NA	NA
LP-N	5/4/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<0.50	<50.50	0.0500	0.0517	8.44

TABLE 4 (Continued)

CLOSURE SAMPLING SOIL ANALYTICAL RESULTS  
 PATINA LANDFARM CENTRALIZED E&P WASTE MANAGEMENT FACILITY COGCC #149008  
 WELD COUNTY, COLORADO  
 NOBLE ENERGY, INC.

Soil Sample <sup>1</sup>	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	DRO (mg/kg)	GRO (mg/kg)	TPH (mg/kg)	SAR (unitless)	EC (mmhos/cm)	pH (SU)
SR01	5/4/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	<0.50	<50.50	NA	NA	NA
<b>COGCC Table 910-1 Standard</b>		<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>23</b>	--	--	<b>500</b>	<b>4</b>	<b>6 to9</b>	<b>12</b>

**NOTES:**

COGCC - Colorado Oil and Gas Conservation Commission

DRO - diesel range organics analyzed by EPA Method 8015

GRO - gasoline range organics analyzed by EPA Method 8260B

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

NA - not analyzed

SU - standard units

TPH - total petroleum hydrocarbons is the sum of GRO and DRO

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

-- - not applicable

**BOLD** indicates result exceeds the applicable standard

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

**ATTACHMENT 1**  
**LABORATORY ANALYTICAL REPORTS**

September 23, 2014

LT Environmental, Inc.

Charles Greeson

4600 West 60th Avenue

Arvada CO 80003

Project Name - Noble - Centralized E+P Waste  
Management Facility

Project Number - NEP0610

Attached are your analytical results for Noble - Centralized E+P Waste Management Facility received by Origins Laboratory, Inc. September 17, 2014. This project is associated with Origins project number X409171-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



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

Charles Greeson  
Project Number: NEP0610  
Project: Noble - Centralized E+P Waste  
Management Facility

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS1-A-6"	X409171-01	Soil	September 17, 2014 12:30	09/17/2014 17:00
SS2-B-6"	X409171-02	Soil	September 17, 2014 12:35	09/17/2014 17:00
SS3-C-6"	X409171-03	Soil	September 17, 2014 12:40	09/17/2014 17:00
SS4-D-6"	X409171-04	Soil	September 17, 2014 12:45	09/17/2014 17:00
SS5-E-6"	X409171-05	Soil	September 17, 2014 12:50	09/17/2014 17:00
SS6-F-6"	X409171-06	Soil	September 17, 2014 13:20	09/17/2014 17:00
SS7-G-6"	X409171-07	Soil	September 17, 2014 13:25	09/17/2014 17:00
SS8-H-6"	X409171-08	Soil	September 17, 2014 13:30	09/17/2014 17:00
SS9-I-6"	X409171-09	Soil	September 17, 2014 13:35	09/17/2014 17:00
SS10-J-6"	X409171-10	Soil	September 17, 2014 13:40	09/17/2014 17:00

Origins Laboratory, Inc.



*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

Charles Greeson  
Project Number: NEP0610  
Project: Noble - Centralized E+P Waste  
Management Facility

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS11-K-6"	X409171-11	Soil	September 17, 2014 14:00	09/17/2014 17:00
SS12-L-6"	X409171-12	Soil	September 17, 2014 14:05	09/17/2014 17:00
SS13-M-6"	X409171-13	Soil	September 17, 2014 14:10	09/17/2014 17:00
SS14-N-6"	X409171-14	Soil	September 17, 2014 14:15	09/17/2014 17:00
SS15-O-6"	X409171-15	Soil	September 17, 2014 14:20	09/17/2014 17:00
SS16-P-6"	X409171-16	Soil	September 17, 2014 14:25	09/17/2014 17:00
SS17-Q-6"	X409171-17	Soil	September 17, 2014 14:30	09/17/2014 17:00

Origins Laboratory, Inc.



*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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste Management Facility

Origins Laboratory

F-012207-01-R1  
 Effective Date 01/09/12

**Sample Receipt Checklist**

Origins Work Order: X409171

Client: LTE

Client Project ID: NEP0610

Checklist Completed by: Jen Restrosini

Shipped Via: Pickup  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 9-17-14 1720

Airbill #: N/A

Matrix(es) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_

Cooler Number/Temperature: 1 / 5.6 °C \_\_\_\_\_ °C \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: 1002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	X			
Is there ice present (document if blue ice is used)?	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	X	X		
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		X		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments; / preservation is not confirmed for subcontracted analyses in order to insure sample integrity/pH <2 for samples preserved with HNO3, HCL, H2SO4; / pH > 10 for samples preserved with NaAsO2+NaOH, ZnO+NaOH)			X	
Additional Comments (if any): <u>I confirmed with Charles Greeson that GRC be analyzed by SSGC. He also confirmed that Project Name is Centralized E+P Waste Management Facility.</u>				

<sup>(1)</sup>If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to be taken in the additional comments (above), and the case narrative.

*Jen Restrosini*  
 Reviewed by (Project Manager)

9-18-14 1043  
 Date/Time Reviewed

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**SS1-A-6"**

9/17/2014 12:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
 X409171-01 (Soil)

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/22/2014	
<i>Surrogate: o-Terphenyl</i>	46.3 %	59-131			"	"	"	S-LOW

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	98.2 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	100 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	107 %	70-130			"	"	"	

Origins Laboratory, Inc.



*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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**SS2-B-6"**

9/17/2014 12:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
 X409171-02 (Soil)

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/22/2014	
<i>Surrogate: o-Terphenyl</i>	64.3 %	59-131			"	"	"	

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	98.8 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.0 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	101 %	70-130			"	"	"	

Origins Laboratory, Inc.



*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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**SS3-C-6"**

**9/17/2014 12:40:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
 X409171-03 (Soil)

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/22/2014	
<i>Surrogate: o-Terphenyl</i>	<i>71.1 %</i>	<i>59-131</i>			"	"	"	

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	<b>0.0020</b>	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>105 %</i>	<i>70-130</i>			"	"	"	
<i>Surrogate: Toluene-d8</i>	<i>95.4 %</i>	<i>70-130</i>			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99.9 %</i>	<i>70-130</i>			"	"	"	

Origins Laboratory, Inc.



*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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**SS4-D-6"**

9/17/2014 12:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
 X409171-04 (Soil)

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/19/2014	
<i>Surrogate: o-Terphenyl</i>	60.2 %	59-131			"	"	"	

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	105 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.7 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	97.2 %	70-130			"	"	"	

Origins Laboratory, Inc.



*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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

SS5-E-6"

9/17/2014 12:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X409171-05 (Soil)

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	1200	50.0	mg/kg	1	4118011	09/18/2014	09/19/2014
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<i>Surrogate: o-Terphenyl</i>	81.8 %	59-131			"	"	"
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**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014
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Benzene	ND	0.0020	"	"	"	"	"
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Toluene	0.0024	0.0020	"	"	"	"	"
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Ethylbenzene	ND	0.0020	"	"	"	"	"
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Xylenes, total	ND	0.0020	"	"	"	"	"
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<i>Surrogate: 1,2-Dichloroethane-d4</i>	103 %	70-130			"	"	"
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<i>Surrogate: Toluene-d8</i>	98.3 %	70-130			"	"	"
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<i>Surrogate: 4-Bromofluorobenzene</i>	103 %	70-130			"	"	"
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Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

SS6-F-6"

9/17/2014 1:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X409171-06 (Soil)

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/22/2014	
<i>Surrogate: o-Terphenyl</i>	71.4 %	59-131			"	"	"	

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	101 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.9 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	98.2 %	70-130			"	"	"	

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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

SS7-G-6"  
 9/17/2014 1:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X409171-07 (Soil)

### Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/22/2014	
<i>Surrogate: o-Terphenyl</i>	55.5 %	59-131			"	"	"	S-LOW

### GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	100 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.1 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	96.3 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

SS8-H-6"  
 9/17/2014 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X409171-08 (Soil)

### Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/20/2014	
<i>Surrogate: o-Terphenyl</i>	64.7 %	59-131			"	"	"	

### GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	104 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	95.0 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	96.4 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

SS9-I-6"

9/17/2014 1:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X409171-09 (Soil)

### Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/22/2014	
<i>Surrogate: o-Terphenyl</i>	78.9 %	59-131			"	"	"	

### GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	102 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	96.8 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	97.9 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

SS10-J-6"

9/17/2014 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X409171-10 (Soil)

### Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/22/2014	
<i>Surrogate: o-Terphenyl</i>	43.7 %	59-131			"	"	"	S-LOW

### GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	99.2 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.5 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	98.9 %	70-130			"	"	"	

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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**SS11-K-6"**

**9/17/2014 2:00:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
 X409171-11 (Soil)

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/22/2014	
<i>Surrogate: o-Terphenyl</i>	<i>75.0 %</i>	<i>59-131</i>			"	"	"	

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>	<i>70-130</i>			"	"	"	
<i>Surrogate: Toluene-d8</i>	<i>97.9 %</i>	<i>70-130</i>			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99.2 %</i>	<i>70-130</i>			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

SS12-L-6"

9/17/2014 2:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X409171-12 (Soil)

### Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/20/2014	
<i>Surrogate: o-Terphenyl</i>	61.6 %	59-131			"	"	"	

### GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	105 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	94.6 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	96.1 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

SS13-M-6"

9/17/2014 2:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X409171-13 (Soil)

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/20/2014	
<i>Surrogate: o-Terphenyl</i>	62.6 %	59-131			"	"	"	

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	0.0026	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	102 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.8 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	97.8 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**SS14-N-6"**

9/17/2014 2:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
 X409171-14 (Soil)

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/20/2014	
<i>Surrogate: o-Terphenyl</i>	64.0 %	59-131			"	"	"	

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	103 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	94.9 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	97.3 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

SS15-O-6"

9/17/2014 2:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X409171-15 (Soil)

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/22/2014	
<i>Surrogate: o-Terphenyl</i>	64.0 %	59-131			"	"	"	

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	97.9 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	93.4 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	96.5 %	70-130			"	"	"	

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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

SS16-P-6"

9/17/2014 2:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X409171-16 (Soil)

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/22/2014	
<i>Surrogate: o-Terphenyl</i>	77.8 %	59-131			"	"	"	

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	0.0028	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	101 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	92.8 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	97.2 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

SS17-Q-6"

9/17/2014 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X409171-17 (Soil)

### Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4118011	09/18/2014	09/22/2014
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<i>Surrogate: o-Terphenyl</i>	75.7 %	59-131			"	"	"
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### GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118010	09/18/2014	09/19/2014
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Benzene	ND	0.0020	"	"	"	"	"
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Toluene	0.0022	0.0020	"	"	"	"	"
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Ethylbenzene	ND	0.0020	"	"	"	"	"
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Xylenes, total	ND	0.0020	"	"	"	"	"
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<i>Surrogate: 1,2-Dichloroethane-d4</i>	99.8 %	70-130			"	"	"
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<i>Surrogate: Toluene-d8</i>	96.0 %	70-130			"	"	"
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<i>Surrogate: 4-Bromofluorobenzene</i>	100 %	70-130			"	"	"
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Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4I18010 - EPA 5030 (soil)

**Blank (4I18010-BLK1)**

Prepared: 09/18/2014 Analyzed: 09/19/2014

Gasoline Range Hydrocarbons	ND	0.2	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>65.5</i>		<i>ug/kg</i>	<i>62.5</i>		<i>105</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>61.1</i>		<i>"</i>	<i>62.5</i>		<i>97.7</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>59.8</i>		<i>"</i>	<i>62.5</i>		<i>95.7</i>	<i>70-130</i>			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4118010 - EPA 5030 (soil)

**LCS (4118010-BS1)**

Prepared: 09/18/2014 Analyzed: 09/19/2014

Benzene	0.09	0.002	mg/kg	0.100		93.8	77.1-124			
Toluene	0.09	0.002	"	0.100		87.1	74.5-128			
Ethylbenzene	0.1	0.002	"	0.100		96.9	66.4-127			
m,p-Xylene	0.2	0.004	"	0.200		95.6	76.6-124			
o-Xylene	0.1	0.002	"	0.100		103	76.6-124			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>61.0</i>		<i>ug/kg</i>	<i>62.5</i>		<i>97.7</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>60.6</i>		<i>"</i>	<i>62.5</i>		<i>96.9</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>60.8</i>		<i>"</i>	<i>62.5</i>		<i>97.2</i>	<i>70-130</i>			

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4118010 - EPA 5030 (soil)

Matrix Spike (4118010-MS1)	Source: X409171-01			Prepared: 09/18/2014 Analyzed: 09/19/2014						
Benzene	0.09	0.002	mg/kg	0.100	ND	87.7	71.8-126			
Toluene	0.08	0.002	"	0.100	ND	76.4	65.1-130			
Ethylbenzene	0.07	0.002	"	0.100	ND	72.1	62.2-130			
m,p-Xylene	0.1	0.004	"	0.200	ND	70.7	46.5-137			
o-Xylene	0.08	0.002	"	0.100	ND	76.2	54.2-134			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>59.4</i>		<i>ug/kg</i>	<i>62.5</i>		<i>95.1</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>61.9</i>		<i>"</i>	<i>62.5</i>		<i>99.0</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>69.7</i>		<i>"</i>	<i>62.5</i>		<i>112</i>	<i>70-130</i>			

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4118010 - EPA 5030 (soil)

Matrix Spike Dup (4118010-MSD1)	Source: X409171-01			Prepared: 09/18/2014 Analyzed: 09/19/2014						
Benzene	0.1	0.002	mg/kg	0.100	ND	101	71.8-126	14.5	11.3	QM-07
Toluene	0.08	0.002	"	0.100	ND	84.4	65.1-130	9.98	15.4	
Ethylbenzene	0.08	0.002	"	0.100	ND	79.7	62.2-130	10.0	19.6	
m,p-Xylene	0.2	0.004	"	0.200	ND	79.1	46.5-137	11.2	19.2	
o-Xylene	0.08	0.002	"	0.100	ND	77.4	54.2-134	1.51	17.9	
Surrogate: 1,2-Dichloroethane-d4	61.9		ug/kg	62.5		99.1	70-130			
Surrogate: Toluene-d8	61.6		"	62.5		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	63.7		"	62.5		102	70-130			

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Extractable Petroleum Hydrocarbons by 8015M - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4I18011 - EPA 3580

**Blank (4I18011-BLK1)**

Prepared: 09/18/2014 Analyzed: 09/19/2014

Diesel (C10-C28) ND 50.0 mg/kg

Surrogate: o-Terphenyl 32 g 50.0 64.3 59-131

**LCS (4I18011-BS1)**

Prepared: 09/18/2014 Analyzed: 09/19/2014

Diesel (C10-C28) 871 50.0 mg/kg 1000 87.1 64-121

Surrogate: o-Terphenyl 36 g 50.0 72.0 59-131

**Matrix Spike (4I18011-MS1)**

Source: X409171-01

Prepared: 09/18/2014 Analyzed: 09/19/2014

Diesel (C10-C28) 1000 50.0 mg/kg 1000 ND 100 53-125

Surrogate: o-Terphenyl 40 g 50.0 79.6 59-131

**Matrix Spike Dup (4I18011-MSD1)**

Source: X409171-01

Prepared: 09/18/2014 Analyzed: 09/19/2014

Diesel (C10-C28) 847 50.0 mg/kg 1000 ND 84.7 53-125 16.8 20

Surrogate: o-Terphenyl 33 g 50.0 66.1 59-131

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: NEP0610  
Project: Noble - Centralized E+P Waste  
Management Facility

### Notes and Definitions

S-LOW Low surrogate recovery confirmed as a matrix effect by a second analysis.

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



*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.*

Noelle Doyle Mathis, President

November 13, 2014

LT Environmental, Inc.

Charles Greeson

4600 West 60th Avenue

Arvada CO 80003

Project Name - Noble - Centralized Landfarm

Project Number - NEP0610

Attached are your analytical results for Noble - Centralized Landfarm received by Origins Laboratory, Inc. November 11, 2014. This project is associated with Origins project number X411097-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



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

Charles Greeson  
Project Number: NEP0610  
Project: Noble - Centralized Landfarm

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS5-E-6"	X411097-01	Soil	November 11, 2014 8:20	11/11/2014 09:00

Origins Laboratory, Inc.



*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.*

Jen Pellegrini For Noelle Doyle Mathis, President



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized Landfarm

Origins Laboratory

F-012207-01-R1  
 Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: X411097

Client: LTE

Client Project ID: Centralized Landfarm

Checklist Completed by: Jeff Smith

Shipped Via: H/D  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 11/11/14

Airbill #: NA

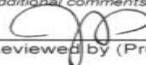
Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_

Cooler Number/Temperature: 1 / 0.3 °C  / \_\_\_\_\_ °C  / \_\_\_\_\_ °C  (Describe)

Thermometer ID: 1003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		X		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? <b>If yes, contact client and note in narrative.</b>			X	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/pH <2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> / ( pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			X	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

  
 Reviewed by (Project Manager)

11-11-14  
 Date/Time Reviewed

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized Landfarm

**SS5-E-6"**

**11/11/2014 8:20:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X411097-01 (Soil)**

**Diesel Range Organics (DRO/TEPH) by EPA 8015C**

Diesel (C10-C28)	225	50.0	mg/kg	1	4K11007	11/11/2014	11/12/2014	
Surrogate: <i>o</i> -Terphenyl	76.9 %	59-131			"	"	"	

**GBTEX + Napthalene by 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4K11008	11/11/2014	11/11/2014	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	101 %	70-130			"	"	"	
Surrogate: Toluene-d8	98.0 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized Landfarm

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4K11008 - EPA 5030 (soil)**

**Blank (4K11008-BLK1)**

Prepared: 11/11/2014 Analyzed: 11/11/2014

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Naphthalene	ND	0.008	"							
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		94.4	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.6	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized Landfarm

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4K11008 - EPA 5030 (soil)**

**LCS (4K11008-BS1)**

Prepared: 11/11/2014 Analyzed: 11/11/2014

Benzene	0.113	0.002	mg/kg	0.100		113	70-130			
Toluene	0.110	0.002	"	0.100		110	70-130			
Ethylbenzene	0.100	0.002	"	0.100		99.6	70-130			
m,p-Xylene	0.224	0.004	"	0.200		112	70-130			
o-Xylene	0.105	0.002	"	0.100		105	70-130			
Naphthalene	0.111	0.008	"	0.100		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		93.9	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized Landfarm

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4K11008 - EPA 5030 (soil)

Matrix Spike (4K11008-MS1)	Source: X411069-01			Prepared: 11/11/2014 Analyzed: 11/11/2014						
Benzene	0.106	0.002	mg/kg	0.100	ND	106	70-130			
Toluene	0.105	0.002	"	0.100	ND	105	70-130			
Ethylbenzene	0.094	0.002	"	0.100	0.002	92.0	70-130			
m,p-Xylene	0.207	0.004	"	0.200	ND	103	70-130			
o-Xylene	0.093	0.002	"	0.100	ND	93.0	70-130			
Naphthalene	0.104	0.008	"	0.100	0.002	102	70-130			
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		93.6	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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 Arvada CO 80003

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized Landfarm

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4K11008 - EPA 5030 (soil)

Matrix Spike Dup (4K11008-MSD1)	Source: X411069-01			Prepared: 11/11/2014 Analyzed: 11/11/2014						
Benzene	0.108	0.002	mg/kg	0.100	ND	108	70-130	2.73	20	
Toluene	0.105	0.002	"	0.100	ND	105	70-130	0.115	20	
Ethylbenzene	0.093	0.002	"	0.100	0.002	91.3	70-130	0.706	20	
m,p-Xylene	0.205	0.004	"	0.200	ND	103	70-130	0.602	20	
o-Xylene	0.093	0.002	"	0.100	ND	93.1	70-130	0.0215	20	
Naphthalene	0.097	0.008	"	0.100	0.002	95.1	70-130	6.80	20	
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		93.9	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		100	70-130			

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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized Landfarm

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Extractable Petroleum Hydrocarbons by 8015M - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4K11007 - EPA 3580**

**Blank (4K11007-BLK1)**

Prepared: 11/11/2014 Analyzed: 11/11/2014

Diesel (C10-C28)	ND	50.0	mg/kg							
Surrogate: o-Terphenyl	51		g	50.0		101	59-131			

**LCS (4K11007-BS1)**

Prepared: 11/11/2014 Analyzed: 11/11/2014

Diesel (C10-C28)	902	50.0	mg/kg	1000		90.2	64-121			
Surrogate: o-Terphenyl	40		g	50.0		80.0	59-131			

**Matrix Spike (4K11007-MS1)**

**Source: X411069-01**

Prepared: 11/11/2014 Analyzed: 11/11/2014

Diesel (C10-C28)	1030	50.0	mg/kg	1000	99.6	92.9	53-125			
Surrogate: o-Terphenyl	47		g	50.0		94.2	59-131			

**Matrix Spike Dup (4K11007-MSD1)**

**Source: X411069-01**

Prepared: 11/11/2014 Analyzed: 11/11/2014

Diesel (C10-C28)	872	50.0	mg/kg	1000	99.6	77.2	53-125	16.5	20	
Surrogate: o-Terphenyl	40		g	50.0		79.4	59-131			

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: NEP0610  
Project: Noble - Centralized Landfarm

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**Notes and Definitions**

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



*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.*

---

Jen Pellegrini For Noelle Doyle Mathis, President

June 18, 2014

LT Environmental, Inc.

Charles Greeson

4600 West 60th Avenue

Arvada CO 80003

**Project Name - Noble - Centralized E+P Waste  
Management Facility**

**Project Number - NEP0610**

Attached are your analytical results for Noble - Centralized E+P Waste Management Facility received by Origins Laboratory, Inc. June 16, 2014. This project is associated with Origins project number X406196-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



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

Charles Greeson  
Project Number: NEP0610  
Project: Noble - Centralized E+P Waste  
Management Facility

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW02	X406196-01	Water	June 16, 2014 12:05	06/16/2014 13:50
MW03	X406196-02	Water	June 16, 2014 12:20	06/16/2014 13:50
MW04	X406196-03	Water	June 16, 2014 12:45	06/16/2014 13:50
MW05	X406196-04	Water	June 16, 2014 13:10	06/16/2014 13:50

Origins Laboratory, Inc.



*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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

www.originslaboratory.com page 1 of 1

**ORIGINS** LABORATORY, INC X406196

Client: LTE Project Manager/Send Report to: Charles Greeson  
 Address: \_\_\_\_\_ Email Address: cgreeson@lteni.com  
 Telephone Number: \_\_\_\_\_ Project Name/Number: Centralized E+P Waste Management Facility  
 Samples Collected By: Jason Evangelista NEP0610

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis/Method	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #			Other
MW02	6/16/14	1205	3	X				X					
MW03	↓	1220	↓										
MW04	↓	1245	↓										
MW05	↓	1310	↓										

Relinquished By: \_\_\_\_\_ Date: 6/16/14 Time: 1350  
 Relinquished By: \_\_\_\_\_ Date: 6/16/14 Time: 1350

Turnaround Time: 24 Hr  48 Hr  72 Hr  Standard

Origins Laboratory, Inc.

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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste Management Facility

F-012207-01-R1  
 Effective Date: 01/09/12

Origins Laboratory  
 Sample Receipt Checklist  
 Origins Work Order: X40696  
 Checklist Completed by: Jeff Smith  
 Date/time completed: 6/16/14 14:59  
 Matrix(s) Received: (Check all that apply): Soil/Solid  Water  Other: \_\_\_\_\_ (Describe)  
 Cooler Number/Temperature: 12.9 °C  
 Thermometer ID: T002  
 Client: LTE  
 Client Project ID: Centralized E+P Waste Management Facility  
 Shipped Via: HD  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: NA

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Sampled Same Day
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) 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 with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		<input checked="" type="checkbox"/>		
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH < 2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)		<input checked="" type="checkbox"/>		Samples will be analyzed within 7 Days of collection
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

[Signature]  
 Reviewed by (Project Manager)

6/17/14 10:19  
 Date/Time Reviewed

Origins Laboratory, Inc.

[Signature]

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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

MW02

6/16/2014 12:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.  
 X406196-01 (Water)

**BTEX by EPA 8260C**

Benzene	ND	1.0	ug/L	1	4F16017	06/16/2014	06/17/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	98.4 %	87.3-113			"	"	"	
<i>Surrogate: Toluene-d8</i>	105 %	90.9-108			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	99.1 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: NEP0610  
Project: Noble - Centralized E+P Waste  
Management Facility

MW03

6/16/2014 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X406196-02 (Water)

**BTEX by EPA 8260C**

Benzene	ND	1.0	ug/L	1	4F16017	06/16/2014	06/17/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	98.4 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	102 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

MW04

6/16/2014 12:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X406196-03 (Water)

**BTEX by EPA 8260C**

Benzene	ND	1.0	ug/L	1	4F16017	06/16/2014	06/17/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	98.1 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	104 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.6 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

MW05  
 6/16/2014 1:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X406196-04 (Water)

**BTEX by EPA 8260C**

Benzene	ND	1.0	ug/L	1	4F16017	06/16/2014	06/17/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	97.1 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	103 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.5 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4F16017 - EPA 5030B (Water)

**Blank (4F16017-BLK1)**

Prepared: 06/16/2014 Analyzed: 06/17/2014

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>63</i>		<i>"</i>	<i>62.5</i>	<i>100</i>		<i>87.3-113</i>			
<i>Surrogate: Toluene-d8</i>	<i>65</i>		<i>"</i>	<i>62.5</i>	<i>104</i>		<i>90.9-108</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>61</i>		<i>"</i>	<i>62.5</i>	<i>98.4</i>		<i>88.6-111</i>			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4F16017 - EPA 5030B (Water)

LCS (4F16017-BS1)

Prepared: 06/16/2014 Analyzed: 06/17/2014

Benzene	45.6	1.0	ug/L	50.0	91.2	75-126				
Toluene	47.0	1.0	"	50.0	94.1	78.7-126				
Ethylbenzene	47.2	1.0	"	50.0	94.4	81-130				
m,p-Xylene	93.1	2.0	"	100	93.1	77.2-133				
o-Xylene	48.2	1.0	"	50.0	96.5	77.9-126				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>58</i>		<i>"</i>	<i>62.5</i>	<i>92.3</i>	<i>87.3-113</i>				
<i>Surrogate: Toluene-d8</i>	<i>65</i>		<i>"</i>	<i>62.5</i>	<i>104</i>	<i>90.9-108</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>62</i>		<i>"</i>	<i>62.5</i>	<i>99.5</i>	<i>88.6-111</i>				

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4F16017 - EPA 5030B (Water)

Matrix Spike (4F16017-MS1)	Source: X406196-01			Prepared: 06/16/2014 Analyzed: 06/17/2014						
Benzene	50.5	1.0	ug/L	50.0	ND	101	74-130			
Toluene	52.4	1.0	"	50.0	ND	105	73-131			
Ethylbenzene	53.6	1.0	"	50.0	ND	107	76-132			
m,p-Xylene	107	2.0	"	100	ND	107	69-139			
o-Xylene	52.7	1.0	"	50.0	ND	105	74-131			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>58</i>		<i>"</i>	<i>62.5</i>		<i>93.2</i>	<i>87.3-113</i>			
<i>Surrogate: Toluene-d8</i>	<i>65</i>		<i>"</i>	<i>62.5</i>		<i>104</i>	<i>90.9-108</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>62</i>		<i>"</i>	<i>62.5</i>		<i>100</i>	<i>88.6-111</i>			

Origins Laboratory, Inc.



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

Charles Greeson  
 Project Number: NEP0610  
 Project: Noble - Centralized E+P Waste  
 Management Facility

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

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

Batch 4F16017 - EPA 5030B (Water)

Matrix Spike Dup (4F16017-MSD1)	Source: X406196-01			Prepared: 06/16/2014 Analyzed: 06/17/2014						
Benzene	49.2	1.0	ug/L	50.0	ND	98.4	74-130	2.55	20	
Toluene	50.8	1.0	"	50.0	ND	102	73-131	3.04	20	
Ethylbenzene	52.4	1.0	"	50.0	ND	105	76-132	2.30	20	
m,p-Xylene	104	2.0	"	100	ND	104	69-139	2.41	20	
o-Xylene	51.5	1.0	"	50.0	ND	103	74-131	2.23	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>57</i>		<i>"</i>	<i>62.5</i>		<i>90.9</i>	<i>87.3-113</i>			
<i>Surrogate: Toluene-d8</i>	<i>65</i>		<i>"</i>	<i>62.5</i>		<i>104</i>	<i>90.9-108</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>62</i>		<i>"</i>	<i>62.5</i>		<i>99.5</i>	<i>88.6-111</i>			

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: NEP0610  
Project: Noble - Centralized E+P Waste  
Management Facility

### Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

May 26, 2015

Chris Roy  
LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada, CO 80003  
RE: Landfarm Patina

Enclosed are the results of analyses for samples received by Summit Scientific on 04/28/15 16:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'Ben Shrewsbury', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury For Paul Shrewsbury  
President



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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

**Reported:**  
05/26/15 12:12

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SP1	1504277-01	Soil	04/28/15 13:30	04/28/15 16:40
SP2	1504277-02	Soil	04/28/15 13:35	04/28/15 16:40
SP3	1504277-03	Soil	04/28/15 13:40	04/28/15 16:40
SP4	1504277-04	Soil	04/28/15 13:45	04/28/15 16:40
SP5	1504277-05	Soil	04/28/15 13:50	04/28/15 16:40
LP-S	1504277-06	Soil	04/28/15 13:55	04/28/15 16:40
LP-E	1504277-07	Soil	04/28/15 15:10	04/28/15 16:40
LP-W	1504277-08	Soil	04/28/15 14:20	04/28/15 16:40
Berm Area N	1504277-09	Soil	04/28/15 14:50	04/28/15 16:40
Berm Area AS	1504277-10	Soil	04/28/15 14:55	04/28/15 16:40
Wind Row North	1504277-11	Soil	04/28/15 14:00	04/28/15 16:40
Wind Row South	1504277-12	Soil	04/28/15 14:05	04/28/15 16:40
Wind Row Middle	1504277-13	Soil	04/28/15 14:10	04/28/15 16:40

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

# Summit Scientific

1504277.1

741 Corporate Circle Suite 1 ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 1 of 2

Client: LT Environmental	Project Manager: Chris Roy
Address: 4600 W 60th Avenue	E-Mail: Noble Remediation Team
City/State/Zip: Arvada, CO 80003	Project Name: Landfarm Patina
Phone: Fax:	Project Number: NEP0610
Sampler Name: Chris Rolison	

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:							Special Instructions	
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	BTEX	Naphthalene	TPH	pH	EC	SAR		
SP1	4/28/2015	1330	2					X				X	X	X	X	X	X		
SP2	4/28/2015	1335	2					X				X	X	X	X	X	X		
SP3	4/28/2015	1340	2					X				X	X	X	X	X	X		
SP4	4/28/2015	1345	2					X				X	X	X	X	X	X		
SP5	4/28/2015	1350	2					X				X	X	X	X	X	X		
LP-S	4/28/2015	1355	2					X				X	X	X	X	X	X		
LP-E	4/28/2015	1510	2					X				X	X	X	X	X	X		
LP-W	4/28/2015	1420	2					X				X	X	X	X	X	X		
Berm Area N	4/28/2015	1450	2					X				X	X	X					
Berm Area S	4/28/2015	1455	2					X				X	X	X					
Relinquished by:		Date/Time: 4/28/15 1615	Received by:		Date/Time: 4/28/15 1615		Turn Around Time (Check)		Notes: Invoice Jacob										
Relinquished by:		Date/Time: 4/28/15 1640	Received by:		Date/Time: 4-28-15 1640		Same Day <input type="checkbox"/>		72 Hours <input type="checkbox"/>										
Relinquished by:		Date/Time:	Received in Lab by:		Date/Time:		24 Hours <input type="checkbox"/>		Standard <input type="checkbox"/>										
							48 Hours <input checked="" type="checkbox"/>		Sample Integrity:										
							Temperature Upon Receipt: 3.1°C		Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No										

www.s2scientific.com

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

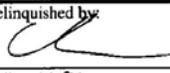
# Summit Scientific

1504277.2

741 Corporate Circle Suite 1 ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933 Fax

Page 2 of 2

Client: LT Environmental	Project Manager: Chris Roy
Address: 4600 W 60th Avenue	E-Mail: Noble Remediation Team
City/State/Zip: Arvada, CO 80003	Project Name: Landfarm Patina
Phone: Fax:	Project Number: NEP0610
Sampler Name: Chris Rolison	

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:						Special Instructions	
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	BTEX	Naphthalene	TPH	pH	EC		SAR
Wind Row North	4/28/2015	1400	2					X				X	X	X	X	X	X	
Wind Row South	4/28/2015	1405	2					X				X	X	X	X	X	X	
Wind Row Middle	4/28/2015	1410	2					X				X	X	X	X	X	X	
Relinquished by: 	Date/Time: 4/28/15 1615	Received by: 	Date/Time: 4/28/15 165	Turn Around Time (Check)				Notes: Invoice Jacob										
				Same Day	<input type="checkbox"/>	72 Hours	<input type="checkbox"/>	on iq										
				24 Hours	<input type="checkbox"/>	Standard	<input type="checkbox"/>											
				48 Hours	<input checked="" type="checkbox"/>													
Relinquished by: 	Date/Time: 4/28/15 1640	Received by: 	Date/Time: 4-28-15 1640	Sample Integrity:														
				Temperature Upon Receipt:	31°C													
				Intact:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No												

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Summit Scientific



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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**SP1**

**1504277-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		99.1 %	30-150		"	"	"	"	

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

Date Sampled: **04/28/15 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		94.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**SP2**

**1504277-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 13:35**

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

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

Date Sampled: **04/28/15 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 13:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		120 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.3 %	21-167		"	"	"	"	

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**SP3**

**1504277-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		101 %	30-150		"	"	"	"	

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

Date Sampled: **04/28/15 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		130 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.8 %	21-167		"	"	"	"	

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**SP4**

**1504277-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		93.6 %	30-150		"	"	"	"	

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

Date Sampled: **04/28/15 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		131 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
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**SP5**

**1504277-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		101 %	30-150		"	"	"	"	

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

Date Sampled: **04/28/15 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		128 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.7 %	21-167		"	"	"	"	

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**LP-S**  
**1504277-06 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		102 %	30-150		"	"	"	"	

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

Date Sampled: **04/28/15 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		130 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	21-167		"	"	"	"	

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

Date Sampled: **04/28/15 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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LT Environmental, Inc.  
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Arvada CO, 80003

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**LP-S**  
**1504277-06 (Soil)**

**Summit Scientific**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	2830	10.3	mg/kg dry	1	1504287	04/29/15	04/30/15	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	526	5.17	"	"	"	"	"	"	
Sodium	48.5	5.17	"	"	"	"	"	"	

Date Sampled: 04/28/15 13:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.220		units	"	1504310	04/30/15	04/30/15	"	

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

Date Sampled: 04/28/15 13:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.651	0.0100	mmhos/cm	1	1504289	04/29/15	04/29/15	SM 2510B	

Date Sampled: 04/28/15 13:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.07	0.100	pH Units	"	1504288	04/29/15	04/29/15	EPA 9045	

Date Sampled: 04/28/15 13:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	76.8		%	"	1504308	04/30/15	04/30/15	% calculation	

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LT Environmental, Inc.  
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Arvada CO, 80003

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**LP-E**  
**1504277-07 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		103 %	30-150		"	"	"	"	

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

Date Sampled: **04/28/15 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		122 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %	21-167		"	"	"	"	

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

Date Sampled: **04/28/15 15:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**LP-E**  
**1504277-07 (Soil)**

**Summit Scientific**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	695	9.79	mg/kg dry	1	1504287	04/29/15	04/30/15	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	222	4.89	"	"	"	"	"	"	
Sodium	32.0	4.89	"	"	"	"	"	"	

Date Sampled: 04/28/15 15:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.270		units	"	1504310	04/30/15	04/30/15	"	

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

Date Sampled: 04/28/15 15:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.492	0.0100	mmhos/cm	1	1504289	04/29/15	04/29/15	SM 2510B	

Date Sampled: 04/28/15 15:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.11	0.100	pH Units	"	1504288	04/29/15	04/29/15	EPA 9045	

Date Sampled: 04/28/15 15:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.6		%	"	1504308	04/30/15	04/30/15	% calculation	

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**LP-W**  
**1504277-08 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		102 %	30-150		"	"	"	"	

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

Date Sampled: **04/28/15 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		128 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.2 %	21-167		"	"	"	"	

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

Date Sampled: **04/28/15 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**LP-W**  
**1504277-08 (Soil)**

**Summit Scientific**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	789	9.06	mg/kg dry	1	1504287	04/29/15	04/30/15	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	235	4.53	"	"	"	"	"	"	
Sodium	36.1	4.53	"	"	"	"	"	"	

Date Sampled: 04/28/15 14:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.290		units	"	1504310	04/30/15	04/30/15	"	

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

Date Sampled: 04/28/15 14:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.718	0.0100	mmhos/cm	1	1504289	04/29/15	04/29/15	SM 2510B	

Date Sampled: 04/28/15 14:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.85	0.100	pH Units	"	1504288	04/29/15	04/29/15	EPA 9045	

Date Sampled: 04/28/15 14:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.0		%	"	1504308	04/30/15	04/30/15	% calculation	

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**Berm Area N**  
**1504277-09 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		103 %	30-150		"	"	"	"	

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

Date Sampled: **04/28/15 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		123 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**Berm Area AS**  
**1504277-10 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>81</b>	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		98.4 %	30-150		"	"	"	"	

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

Date Sampled: **04/28/15 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 14:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		125 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.7 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.2 %	21-167		"	"	"	"	

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: Landfarm Patina  
Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**Wind Row North  
1504277-11 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		103 %	30-150		"	"	"	"	

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

Date Sampled: **04/28/15 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 14:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		126 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**Wind Row South  
1504277-12 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 14:05**

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

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

Date Sampled: **04/28/15 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		128 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.1 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Landfarm Patina  
Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**Wind Row Middle  
1504277-13 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/28/15 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504294	04/29/15	04/30/15	8015M	

Date Sampled: **04/28/15 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		101 %	30-150		"	"	"	"	

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

Date Sampled: **04/28/15 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504297	04/29/15	04/29/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **04/28/15 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		128 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

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

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

**Batch 1504294 - EPA 3550A**

**Blank (1504294-BLK1)**

Prepared: 04/29/15 Analyzed: 04/30/15

C10-C28 (DRO)	ND	50	mg/kg								
Surrogate: <i>o</i> -Terphenyl	13.5		"	12.2		111	30-150				

**LCS (1504294-BS1)**

Prepared: 04/29/15 Analyzed: 04/30/15

C10-C28 (DRO)	574	50	mg/kg	501		115	73-134				
Surrogate: <i>o</i> -Terphenyl	13.0		"	12.2		107	30-150				

**Matrix Spike (1504294-MS1)**

Source: 1504277-01

Prepared: 04/29/15 Analyzed: 04/30/15

C10-C28 (DRO)	520	50	mg/kg	469	26.6	105	50-148				
Surrogate: <i>o</i> -Terphenyl	11.4		"	11.4		99.6	30-150				

**Matrix Spike Dup (1504294-MSD1)**

Source: 1504277-01

Prepared: 04/29/15 Analyzed: 04/30/15

C10-C28 (DRO)	552	50	mg/kg	471	26.6	112	50-148	5.97	13		
Surrogate: <i>o</i> -Terphenyl	12.1		"	11.5		106	30-150				

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**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 1504297 - EPA 5030 Soil MS**

**Blank (1504297-BLK1)**

Prepared & Analyzed: 04/29/15

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0386</i>		<i>"</i>	<i>0.0396</i>		<i>97.6</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0420</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0419</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>21-167</i>			

**LCS (1504297-BS1)**

Prepared & Analyzed: 04/29/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0951	0.0020	"	0.100		95.1	58-130			
Toluene	0.0989	0.0050	"	0.100		98.9	61-134			
Ethylbenzene	0.0846	0.0050	"	0.0992		85.3	74-139			
m,p-Xylene	0.174	0.010	"	0.200		87.1	73-137			
o-Xylene	0.0893	0.0050	"	0.0984		90.7	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0373</i>		<i>"</i>	<i>0.0396</i>		<i>94.2</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0405</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0416</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>21-167</i>			

**Matrix Spike (1504297-MS1)**

Source: 1504277-01

Prepared & Analyzed: 04/29/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0915	0.0020	"	0.0947	ND	96.7	30-131			
Toluene	0.0934	0.0050	"	0.0947	ND	98.6	30-134			
Ethylbenzene	0.0841	0.0050	"	0.0939	ND	89.5	22-153			
m,p-Xylene	0.171	0.010	"	0.189	ND	90.7	10-159			
o-Xylene	0.0903	0.0050	"	0.0932	ND	96.9	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0369</i>		<i>"</i>	<i>0.0375</i>		<i>98.5</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0383</i>		<i>"</i>	<i>0.0379</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0401</i>		<i>"</i>	<i>0.0379</i>		<i>106</i>	<i>21-167</i>			

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

**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 1504297 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1504297-MSD1)</b>	<b>Source: 1504277-01</b>			<b>Prepared &amp; Analyzed: 04/29/15</b>						
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0883	0.0020	"	0.0938	ND	94.2	30-131	3.55	34	
Toluene	0.0902	0.0050	"	0.0938	ND	96.2	30-134	3.47	30	
Ethylbenzene	0.0824	0.0050	"	0.0931	ND	88.6	22-153	1.96	24	
m,p-Xylene	0.166	0.010	"	0.187	ND	88.9	10-159	2.92	68	
o-Xylene	0.0882	0.0050	"	0.0923	ND	95.5	31-151	2.37	38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0349</i>		<i>"</i>	<i>0.0371</i>		<i>93.9</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0375</i>		<i>"</i>	<i>0.0375</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0380</i>		<i>"</i>	<i>0.0375</i>		<i>101</i>	<i>21-167</i>			

Summit Scientific

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

Project: Landfarm Patina  
Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

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

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

**Batch 1504287 - General Preparation**

**Blank (1504287-BLK1)**

Prepared: 04/29/15 Analyzed: 04/30/15

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

**LCS (1504287-BS1)**

Prepared: 04/29/15 Analyzed: 04/30/15

Calcium	517	10.0	mg/kg wet	500	103	82.9-118			
Magnesium	520	5.00	"	500	104	77.1-123			
Sodium	512	5.00	"	500	102	71-129			

**Duplicate (1504287-DUP1)**

Source: 1504247-01

Prepared: 04/29/15 Analyzed: 04/30/15

Calcium	595	12.4	mg/kg dry	775			26.3	200	
Magnesium	370	6.20	"	588			45.5	200	
Sodium	1260	6.20	"	1280			1.86	200	

**Matrix Spike (1504287-MS1)**

Source: 1504247-01

Prepared: 04/29/15 Analyzed: 04/30/15

Calcium	1300	11.2	mg/kg dry	561	775	92.8	75-125		
Magnesium	1090	5.61	"	561	588	89.3	75-125		
Sodium	1720	5.61	"	561	1280	78.1	75-125		

**Matrix Spike Dup (1504287-MSD1)**

Source: 1504247-01

Prepared: 04/29/15 Analyzed: 04/30/15

Calcium	1220	11.8	mg/kg dry	589	775	75.4	75-125	6.04	25
Magnesium	1040	5.89	"	589	588	77.2	75-125	4.29	25
Sodium	1790	5.89	"	589	1280	85.1	75-125	3.60	25

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/26/15 12:12

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

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

**Batch 1504288 - General Preparation**

<b>LCS (1504288-BS1)</b>					Prepared & Analyzed: 04/29/15						
pH	7.96	0.100	pH Units	8.00	99.5	95-105					
<b>Duplicate (1504288-DUP1)</b>					Source: 1504247-01 Prepared & Analyzed: 04/29/15						
pH	7.64	0.100	pH Units	7.35	3.87	20					

**Batch 1504289 - General Preparation**

<b>Blank (1504289-BLK1)</b>					Prepared & Analyzed: 04/29/15						
Specific Conductance (EC)	ND	0.0100	mmhos/cm								
<b>LCS (1504289-BS1)</b>					Prepared & Analyzed: 04/29/15						
Specific Conductance (EC)	480	0.0100	mmhos/cm	500	95.9	90-110					
<b>Duplicate (1504289-DUP1)</b>					Source: 1504247-01 Prepared & Analyzed: 04/29/15						
Specific Conductance (EC)	5.01	0.0100	mmhos/cm	4.90	2.15	20					

**Batch 1504308 - General Preparation**

<b>Duplicate (1504308-DUP1)</b>					Source: 1504277-01 Prepared & Analyzed: 04/30/15						
% Solids	88.8		%	90.4	1.79	20					

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

**Reported:**  
05/26/15 12:12

### 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

---

Summit Scientific

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# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

May 05, 2015

Chris Roy  
LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada, CO 80003  
RE: Landfarm Patina

Enclosed are the results of analyses for samples received by Summit Scientific on 05/04/15 17:46. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

**Reported:**  
05/05/15 07:27

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Stock01	1505033-01	Soil	05/04/15 13:20	05/04/15 17:46
Stock02	1505033-02	Soil	05/04/15 13:30	05/04/15 17:46
CP01	1505033-03	Soil	05/04/15 11:30	05/04/15 17:46
AST01	1505033-04	Soil	05/04/15 11:50	05/04/15 17:46
LP-N	1505033-05	Soil	05/04/15 11:40	05/04/15 17:46
SR01	1505033-06	Soil	05/04/15 12:00	05/04/15 17:46

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

# Summit Scientific 1505033

S<sub>2</sub>

741 Corporate Circle, Suite J&K ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933

Page 1 of 1

Client: LT Environmental, Inc. Project Manager: Chris Roy  
Address: 4600 West 60th Ave E-Mail: croyc@ltenv.com + Noble Remediation  
City/State/Zip: Arvada, CO 80003  
Phone: 303-433-9788 Fax: 303-433-1432 Project Name: Landfarm Patina  
Sampler Name: DHester Project Number: NEP0610

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested					Special Instructions
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	BTX	CRD DRG	UptH	PIT GC	SAR	
1	<del>Stack 01</del> Stack 01	5/4/15	1320	2					X				X	X	X			
2	<del>Stack 02</del> Stack 02		1330	2					X				X	X	X			
3	CPO1		1130	2					X				X	X	X	X	X	
4	AST01		1150	2					X				X	X	X			
5	LP01-N		1140	2					X				X	X	X	X	X	
6	SRO1		1200	2					X				X	X	X			
7																		
8																		
9																		
10																		
Relinquished by: <u>[Signature]</u>		Date/Time: <u>5/4/15 1630</u>	Received by: <u>[Signature]</u>		Date/Time: <u>5/4/15 1645</u>		Turn Around Time (Check)					Notes:						
							Same Day <input checked="" type="checkbox"/> 72 hours					Invoice Jacob						
							24 hours <input type="checkbox"/>											
							48 hours <input type="checkbox"/>											
Relinquished by: <u>[Signature]</u>		Date/Time: <u>5/4/15 1746</u>	Received by: <u>[Signature]</u>		Date/Time: <u>5/4 1746</u>		Sample Integrity:					on ice						
							Temperature Upon Receipt: <u>9.8</u>											
							Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No											

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

**Stock01**  
**1505033-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 05/04/15 13:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1505044	05/04/15	05/04/15	8015M	

Date Sampled: 05/04/15 13:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

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

Date Sampled: 05/04/15 13:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1505043	05/04/15	05/04/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 05/04/15 13:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		129 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

**Stock02**  
**1505033-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/04/15 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1505044	05/04/15	05/04/15	8015M	

Date Sampled: **05/04/15 13:30**

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

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

Date Sampled: **05/04/15 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1505043	05/04/15	05/04/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/04/15 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		130 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

**CP01**  
**1505033-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/04/15 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1505044	05/04/15	05/04/15	8015M	

Date Sampled: **05/04/15 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		106 %	30-150		"	"	"	"	

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

Date Sampled: **05/04/15 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1505043	05/04/15	05/04/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/04/15 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		128 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.8 %	21-167		"	"	"	"	

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

Date Sampled: **05/04/15 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

**CP01**  
**1505033-03 (Soil)**

**Summit Scientific**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	100	10.2	mg/kg dry	1	1505042	05/04/15	05/04/15	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	62.7	5.08	"	"	"	"	"	"	
Sodium	34.1	5.08	"	"	"	"	"	"	

Date Sampled: 05/04/15 11:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.660		units	"	1505047	05/05/15	05/05/15	"	

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

Date Sampled: 05/04/15 11:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.120	0.0100	mmhos/cm	1	1505040	05/04/15	05/04/15	SM 2510B	

Date Sampled: 05/04/15 11:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.90	0.100	pH Units	"	1505045	05/04/15	05/04/15	EPA 9045	

Date Sampled: 05/04/15 11:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	82.0		%	"	1505046	05/04/15	05/05/15	% calculation	

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

**AST01**  
**1505033-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/04/15 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>170</b>	50	mg/kg	1	1505044	05/04/15	05/04/15	8015M	

Date Sampled: **05/04/15 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		111 %	30-150		"	"	"	"	

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

Date Sampled: **05/04/15 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1505043	05/04/15	05/04/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/04/15 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		139 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.3 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.4 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

**LP-N**  
**1505033-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 05/04/15 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1505044	05/04/15	05/04/15	8015M	

Date Sampled: 05/04/15 11:40

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: 05/04/15 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1505043	05/04/15	05/04/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 05/04/15 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		127 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

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

Date Sampled: 05/04/15 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO, 80003

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

**LP-N**  
**1505033-05 (Soil)**

**Summit Scientific**

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	127	12.9	mg/kg dry	1	1505042	05/04/15	05/04/15	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	95.4	6.45	"	"	"	"	"	"	
Sodium	ND	6.45	"	"	"	"	"	"	

Date Sampled: 05/04/15 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0500		units	"	1505047	05/05/15	05/05/15	"	

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

Date Sampled: 05/04/15 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0517	0.0100	mmhos/cm	1	1505040	05/04/15	05/04/15	SM 2510B	

Date Sampled: 05/04/15 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.44	0.100	pH Units	"	1505045	05/04/15	05/04/15	EPA 9045	

Date Sampled: 05/04/15 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	77.5		%	"	1505046	05/04/15	05/05/15	% calculation	

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

**SR01**  
**1505033-06 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 05/04/15 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1505044	05/04/15	05/04/15	8015M	

Date Sampled: 05/04/15 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		106 %	30-150		"	"	"	"	

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

Date Sampled: 05/04/15 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1505043	05/04/15	05/04/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 05/04/15 12:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		128 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

### Extractable Petroleum Hydrocarbons by 8015 - Quality Control

#### Summit Scientific

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

#### Batch 1505044 - EPA 3550A

##### Blank (1505044-BLK1)

Prepared: 05/04/15 Analyzed: 05/05/15

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: <i>o</i> -Terphenyl	12.1		"	12.2		98.9	30-150			

##### LCS (1505044-BS1)

Prepared: 05/04/15 Analyzed: 05/05/15

C10-C28 (DRO)	615	50	mg/kg	501		123	73-134			
Surrogate: <i>o</i> -Terphenyl	13.7		"	12.2		112	30-150			

##### LCS (1505044-BS2)

Prepared: 05/04/15 Analyzed: 05/05/15

C10-C28 (DRO)	590	50	mg/kg	501		118	73-134			
Surrogate: <i>o</i> -Terphenyl	13.1		"	12.2		107	30-150			

##### Matrix Spike (1505044-MS1)

Source: 1505033-03

Prepared: 05/04/15 Analyzed: 05/05/15

C10-C28 (DRO)	470	50	mg/kg	480	30.4	91.6	50-148			
Surrogate: <i>o</i> -Terphenyl	12.0		"	11.7		102	30-150			

##### Matrix Spike (1505044-MS2)

Source: 1505033-05

Prepared: 05/04/15 Analyzed: 05/05/15

C10-C28 (DRO)	474	50	mg/kg	489	35.1	89.8	50-148			
Surrogate: <i>o</i> -Terphenyl	12.4		"	11.9		104	30-150			

##### Matrix Spike Dup (1505044-MSD1)

Source: 1505033-03

Prepared: 05/04/15 Analyzed: 05/05/15

C10-C28 (DRO)	478	50	mg/kg	480	30.4	93.2	50-148	1.67	13	
Surrogate: <i>o</i> -Terphenyl	12.1		"	11.7		104	30-150			

##### Matrix Spike Dup (1505044-MSD2)

Source: 1505033-05

Prepared: 05/04/15 Analyzed: 05/05/15

C10-C28 (DRO)	446	50	mg/kg	466	35.1	88.1	50-148	6.11	13	
Surrogate: <i>o</i> -Terphenyl	11.8		"	11.4		104	30-150			

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

**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 1505043 - EPA 5030 Soil MS**

**Blank (1505043-BLK1)**

Prepared: 05/04/15 Analyzed: 05/05/15

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0502</i>		<i>"</i>	<i>0.0396</i>		<i>127</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.5</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0416</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>21-167</i>			

**LCS (1505043-BS1)**

Prepared: 05/04/15 Analyzed: 05/05/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0988	0.0020	"	0.100		98.8	58-130			
Toluene	0.0960	0.0050	"	0.100		96.0	61-134			
Ethylbenzene	0.111	0.0050	"	0.0992		112	74-139			
m,p-Xylene	0.212	0.010	"	0.200		106	73-137			
o-Xylene	0.108	0.0050	"	0.0984		109	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0503</i>		<i>"</i>	<i>0.0396</i>		<i>127</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0422</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>21-167</i>			

**LCS (1505043-BS2)**

Prepared: 05/04/15 Analyzed: 05/05/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0967	0.0020	"	0.100		96.7	58-130			
Toluene	0.0956	0.0050	"	0.100		95.6	61-134			
Ethylbenzene	0.110	0.0050	"	0.0992		111	74-139			
m,p-Xylene	0.209	0.010	"	0.200		105	73-137			
o-Xylene	0.106	0.0050	"	0.0984		108	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0491</i>		<i>"</i>	<i>0.0396</i>		<i>124</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0417</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>	<i>21-167</i>			

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

**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 1505043 - EPA 5030 Soil MS**

**Matrix Spike (1505043-MS1)**

Source: 1505033-03

Prepared: 05/04/15 Analyzed: 05/05/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0957	0.0020	"	0.0996	ND	96.1	30-131			
Toluene	0.0950	0.0050	"	0.0996	ND	95.4	30-134			
Ethylbenzene	0.110	0.0050	"	0.0988	ND	111	22-153			
m,p-Xylene	0.208	0.010	"	0.199	ND	105	10-159			
o-Xylene	0.106	0.0050	"	0.0980	ND	108	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0511		"	0.0394		130	23-173			
Surrogate: Toluene-d8	0.0402		"	0.0398		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0402		"	0.0398		101	21-167			

**Matrix Spike (1505043-MS2)**

Source: 1505033-05

Prepared: 05/04/15 Analyzed: 05/05/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0940	0.0020	"	0.0969	ND	97.0	30-131			
Toluene	0.0934	0.0050	"	0.0969	ND	96.4	30-134			
Ethylbenzene	0.108	0.0050	"	0.0961	ND	113	22-153			
m,p-Xylene	0.207	0.010	"	0.193	ND	107	10-159			
o-Xylene	0.106	0.0050	"	0.0953	ND	111	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0489		"	0.0384		127	23-173			
Surrogate: Toluene-d8	0.0388		"	0.0388		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0399		"	0.0388		103	21-167			

**Matrix Spike Dup (1505043-MSD1)**

Source: 1505033-03

Prepared: 05/04/15 Analyzed: 05/05/15

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0972	0.0020	"	0.0998	ND	97.4	30-131	1.50	34	
Toluene	0.0971	0.0050	"	0.0998	ND	97.3	30-134	2.22	30	
Ethylbenzene	0.108	0.0050	"	0.0990	ND	109	22-153	1.70	24	
m,p-Xylene	0.205	0.010	"	0.199	ND	103	10-159	1.77	68	
o-Xylene	0.105	0.0050	"	0.0982	ND	107	31-151	0.821	38	
Surrogate: 1,2-Dichloroethane-d4	0.0531		"	0.0395		134	23-173			
Surrogate: Toluene-d8	0.0404		"	0.0399		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0399		102	21-167			

Summit Scientific

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

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

**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 1505043 - EPA 5030 Soil MS**

**Matrix Spike Dup (1505043-MSD2)**

Source: 1505033-05

Prepared: 05/04/15

Analyzed: 05/05/15

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0939	0.0020	"	0.0977	ND	96.1	30-131	0.0919	34	
Toluene	0.0936	0.0050	"	0.0977	ND	95.8	30-134	0.185	30	
Ethylbenzene	0.105	0.0050	"	0.0969	ND	109	22-153	2.74	24	
m,p-Xylene	0.201	0.010	"	0.195	ND	103	10-159	3.16	68	
o-Xylene	0.102	0.0050	"	0.0961	ND	107	31-151	3.07	38	
Surrogate: 1,2-Dichloroethane-d4	0.0503		"	0.0387		130	23-173			
Surrogate: Toluene-d8	0.0398		"	0.0391		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0391		102	21-167			

Summit Scientific

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Project: Landfarm Patina  
Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

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

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

**Batch 1505042 - General Preparation**

**Blank (1505042-BLK1)**

Prepared & Analyzed: 05/04/15

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

**LCS (1505042-BS1)**

Prepared & Analyzed: 05/04/15

Calcium	502	10.0	mg/kg wet	500	100	82.9-118		
Magnesium	539	5.00	"	500	108	77.1-123		
Sodium	574	5.00	"	500	115	71-129		

**Duplicate (1505042-DUP1)**

Source: 1505033-03

Prepared & Analyzed: 05/04/15

Calcium	106	10.3	mg/kg dry	100			5.30	200
Magnesium	74.8	5.17	"	62.7			17.6	200
Sodium	28.5	5.17	"	34.1			17.9	200

**Matrix Spike (1505042-MS1)**

Source: 1505033-03

Prepared & Analyzed: 05/04/15

Calcium	560	10.0	mg/kg dry	500	100	92.0	75-125	
Magnesium	545	5.00	"	500	62.7	96.4	75-125	
Sodium	504	5.00	"	500	34.1	94.0	75-125	

**Matrix Spike Dup (1505042-MSD1)**

Source: 1505033-03

Prepared & Analyzed: 05/04/15

Calcium	586	10.2	mg/kg dry	508	100	95.6	75-125	4.52	25
Magnesium	548	5.08	"	508	62.7	95.5	75-125	0.588	25
Sodium	521	5.08	"	508	34.1	95.8	75-125	3.29	25

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Project: Landfarm Patina  
Project Number: NEP0610  
Project Manager: Chris Roy

Reported:  
05/05/15 07:27

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

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

**Batch 1505040 - General Preparation**

<b>Blank (1505040-BLK1)</b>		Prepared & Analyzed: 05/04/15									
Specific Conductance (EC)	ND	0.0100	mmhos/cm								
<b>LCS (1505040-BS1)</b>		Prepared & Analyzed: 05/04/15									
Specific Conductance (EC)	481	0.0100	mmhos/cm	500	96.2	90-110					
<b>Duplicate (1505040-DUP1)</b>		<b>Source: 1504254-02</b>		Prepared & Analyzed: 05/04/15							
Specific Conductance (EC)	10.7	0.0100	mmhos/cm		11.1				3.71	20	

**Batch 1505045 - General Preparation**

<b>LCS (1505045-BS1)</b>		Prepared & Analyzed: 05/04/15									
pH	6.08	0.100	pH Units	6.00	101	95-105					
<b>Duplicate (1505045-DUP1)</b>		<b>Source: 1505033-03</b>		Prepared & Analyzed: 05/04/15							
pH	8.78	0.100	pH Units		8.90				1.36	20	

**Batch 1505046 - General Preparation**

<b>Duplicate (1505046-DUP1)</b>		<b>Source: 1505033-03</b>		Prepared & Analyzed: 05/05/15							
% Solids	84.0		%		82.0				2.41	20	

Summit Scientific

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4600 West 60th Avenue  
Arvada CO, 80003

Project: Landfarm Patina

Project Number: NEP0610  
Project Manager: Chris Roy

**Reported:**  
05/05/15 07:27

### 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

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