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COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
4600 West 60th Avenue
Arvada, Colorado 80003
T 303.433.9788 / F 303.433.1432

GROUNDWATER MONITORING AND MONITORING WELL INSTALLATION REPORT JANUARY 2015

LORENZ UPRR 42-27 1, 41-27 3 TANK BATTERY COGCC TRACKING #400603415

LT Environmental, Inc. (LTE), under the direction of Noble Energy, Inc. (Noble), installed groundwater monitoring wells and conducted groundwater monitoring activities at the Lorenz UPRR 42-27 1, 41-27 3 Tank Battery (Site). The Site is located approximately 0.1 miles west of County Road 33 on the south side of County Road 42 in Weld County, Colorado. The legal site description is the northeast quarter of the northeast quarter of Section 27, Township 4 North, Range 66 West, 6th Principal Meridian. The Site Location Map is provided as Figure 1. The site history and remediation activities were described in preceding reports.

Soil Boring Advancement

On December 22, 2014, under the direction of Noble, LTE personnel advanced a total of five soil borings (MW10 through MW13 and TP01). The soil borings were advanced using a direct-push rig operated by Site Services Drilling, LLC of Golden, Colorado.

The soil borings were logged by an LTE geologist, and the soil was characterized by visual inspection of the collected soil samples. The total depth of the soil borings ranged from 15 feet to 20 feet below ground surface (bgs). Soil borings were continuously logged from ground surface to the total depth. The estimated depth to groundwater observed in the soil borings ranged from 6 feet to 8 feet bgs. Soil identified in the borings was predominantly poorly graded and clayey sand from ground surface to total depth. Petroleum hydrocarbon staining and odor was observed in soil boring MW13 from 9 feet to 19 feet bgs and in soil boring TP01 from 10 feet bgs to total depth at 15 feet bgs.

Soil Sampling

During soil boring advancement, soil samples were collected from the sample interval that exhibited visible soil staining or where the highest PID reading was observed above the groundwater saturated zone. On December 22, 2014, five soil samples (MW10@5', MW11@5', MW12@5', MW13@8', and TP01@6') were collected, placed on ice, then submitted with a completed chain of custody form to Summit Scientific of Golden, Colorado, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalene, and total petroleum hydrocarbons (TPH) as gasoline range organics (GRO) by United States Environmental Protection Agency (EPA) Method 8260B and TPH as diesel range organics (DRO) by EPA Method 8015.

Groundwater Monitoring Well Installation

Soil borings (MW10 through MW13) were completed as temporary groundwater monitoring wells to delineate the potential extent of dissolved-phase petroleum hydrocarbon impact. Soil boring TP01 was completed as a temporary point to monitor the effectiveness of air sparging during a

pilot test. The results of the pilot test will be discussed in future correspondence. The monitoring wells were constructed of 1-inch diameter polyvinyl chloride (PVC) casing extending from the surface stickups to depths of 13 feet to 15 feet bgs. The lower 10 feet of each monitoring well consists of 0.010-inch factory-slotted PVC well screen. Silica sand was placed from the bottom of each soil boring to one foot above the screened interval to act as filter pack for the monitoring well. Bentonite chips were placed from the top of the silica sand to the ground surface and hydrated to provide a seal against surface contamination and precipitation infiltration. The Well Completion Diagrams are included as Attachment 1.

Groundwater Sampling

On November 20, 2014, under the direction of Noble, LTE personnel conducted groundwater monitoring activities in monitoring wells MW01 through MW09. On January 9, 2015, monitoring wells MW01 through MW13 were sampled to determine the potential extent of dissolved-phase petroleum hydrocarbon impact. Prior to purging, depth to groundwater was measured and recorded for calculating well-specific target purge volumes and groundwater elevations. Following well development and purging, groundwater samples were collected, placed on ice, then submitted with a completed chain of custody form. Samples collected on November 20, 2014, were submitted to Accutest Laboratories of Wheat Ridge, Colorado, for analysis of BTEX by EPA Method 8260C. Samples collected on January 9, 2015, were submitted to Summit Scientific of Golden, Colorado, for analysis of BTEX by EPA Method 8260B.

Soil Analytical Results

The Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 standards for BTEX, naphthalene, and TPH in soil are 0.17 milligrams per kilogram (mg/kg), 85 mg/kg, 100 mg/kg, 175 mg/kg, 23 mg/kg, and 500 mg/kg, respectively. Soil analytical results indicated all soil samples are in compliance with applicable COGCC Table 910-1 standards. The soil analytical results are presented on Figure 2 and summarized in Table 1. The laboratory soil analytical report is included as Attachment 2.

Hydrogeology

Prior to purging, depth to groundwater was measured and recorded to calculate groundwater elevations. During the January 2015 monitoring event, depth to groundwater ranged from 7.87 feet below top of casing (btoc) in monitoring wells MW01 and MW06 to 10.45 feet btoc in monitoring well MW04. Groundwater was calculated to flow north-northwest with an average hydraulic gradient of 0.014 feet per foot. Groundwater elevations are presented in Figure 3 and summarized in Table 2.

Groundwater Analytical Results

The Colorado Department of Public Health and Environment-Water Quality Control Commission has established Regulation 41-The Basic Standards for Ground Water (WQCC Reg 41) for BTEX at 5.0 micrograms per liter (µg/L), 560 µg/L, 700 µg/L, and 1,400 µg/L, respectively. Laboratory groundwater analytical results from samples collected November 20, 2014, indicated monitoring wells MW01, MW05, and MW09 exceeded the WQCC Reg 41 standard for benzene at concentrations of 32,900 µg/L, 7.2 µg/L, and 38.4 µg/L, respectively. Analytical results indicated monitoring well MW01 exceeded the WQCC Reg 41 standards for toluene and total xylenes at

concentrations of 751 µg/L and 10,500 µg/L, respectively. Laboratory groundwater analytical results from samples collected January 9, 2015, indicated monitoring wells MW01, MW08, MW09, and MW13 exceeded the WQCC Reg 41 standard for benzene at concentrations of 30,000 µg/L, 87 µg/L, 34 µg/L, and 990 µg/L, respectively. Monitoring well MW01 exceeded the WQCC Reg 41 standard for ethylbenzene at a concentration of 1,300 µg/L and monitoring wells MW01, MW08, MW09, and MW13 exceeded the WQCC Reg 41 standard for total xylenes at concentrations of 20,000 µg/L, 2,200 µg/L, 5,000 µg/L, and 3,900 µg/L, respectively. All remaining analytical results from both the November 2014 and the January 2015 sampling events were in compliance with applicable WQCC Reg 41 standards. Laboratory groundwater analytical results and the current estimated dissolved-phase benzene plume are presented on Figure 4. The analytical results are summarized in Table 2. Laboratory groundwater analytical reports are included in Attachment 2.

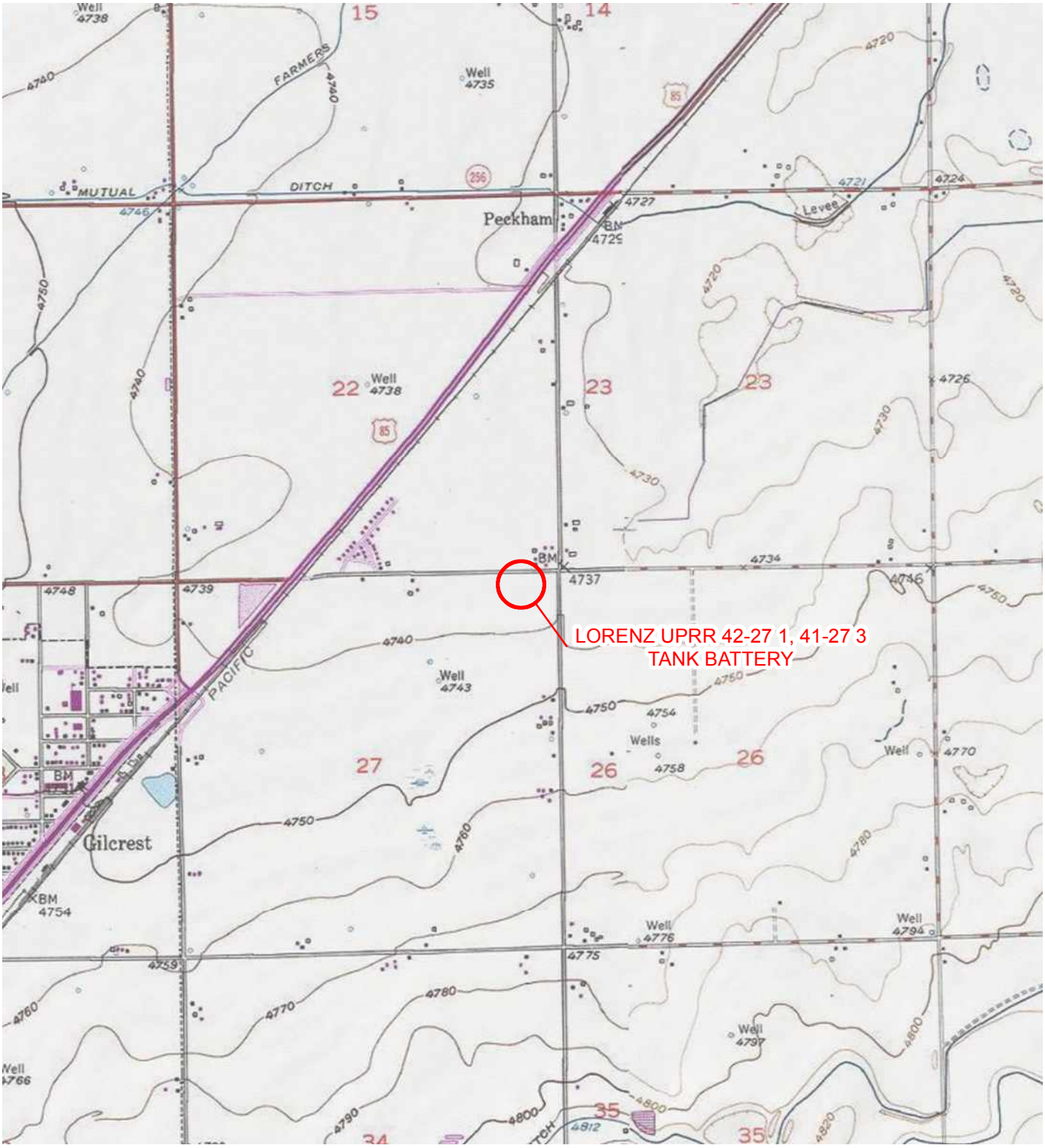
Summary and Conclusions

Four monitoring wells (MW10 through MW13) were installed to delineate the potential extent of dissolved-phase petroleum hydrocarbon impact. Laboratory soil analytical results indicated the samples from the soil borings were in compliance with applicable COGCC Table 910-1 standards.

The latest groundwater analytical results, collected January 9, 2015, indicated monitoring wells MW01, MW08, MW09, and MW13 exceeded WQCC Reg 41 standards for benzene and total xylenes and monitoring MW01 exceeded the WQCC Reg 41 standard for ethylbenzene. However, the laboratory analytical results indicated that the dissolved-phase petroleum hydrocarbon impact has been delineated. Further remediation efforts will be discussed in future correspondence.

LTE, under the direction of Noble, will continue to conduct quarterly groundwater monitoring with the goal of obtaining four consecutive quarters with analytical results in compliance with applicable WQCC Reg 41 standards. The next quarterly groundwater monitoring event is scheduled for April 2015.

FIGURES



LEGEND

SITE LOCATION

IMAGE COURTESY OF ESRI/USGS

0 2,000 4,000

Feet

N

COLORADO

FIGURE 1
SITE LOCATION MAP
LORENZ UPRR 42-27 1, 41-27 3 TANK BATTERY
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.

P:\Noble Energy Inc\GIS\MXDs\008314023_LORENZ_UPRR_42-27 1_41-27 3\008314023_FIG01_SL.mxd

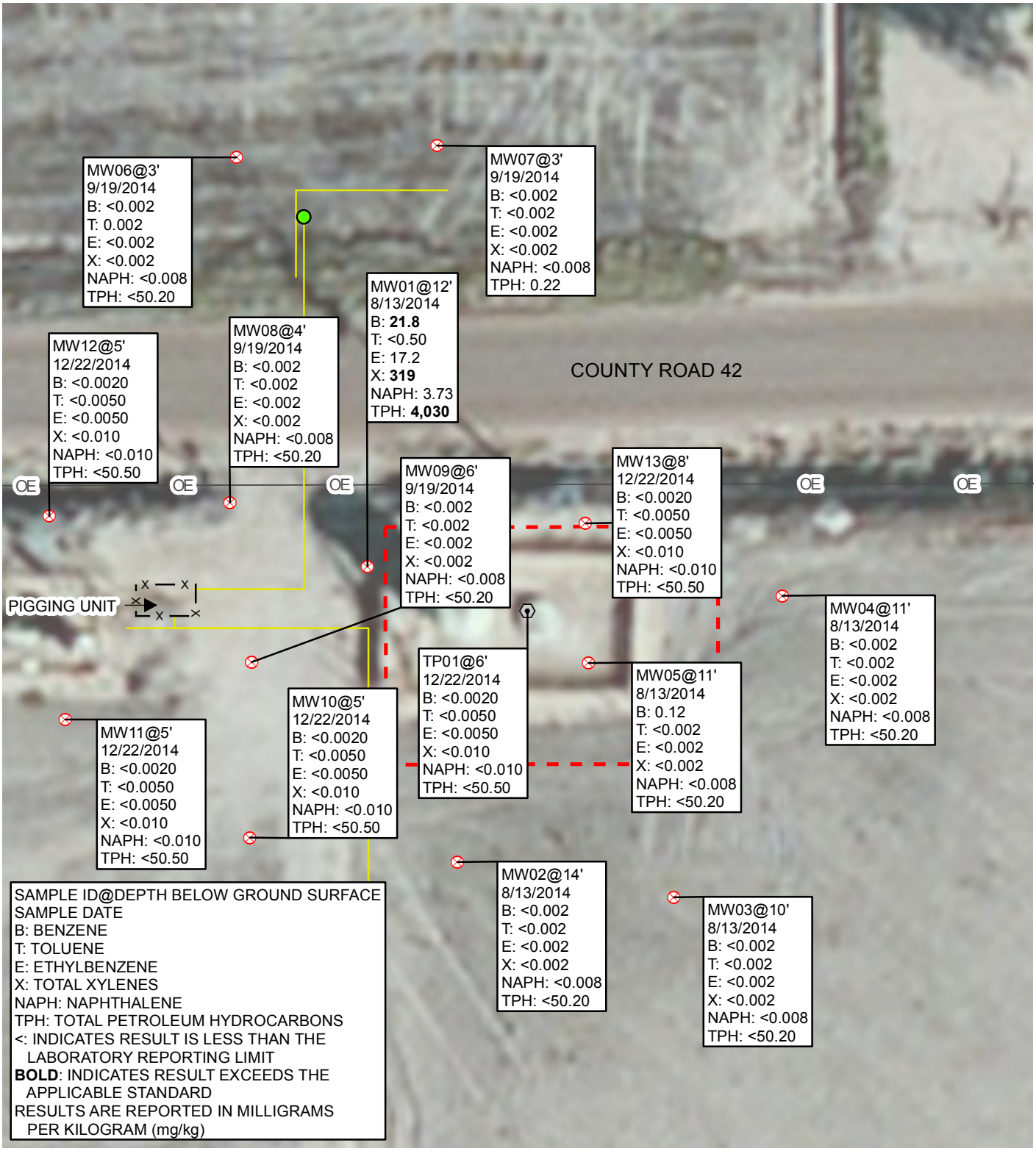


IMAGE COURTESY OF ESRI

LEGEND

- MONITORING WELL
- PIPELINE MARKER
- UNDERGROUND UTILITIES
- OE — OVERHEAD POWER LINE
- EXCAVATION EXTENT
- FENCE

0 30 60
Feet

N

FIGURE 2
SOIL ANALYTICAL RESULTS
LORENZ UPRR 42-27 1, 41-27 3 TANK BATTERY
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.

P:\Noble Energy Inc\GIS\MXDs\008314023_LORENZ_UPRR_42-27 1_41-27 3\008314023_FIG02_SOIL_ANALYTICAL_MW_011315.mxd

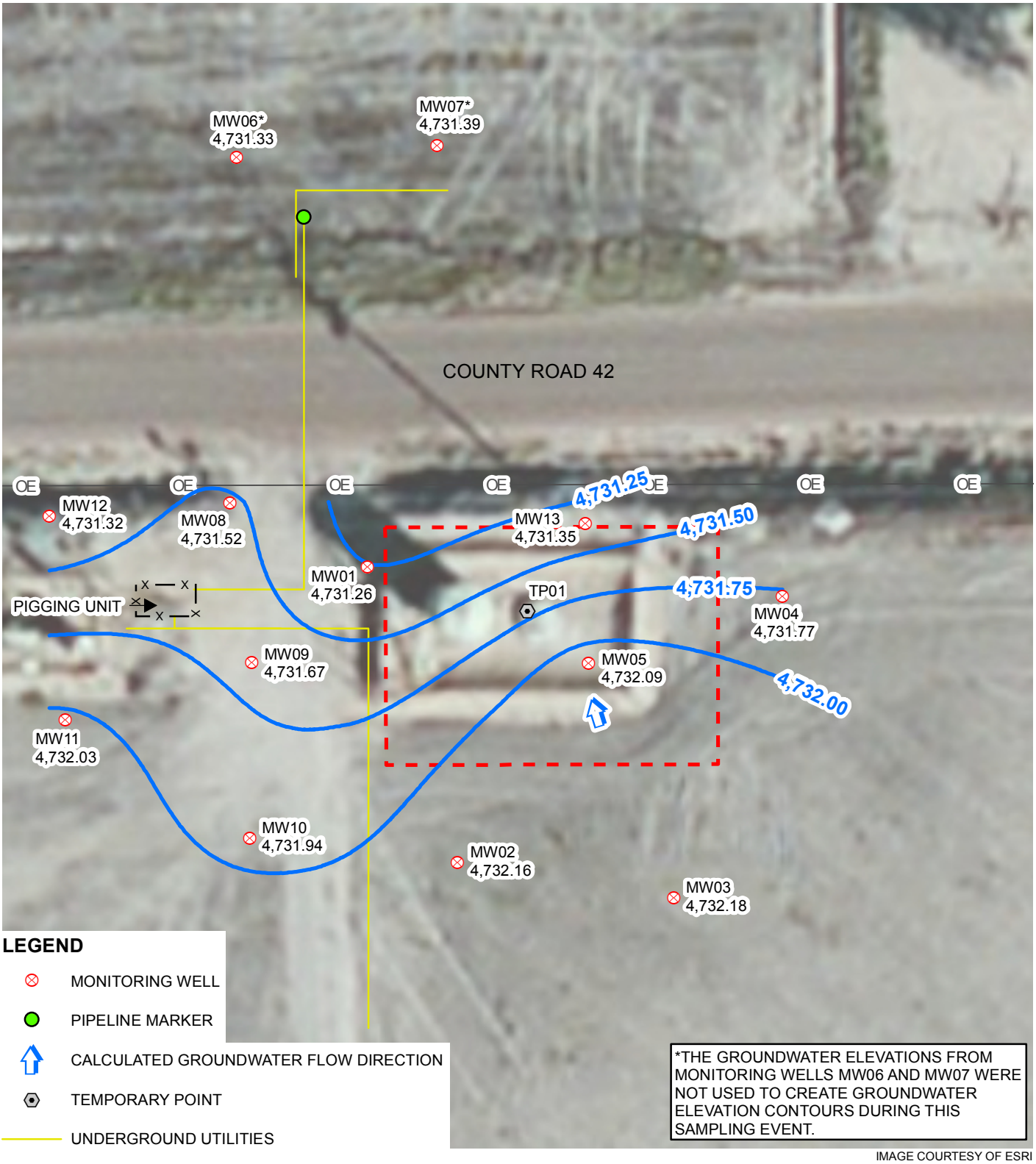


FIGURE 3
GROUNDWATER ELEVATION MAP
JANUARY 9, 2015
LORENZ UPRR 42-27 1, 41-27 3 TANK BATTERY
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.

P:\Noble Energy Inc\GIS\MXDs\008314023_LORENZ_UPRR_42-27 1_41-27 3\008314023_FIG05_GWE_2014_Q4.mxd

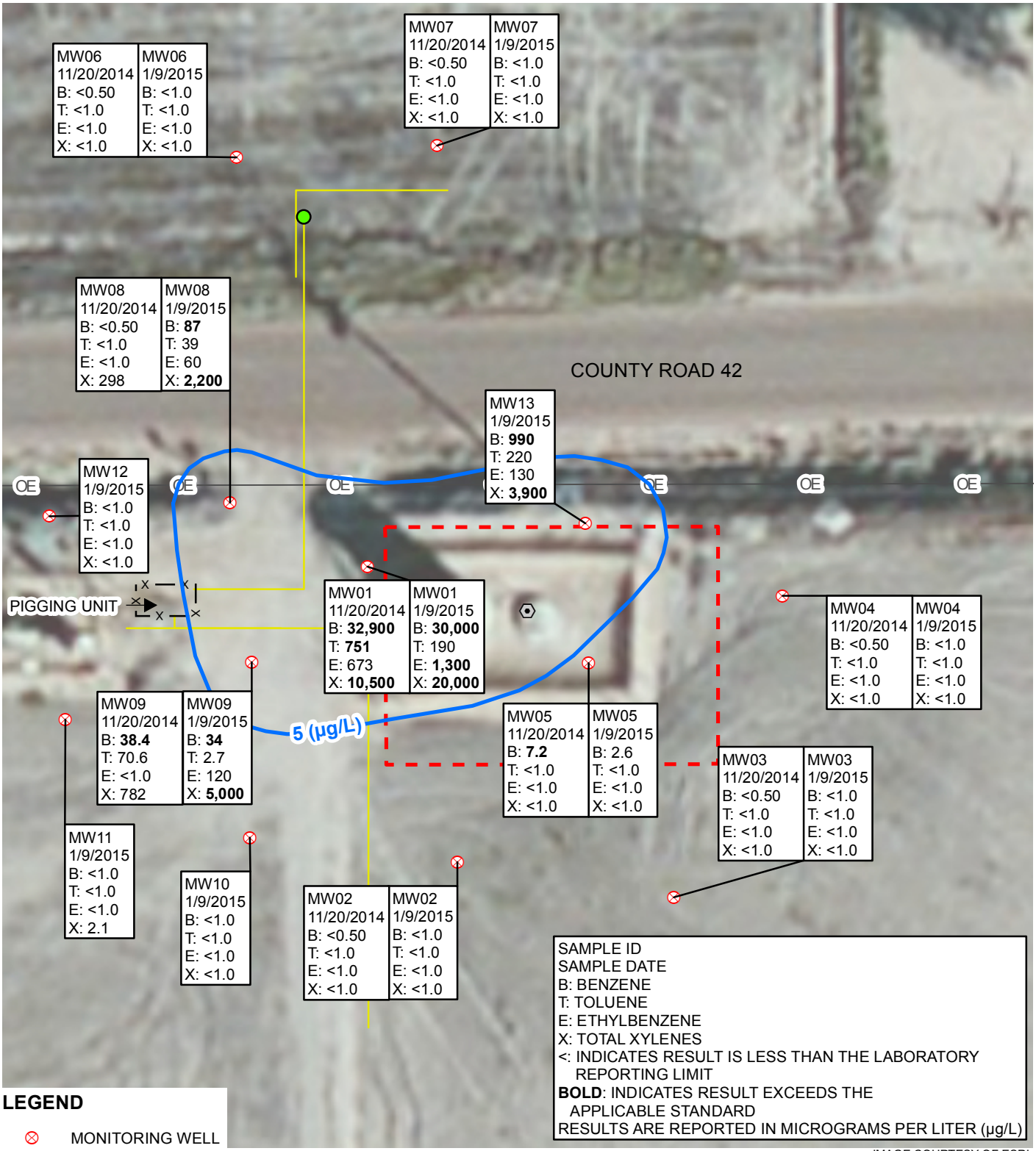


FIGURE 4
GROUNDWATER ANALYTICAL RESULTS
LORENZ UPRR 42-27 1, 41-27 3 TANK BATTERY
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.

P:\Noble Energy Inc\GIS\MXDs\008314023_LORENZ_UPRR_42-27 1_41-27 3\008314023_FIG03_GW_ANALYTICAL_2014_Q4.mxd

TABLES

TABLE 1

SOIL ANALYTICAL RESULTS
LORENZ UPRR 42-27 1, 41-27 3 TANK BATTERY
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.

Soil Sample ID	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	TPH (mg/kg)
MW01@12'	8/13/2014	**21.8**	<0.50	17.2	**319**	3.73	2,920	1,110	**4,030**
MW02@14'	8/13/2014	<0.002	<0.002	<0.002	<0.002	<0.008	<0.20	<50.0	<50.20
MW03@10'	8/13/2014	<0.002	<0.002	<0.002	<0.002	<0.008	<0.20	<50.0	<50.20
MW04@11'	8/13/2014	<0.002	<0.002	<0.002	<0.002	<0.008	<0.20	<50.0	<50.20
MW05@11'	8/13/2014	0.12	<0.002	<0.002	<0.002	<0.008	<0.20	<50.0	<50.20
MW06@3'	9/19/2014	<0.002	0.002	<0.002	<0.002	<0.008	<0.20	<50.0	<50.20
MW07@3'	9/19/2014	<0.002	<0.002	<0.002	<0.002	<0.008	0.22	<50.0	0.22
MW08@4'	9/19/2014	<0.002	<0.002	<0.002	<0.002	<0.008	<0.20	<50.0	<50.20
MW09@6'	9/19/2014	<0.002	<0.002	<0.002	<0.002	<0.008	<0.20	<50.0	<50.20
MW10@5'	12/22/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW11@5'	12/22/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW12@5'	12/22/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW13@8'	12/22/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
TP01@6'	12/22/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
COGCC Table 910-1 Standard		**0.17**	**85**	**100**	**175**	**23**	**--**	**--**	**500**

NOTES:
COGCC - Colorado Oil and Gas Conservation Commission
DRO - diesel range organics analyzed by EPA Method 8015 and 8015C
GRO - gasoline range organics analyzed by EPA Method 8260B and 8260C
mg/kg - milligrams per kilogram
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 and 8260C

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
LORENZ UPRR 42-27 1, 41-27 3 TANK BATTERY
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.

Monitoring Well	Date	Depth to Water (feet btoc)	Groundwater Elevation (AMSL)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW01	8/22/2014	6.22	4,732.91	**17,800**	**2,920**	**745**	**11,500**
	11/20/2014	9.79	4,729.34	**32,900**	**751**	673	**10,500**
	1/9/2015	7.87	4,731.26	**30,000**	190	**1,300**	**20,000**
MW02	8/22/2014	8.83	4,733.58	0.33	<1.0	<1.0	3.5
	11/20/2014	9.51	4,732.90	<0.50	<1.0	<1.0	<1.0
	1/9/2015	10.25	4,732.16	<1.0	<1.0	<1.0	<1.0
MW03	8/22/2014	12.74	4,729.52	<1.0	<1.0	0.68	1.4
	11/20/2014	9.29	4,732.97	<0.50	<1.0	<1.0	<1.0
	1/9/2015	10.08	4,732.18	<1.0	<1.0	<1.0	<1.0
MW04	8/22/2014	9.20	4,733.02	<1.0	<1.0	<1.0	<2.0
	11/20/2014	9.89	4,732.33	<0.50	<1.0	<1.0	<1.0
	1/9/2015	10.45	4,731.77	<1.0	<1.0	<1.0	<1.0
MW05	8/22/2014	9.19	4,733.25	**869**	<1.0	3.7	5.0
	11/20/2014	9.81	4,732.63	**7.2**	<1.0	<1.0	<1.0
	1/9/2015	10.35	4,732.09	2.6	<1.0	<1.0	<1.0
MW06	9/25/2014	6.82	4,732.38	<1.0	<1.0	<1.0	<1.0
	11/20/2014	7.10	4,732.10	<0.50	<1.0	<1.0	<1.0
	1/9/2015	7.87	4,731.33	<1.0	<1.0	<1.0	<1.0
MW07	9/25/2014	7.05	4,732.48	<1.0	<1.0	<1.0	<1.0
	11/20/2014	7.41	4,732.12	<0.50	<1.0	<1.0	<1.0
	1/9/2015	8.14	4,731.39	<1.0	<1.0	<1.0	<1.0
MW08	9/25/2014	8.10	4,732.92	**117**	12.6	238	**4,860**
	11/20/2014	8.67	4,732.35	<0.50	<1.0	<1.0	298
	1/9/2015	9.50	4,731.52	**87**	39	60	**2,200**
MW09	9/25/2014	9.42	4,732.81	**207**	**6,740**	299	**5,160**
	11/20/2014	9.60	4,732.63	**38.4**	70.6	<1.0	782
	1/9/2015	7.90	4,731.67	**34**	2.7	120	**5,000**
MW10	1/9/2015	9.17	4,731.94	<1.0	<1.0	<1.0	<1.0
MW11	1/9/2015	9.05	4,732.03	<1.0	<1.0	<1.0	2.1

TABLE 2 (Continued)

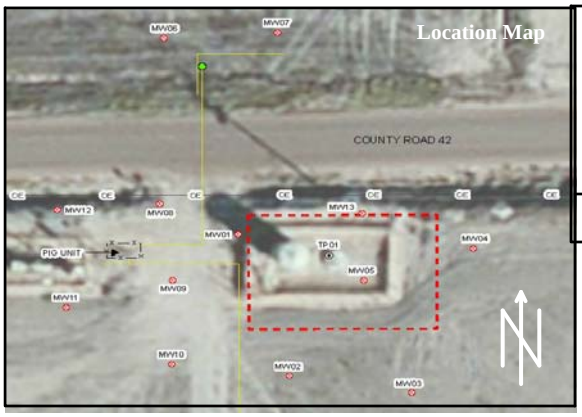
GROUNDWATER ANALYTICAL RESULTS
LORENZ UPRR 42-27 1, 41-27 3 TANK BATTERY
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.

Monitoring Well	Date	Depth to Water (feet btoc)	Groundwater Elevation (AMSL)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW12	1/9/2015	9.15	4,731.32	<1.0	<1.0	<1.0	<1.0
MW13	1/9/2015	9.80	4731.35	**990**	220	130	**3,900**
CDPHE WQCC Reg 41				**5.0**	**560**	**700**	**1,400**

NOTES:
AMSL - above mean sea level
btoc - below top of casing
µg/L - micrograms per liter
< - indicates result is less than the stated laboratory reporting limit
Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8260B and 8260C
Bold indicates result exceeds the applicable standard
CDPHE WQCC Reg 41 - Colorado Department of Public Health and Environment-Water Quality Control Commission Regulation 41- The Basic Standards for Ground Water

ATTACHMENT 1

WELL COMPLETION DIAGRAMS



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LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW10
DATE: 12/22/14
LOGGED BY: Daniel Hosler
DRILL MTHD: Direct Push

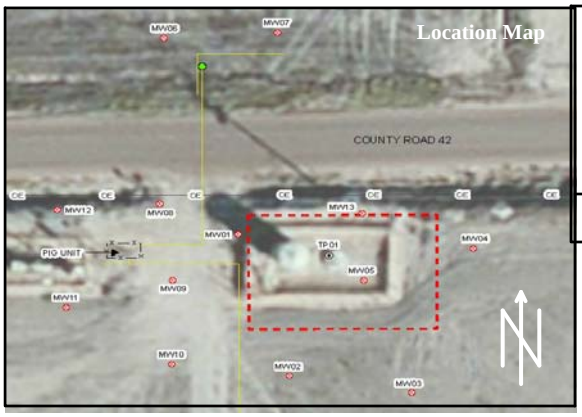
PROJECT: Lorenz UPRR 42-27 1, 41-27 3
PROJECT NO.: 008314023
DRILLED BY: Site Services
SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000
GRAVEL PACK: 10-20 Silica Sand
CASING TYPE: SCH. 40 PVC
SCREEN TYPE: SCH. 40 PVC

HOLE DIA.: 2.25"
SEAL: Bent. Chips
CASING DIA.: 1"
SCREEN SLOT: 0.010"

TD: 13' **DTW:** 6'
GROUT: NA
CASING LENGTH: 3'
SCREEN LENGTH: 10'

Vapor (ppm) 0.0 10000.0	Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type / Grain Size VF F M C VC	Lithology Description	Well Construction
0.0		Dry	MW10 @5'	0/5	0			Collapsed - Not sampled	
0.0					5	SP		SP: Sand - 5'-15' - fine grained, little to no clay, clay content increase with depth, light brown, wet at 6' to 9', moist at 9', no odor	
0.0		Wet		4/5					
0.0		Moist			10			SP: Clay content decrease at 10' to 15', wet at 10' to 15'	
0.0		Wet		4/5					
					15			Well set at 13' Stickup: 1.8'	



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LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW11
DATE: 12/22/14
LOGGED BY: Daniel Hosler
DRILL MTHD: Direct Push

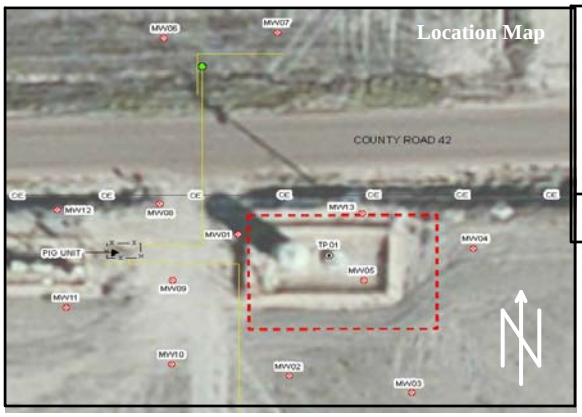
PROJECT: Lorenz UPRR 42-27 1, 41-27 3
PROJECT NO.: 008314023
DRILLED BY: Site Services
SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000
GRAVEL PACK: 10-20 Silica Sand
CASING TYPE: SCH. 40 PVC
SCREEN TYPE: SCH. 40 PVC

HOLE DIA.: 2.25"
SEAL: Bent. Chips
CASING DIA.: 1"
SCREEN SLOT: 0.010"

TD: 13' **DTW:** 6'
GROUT: NA
CASING LENGTH: 3'
SCREEN LENGTH: 10'

Vapor (ppm) 0.0 10000.0	Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type / Grain Size VF F M C VC	Lithology Description	Well Construction
0.0		Dry	MW11 @5'	4/5	0	Topsoil		Topsoil: Sand - 0'-3' - clay, dark brown, dry, crumbly, no odor	
0.0					5	SP		SP: Sand - 3'-8' - fine to medium grained, medium brown, light brown from 5' to 8', dry, wet at 6', poorly graded, no odor 2" clayey sand lense at 7'	
0.0		Wet		4/5					
0.0		Moist			10	SC		SC: Sand - 8'-14' - fine grained, clayey, light brown, moist, no odor	
0.0				4/5					
					15	SP		SP: Sand - 14'-15' - fine grained, light brown, moist, poorly graded, no odor	
								Well set at 13' Stickup: 1.9'	



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LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW12
DATE: 12/22/14
LOGGED BY: Daniel Hosler
DRILL MTHD: Direct Push

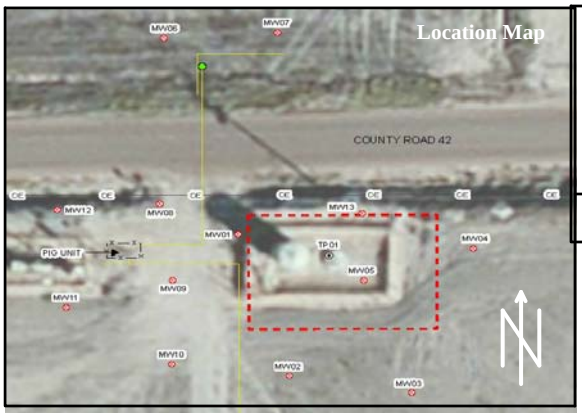
PROJECT: Lorenz UPRR 42-27 1, 41-27 3
PROJECT NO.: 008314023
DRILLED BY: Site Services
SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000
GRAVEL PACK: 10-20 Silica Sand
CASING TYPE: SCH. 40 PVC
SCREEN TYPE: SCH. 40 PVC

HOLE DIA.: 2.25"
SEAL: Bent. Chips
CASING DIA.: 1"
SCREEN SLOT: 0.010"

TD: 13' **DTW:** 6'
GROUT: NA
CASING LENGTH: 3'
SCREEN LENGTH: 10'

Vapor (ppm) 0.0 10000.0	Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type / Grain Size VF F M C VC	Lithology Description	Well Construction
0.0		Dry	MW12 @5'	4/5	0	Topsoil		Topsoil: Sand - 0'-3' - clay, dark brown, dry, crumbly, no odor	
0.0					5	SP		SP: Sand - 3'-8' - fine to medium grained, medium brown, light brown from 5' to 8', dry, wet at 6', poorly graded, no odor	
0.0		Wet		4/5					
0.0		Moist			10	SC		SC: Sand - 8'-14' - fine grained, clayey, light brown, moist, no odor	
0.0				4/5					
					15	SP		SP: Sand - 14'-15' - fine grained, little clay, light brown, moist, poorly graded, no odor	
								Well set at 13' Stickup: 1.9'	



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LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW13
DATE: 12/22/14
LOGGED BY: Daniel Hosler
DRILL MTHD: Direct Push

PROJECT: Lorenz UPRR 42-27 1, 41-27 3
PROJECT NO.: 008314023
DRILLED BY: Site Services
SAMPLE MTHD: Continuous

DETECTOR: MiniRae 2000
GRAVEL PACK: 10-20 Silica Sand
CASING TYPE: SCH. 40 PVC
SCREEN TYPE: SCH. 40 PVC

HOLE DIA.: 2.25"
SEAL: Bent. Chips
CASING DIA.: 1"
SCREEN SLOT: 0.010"

TD: 15' **DTW:** 8'
GROUT: NA
CASING LENGTH: 5'
SCREEN LENGTH: 10'

Vapor (ppm) 0.0 10000.0	Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type / Grain Size VF F M C VC	Lithology Description	Well Construction
0.0		Dry		3/5	0	Topsoil		Topsoil: Sand - 0'-3' - clay, dark brown, dry, crumbly, no odor	
0.0					5	SC		SC: Sand - 3'-11' - fine grained, some clay, medium to light brown, gray stain and odor at 9' to 11', wet at 8' to 11'	
0.0		Wet	MW13 @8'	4/5					
450.9					10				
		Moist				CL		CL: Clay - 11'-17' - sandy, fine grained, gray stain and odor, moist, hard, low plasticity, low cohesion	
683.3				4/5					
468.4					15				
313.8				4/5		SC		SC: Sand - fine grained, clayey, gary stain and odor, moist	
10.9		Dry			20	SW		SW: Sand - 19'-20' - fine to coarse grained, gravelly, medium brown with orange oxydation staining, dry	
								Well set at 15' Stickup: 2.1'	

ATTACHMENT 2

LABORATORY ANALYTICAL REPORTS

Summit Scientific

741 Corporate Circle – Suite J ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.374.5933 - fax

December 29, 2014

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

RE: NEP - Lorenz UPRR 42-27, 1, 42-27 3

Enclosed are the results of analyses for samples received by Summit Scientific on 12/22/14 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Joseph J Egry IV For Paul Shrewsbury
President

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

Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3
Project Number: 0083-14023
Project Manager: Chris Roy

Reported:
12/29/14 12:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW10@5'	1412210-01	Soil	12/22/14 10:30	12/22/14 16:00
MW11@5'	1412210-02	Soil	12/22/14 11:00	12/22/14 16:00
MW12@5'	1412210-03	Soil	12/22/14 09:50	12/22/14 16:00
MW13@8'	1412210-04	Soil	12/22/14 11:30	12/22/14 16:00
TP01@6'	1412210-05	Soil	12/22/14 12:00	12/22/14 16:00

Summit Scientific

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

Joseph J Egry IV For Paul Shrewsbury, President

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

Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3
Project Number: 0083-14023
Project Manager: Chris Roy

Reported:
12/29/14 12:19

Summit Scientific 1412200

S2

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

Page 1 of 1

Client: LTE
Address:
City/State/Zip:
Phone: 303-433-9788 Fax:
Sampler Name: D Hosler

Project Manager: Chris Roy
E-Mail: croy@ltenv.com + Noble
Project Name: Lorenz UPRR 42-27, 1, 42-27 3
Project Number: 0083-14023

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative: HCl	Preservative: HNO3	Preservative: None	Preservative: Other (Specify)	Matrix: Groundwater	Matrix: Soil	Matrix: Air-Canister #	Matrix: Other (Specify)	Analysis Requested: BTEX	Analysis Requested: GRO DRO	Analysis Requested: Naph	Special Instructions
1	MW10@5'	12/22/14	1030	1						X			X	X	X	
2	MW4@5'		1100	1												
3	MW12@5'		0950	1												
4	MW13@8'		1130	1												
5	TP01@6'		1200	1												
6																
7																
8																
9																
10																

Relinquished by:	Date/Time:	Received by:	Date/Time:
	12/22/14 1600	MA 12/22/14	1600
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Turn Around Time (Check)
Same Day ___ 72 hours ___
24 hours ___ Standard X
48 hours ___

Sample Integrity:
Temperature Upon Receipt: 7.5°C
Intact: (Yes) No

Notes:

www.s2scientific.com

Soil samples reported on a wet-weight basis unless otherwise indicated on results page.

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

Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3
Project Number: 0083-14023
Project Manager: Chris Roy

Reported:
12/29/14 12:19

Sample Receipt Checklist

S2 Work Order: 1412210

Client: LT Env Client Project ID: NEP-Lorenz UPRR 42-27, 1, 42-27 3

Shipped Via: Pick Up (UPS, FedEx, Hand Delivered, Pick-up, etc.) Airbill #: —

Matrix (check all that apply): ____Air ✓ Soil/Solid ____Water ____Other: ____ (Describe)

Cooler ID	1				
Temp (°C)	7.5				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C [(1)]? NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.		✓		Same Day
Were all samples received intact [(1)]?	✓			
Was adequate sample volume provided [(1)]?	✓			
If custody seals are present, are they intact [(1)]?			✓	
Are short holding time analytes or samples with HTs due within 48 hours present?		✓		
Is a chain-of-custody (COC) form present and filled out completely [(1)]?	✓			
Does the COC agree with the number and type of sample bottles received [(1)]?	✓			
Do the sample IDs on the bottle labels match the COC [(1)]?	✓			
Is the COC properly relinquished by the client w/ date and time recorded [(1)]?	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation **(excluding cooling)**[(1)]? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, etc.			✓	
If samples are acid preserved for metals, is the pH ≤ 2[(1)]? Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

[(1)] If NO, then contact the client before proceeding with analysis and note in case narrative.

Joseph J Egry IV — Custodian Printed Name
Signature or Initials of Custodian
12/23/14 — Date/Time

Soil samples reported on a wet-weight basis unless otherwise indicated on results page.

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

Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3
Project Number: 0083-14023
Project Manager: Chris Roy

Reported:
12/29/14 12:19

MW10@5'
1412210-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/22/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1412271	12/24/14	12/24/14 18:03	8015M	

Date Sampled: **12/22/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	*91.7 %*	*30-150*			"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/22/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1412272	12/24/14	12/24/14 17:54	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: **12/22/14 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	*109 %*	*23-173*			"	"	"	"	
Surrogate: Toluene-d8	*98.2 %*	*20-170*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	*97.4 %*	*21-167*			"	"	"	"	

Joseph J Egry IV For Paul Shrewsbury, President

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

Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3
Project Number: 0083-14023
Project Manager: Chris Roy

Reported:
12/29/14 12:19

MW11@5'
1412210-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/22/14 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1412271	12/24/14	12/24/14 18:30	8015M	

Date Sampled: **12/22/14 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	*91.3 %*	*30-150*			"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/22/14 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1412272	12/24/14	12/24/14 18:19	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: **12/22/14 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	*105 %*	*23-173*			"	"	"	"	
Surrogate: Toluene-d8	*98.6 %*	*20-170*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	*95.3 %*	*21-167*			"	"	"	"	

Joseph J Egry IV For Paul Shrewsbury, President

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

Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3
Project Number: 0083-14023
Project Manager: Chris Roy

Reported:
12/29/14 12:19

MW12@5'
1412210-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/22/14 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1412271	12/24/14	12/24/14 18:58	8015M	

Date Sampled: **12/22/14 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	*89.8 %*	*30-150*			"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/22/14 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1412272	12/24/14	12/24/14 18:43	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: **12/22/14 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	*110 %*	*23-173*			"	"	"	"	
Surrogate: Toluene-d8	*97.6 %*	*20-170*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	*95.4 %*	*21-167*			"	"	"	"	

Joseph J Egry IV For Paul Shrewsbury, President

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

Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3
Project Number: 0083-14023
Project Manager: Chris Roy

Reported:
12/29/14 12:19

MW13@8'
1412210-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/22/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1412271	12/24/14	12/24/14 19:26	8015M	

Date Sampled: **12/22/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	*90.3 %*	*30-150*			"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/22/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1412272	12/24/14	12/24/14 19:07	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: **12/22/14 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	*115 %*	*23-173*			"	"	"	"	
Surrogate: Toluene-d8	*98.6 %*	*20-170*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	*98.7 %*	*21-167*			"	"	"	"	

Joseph J Egry IV For Paul Shrewsbury, President

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

Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3
Project Number: 0083-14023
Project Manager: Chris Roy

Reported:
12/29/14 12:19

TP01@6'
1412210-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/22/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1412271	12/24/14	12/24/14 19:53	8015M	

Date Sampled: **12/22/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	*92.4 %*	*30-150*			"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/22/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1412272	12/24/14	12/24/14 19:32	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: **12/22/14 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	*115 %*	*23-173*			"	"	"	"	
Surrogate: Toluene-d8	*99.4 %*	*20-170*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	*96.9 %*	*21-167*			"	"	"	"	

Joseph J Egry IV For Paul Shrewsbury, President

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

Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3
Project Number: 0083-14023
Project Manager: Chris Roy

Reported:
12/29/14 12:19

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1412271 - EPA 3550A										
Blank (1412271-BLK1)				Prepared & Analyzed: 12/24/14						
C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	*10.9*		*"*	*12.2*		*89.2*	*30-150*			
LCS (1412271-BS1)				Prepared & Analyzed: 12/24/14						
C10-C28 (DRO)	438	50	mg/kg	501		87.5	73-134			
Surrogate: o-Terphenyl	*10.9*		*"*	*12.2*		*89.5*	*30-150*			
Matrix Spike (1412271-MS1)		**Source: 1412210-01**		Prepared & Analyzed: 12/24/14						
C10-C28 (DRO)	440	50	mg/kg	489	ND	90.0	50-148			
Surrogate: o-Terphenyl	*10.9*		*"*	*11.9*		*91.4*	*30-150*			
Matrix Spike Dup (1412271-MSD1)		**Source: 1412210-01**		Prepared & Analyzed: 12/24/14						
C10-C28 (DRO)	452	50	mg/kg	495	ND	91.2	50-148	2.48	13	
Surrogate: o-Terphenyl	*10.7*		*"*	*12.1*		*88.9*	*30-150*			

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.

Joseph J Egry IV For Paul Shrewsbury, President

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1412272 - EPA 5030 Soil MS										
Blank (1412272-BLK1)				Prepared & Analyzed: 12/24/14						
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	"							
Surrogate: 1,2-Dichloroethane-d4	*0.0421*		"	*0.0396*		*106*	*23-173*			
Surrogate: Toluene-d8	*0.0396*		"	*0.0400*		*99.1*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0383*		"	*0.0400*		*95.7*	*21-167*			
LCS (1412272-BS1)				Prepared & Analyzed: 12/24/14						
Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0946	0.0020	"	0.100		94.6	58-130			
Toluene	0.0945	0.0050	"	0.100		94.5	61-134			
Ethylbenzene	0.0967	0.0050	"	0.0992		97.5	74-139			
m,p-Xylene	0.188	0.010	"	0.200		94.2	73-137			
o-Xylene	0.0944	0.0050	"	0.0984		95.9	73-141			
Surrogate: 1,2-Dichloroethane-d4	*0.0419*		"	*0.0396*		*106*	*23-173*			
Surrogate: Toluene-d8	*0.0395*		"	*0.0400*		*98.8*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0392*		"	*0.0400*		*98.0*	*21-167*			
Matrix Spike (1412272-MS1)		**Source: 1412210-01**		Prepared & Analyzed: 12/24/14						
Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0929	0.0020	"	0.0942	ND	98.7	30-131			
Toluene	0.0923	0.0050	"	0.0942	ND	98.1	30-134			
Ethylbenzene	0.0920	0.0050	"	0.0934	ND	98.5	22-153			
m,p-Xylene	0.181	0.010	"	0.188	ND	96.1	10-159			
o-Xylene	0.0907	0.0050	"	0.0927	ND	97.9	31-151			
Surrogate: 1,2-Dichloroethane-d4	*0.0403*		"	*0.0373*		*108*	*23-173*			
Surrogate: Toluene-d8	*0.0372*		"	*0.0377*		*98.8*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0358*		"	*0.0377*		*95.1*	*21-167*			

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1412272 - EPA 5030 Soil MS										
Matrix Spike Dup (1412272-MSD1)		**Source: 1412210-01**		Prepared & Analyzed: 12/24/14						
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0900	0.0020	"	0.0942	ND	95.6	30-131	3.18	34	
Toluene	0.0902	0.0050	"	0.0942	ND	95.8	30-134	2.35	30	
Ethylbenzene	0.0899	0.0050	"	0.0934	ND	96.2	22-153	2.39	24	
m,p-Xylene	0.174	0.010	"	0.188	ND	92.6	10-159	3.73	68	
o-Xylene	0.0879	0.0050	"	0.0927	ND	94.8	31-151	3.16	38	
Surrogate: 1,2-Dichloroethane-d4	*0.0399*		"	*0.0373*		*107*	*23-173*			
Surrogate: Toluene-d8	*0.0376*		"	*0.0377*		*99.9*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0363*		"	*0.0377*		*96.3*	*21-167*			

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

Mountain States ACCUTEST LABORATORIES

12/03/14

Technical Report for

Noble Energy

Lorenz UPRR 42-27 1, 41-27 3

008314023

Accutest Job Number: D64893

Sampling Date: 11/20/14

Report to:

LT Environmental
4600 West 60th Avenue
Arvada, CO 80003
cgreason@ltenv.com; croy@ltenv.com;
skahn@ltenv.com; jevans@nobleenergy.com;
ATTN: Charles Greason

Total number of pages in report: **29**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

Sections: 1 2 3 4 5 6 7

Table of Contents

Sample Summary

Noble Energy

Job No: D64893

Lorenz UPRR 42-27 1, 41-27 3
Project No: 008314023

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D64893-1	11/20/14	14:15	GM	11/21/14	AQ	Ground Water	MW01
D64893-2	11/20/14	12:58	GM	11/21/14	AQ	Ground Water	MW02
D64893-3	11/20/14	12:45	GM	11/21/14	AQ	Ground Water	MW03
D64893-4	11/20/14	12:34	GM	11/21/14	AQ	Ground Water	MW04
D64893-5	11/20/14	13:10	GM	11/21/14	AQ	Ground Water	MW05
D64893-6	11/20/14	12:20	GM	11/21/14	AQ	Ground Water	MW06
D64893-7	11/20/14	12:10	GM	11/21/14	AQ	Ground Water	MW07
D64893-8	11/20/14	13:20	GM	11/21/14	AQ	Ground Water	MW08
D64893-9	11/20/14	13:30	GM	11/21/14	AQ	Ground Water	MW09

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Noble Energy	**Job No**	D64893
Site:	Lorenz UPRR 42-27 1, 41-27 3	**Report Date**	12/3/2014 10:23:24 AM

On 11/21/2014, 9 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D64893 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260C

Matrix AQ **Batch ID:** M:MSN3426

- The data for SW846 8260C meets quality control requirements.
- D64893-8: Analysis performed at Accutest Laboratories, Marlborough, MA.
- D64893-7: Analysis performed at Accutest Laboratories, Marlborough, MA.
- D64893-6: Analysis performed at Accutest Laboratories, Marlborough, MA.
- D64893-5: Analysis performed at Accutest Laboratories, Marlborough, MA.
- D64893-4: Analysis performed at Accutest Laboratories, Marlborough, MA.
- D64893-3: Analysis performed at Accutest Laboratories, Marlborough, MA.
- D64893-2: Analysis performed at Accutest Laboratories, Marlborough, MA.

Matrix AQ **Batch ID:** M:MSN3427

- The data for SW846 8260C meets quality control requirements.
- D64893-9: Analysis performed at Accutest Laboratories, Marlborough, MA.
- D64893-1: Analysis performed at Accutest Laboratories, Marlborough, MA.
- D64893-1: Analysis performed at Accutest Laboratories, Marlborough, MA.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Accutest Mountain States	**Job No**	D64893
Site:	NOBECOD: Lorenz UPRR 42-27 1, 41-27 3	**Report Date**	12/3/2014 11:23:05 AM

9 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 11/20/2014 and were received at Accutest on 11/21/2014 properly preserved, at 2.1 Deg. C and intact. These Samples received an Accutest job number of D64893. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260C

Matrix: AQ **Batch ID:** MSN3426

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) MC35118-1MS, MC35118-1MSD were used as the QC samples indicated.

Matrix: AQ **Batch ID:** MSN3427

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D64893-9MS were used as the QC samples indicated.
- The Matrix Spike Duplicate is unavailable for reporting.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety.The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D64893).

Summary of Hits

Job Number: D64893
Account: Noble Energy
Project: Lorenz UPRR 42-27 1, 41-27 3
Collected: 11/20/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D64893-1	**MW01**					
Benzene [a]		32900	500		ug/l	SW846 8260C
Toluene [a]		751	50		ug/l	SW846 8260C
Ethylbenzene [a]		673	50		ug/l	SW846 8260C
Xylene (total) [a]		10500	50		ug/l	SW846 8260C
D64893-2	**MW02**					
No hits reported in this sample.						
D64893-3	**MW03**					
No hits reported in this sample.						
D64893-4	**MW04**					
No hits reported in this sample.						
D64893-5	**MW05**					
Benzene [a]		7.2	0.50		ug/l	SW846 8260C
D64893-6	**MW06**					
No hits reported in this sample.						
D64893-7	**MW07**					
No hits reported in this sample.						
D64893-8	**MW08**					
Xylene (total) [a]		298	1.0		ug/l	SW846 8260C
D64893-9	**MW09**					
Benzene [a]		38.4	0.50		ug/l	SW846 8260C
Toluene [a]		70.6	1.0		ug/l	SW846 8260C
Xylene (total) [a]		782	1.0		ug/l	SW846 8260C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: MW01
Lab Sample ID: D64893-1
Matrix: AQ - Ground Water
Method: SW846 8260C
Project: Lorenz UPRR 42-27 1, 41-27 3

Date Sampled: 11/20/14
Date Received: 11/21/14
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	N92730.D	50	11/26/14	AMA	n/a	n/a	M:MSN3427
Run #2 [a]	N92731.D	1000	11/26/14	AMA	n/a	n/a	M:MSN3427

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	32900 [b]	500	ug/l	
108-88-3	Toluene	751	50	ug/l	
100-41-4	Ethylbenzene	673	50	ug/l	
1330-20-7	Xylene (total)	10500	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	114%	116%	70-130%
2037-26-5	Toluene-D8	97%	100%	70-130%
460-00-4	4-Bromofluorobenzene	96%	100%	70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.
(b) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW02		
Lab Sample ID:	D64893-2	**Date Sampled:**	11/20/14
Matrix:	AQ - Ground Water	**Date Received:**	11/21/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Lorenz UPRR 42-27 1, 41-27 3		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	N92709.D	1	11/26/14	AMA	n/a	n/a	M:MSN3426
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.50	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	125%		70-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	109%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW03		
Lab Sample ID:	D64893-3	**Date Sampled:**	11/20/14
Matrix:	AQ - Ground Water	**Date Received:**	11/21/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Lorenz UPRR 42-27 1, 41-27 3		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	N92710.D	1	11/26/14	AMA	n/a	n/a	M:MSN3426
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.50	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	125%		70-130%
2037-26-5	Toluene-D8	99%		70-130%
460-00-4	4-Bromofluorobenzene	111%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW04		
Lab Sample ID:	D64893-4	**Date Sampled:**	11/20/14
Matrix:	AQ - Ground Water	**Date Received:**	11/21/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Lorenz UPRR 42-27 1, 41-27 3		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	N92711.D	1	11/26/14	AMA	n/a	n/a	M:MSN3426
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.50	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	126%		70-130%
2037-26-5	Toluene-D8	98%		70-130%
460-00-4	4-Bromofluorobenzene	113%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW05		
Lab Sample ID:	D64893-5	**Date Sampled:**	11/20/14
Matrix:	AQ - Ground Water	**Date Received:**	11/21/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Lorenz UPRR 42-27 1, 41-27 3		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	N92712.D	1	11/26/14	AMA	n/a	n/a	M:MSN3426
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	7.2	0.50	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	122%		70-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	110%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW06		
Lab Sample ID:	D64893-6	**Date Sampled:**	11/20/14
Matrix:	AQ - Ground Water	**Date Received:**	11/21/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Lorenz UPRR 42-27 1, 41-27 3		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	N92713.D	1	11/26/14	AMA	n/a	n/a	M:MSN3426
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.50	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	127%		70-130%
2037-26-5	Toluene-D8	99%		70-130%
460-00-4	4-Bromofluorobenzene	112%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW07		
Lab Sample ID:	D64893-7	**Date Sampled:**	11/20/14
Matrix:	AQ - Ground Water	**Date Received:**	11/21/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Lorenz UPRR 42-27 1, 41-27 3		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	N92714.D	1	11/26/14	AMA	n/a	n/a	M:MSN3426
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.50	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	125%		70-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	114%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW08		
Lab Sample ID:	D64893-8	**Date Sampled:**	11/20/14
Matrix:	AQ - Ground Water	**Date Received:**	11/21/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Lorenz UPRR 42-27 1, 41-27 3		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	N92715.D	1	11/26/14	AMA	n/a	n/a	M:MSN3426
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	0.50	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	298	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	127%		70-130%
2037-26-5	Toluene-D8	99%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW09		
Lab Sample ID:	D64893-9	**Date Sampled:**	11/20/14
Matrix:	AQ - Ground Water	**Date Received:**	11/21/14
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Lorenz UPRR 42-27 1, 41-27 3		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	N92728.D	1	11/26/14	AMA	n/a	n/a	M:MSN3427
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	38.4	0.50	ug/l	
108-88-3	Toluene	70.6	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	782	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	120%		70-130%
2037-26-5	Toluene-D8	101%		70-130%
460-00-4	4-Bromofluorobenzene	95%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE 1 OF 1

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877-737-4521
FAX 303-425-6021

FED-EX Tracking # | Bottle Order Control #
Accutest Quote # | Accutest Job # D64893

Client / Reporting Information

Company Name: LT Environmental
Street Address: 4600 W 60th Ave
City State Zip: Arvada, CO 80003
Project Contact E-mail: Charles Greeson CGreeson@LTenv.com
Phone # Fax #: 303-433-9788 303-433-1432
Sampler(s) Name(s) Phone #: Gentry Muniz 303-501-7888

Project Information

Project Name: Lorenz UPRR 42-271, 41-273
Street:
City:
Project#: 208314023
Client PO#:
Project Manager: Charles Greeson

Billing Information (If different from Report to)

Company Name: Noble Energy
Street Address:
City State Zip:
Attention: PO#

Requested Analysis (see TEST CODE sheet)

BTEX

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB- Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	LAB USE ONLY
	MW01		11/20/14	1415	GM	GW	3					/					01
	MW02			1258	GM	GW	3					/					02
	MW03			1245	GM	GW	3					/					03
	MW04			1234	GM	GW	3					/					04
	MW05			1310	GM	GW	3					/					05
	MW06			1220	GM	GW	3					/					06
	MW07			1210	GM	GW	3					/					07
	MW08			1320	GM	GW	3					/					08
	MW09			1330	GM	GW	3					/					09

Turnaround Time (Business days)

Approved By (Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [x] Std. 5 Business Days (By Contract only)
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENC
- [ ] 2 Day EMERGENC
- [ ] 1 Day EMERGENC

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] Commercial "B" +Narrative
- [ ] FULLT1 (Level 3+4)
- [ ] State Forms
- [ ] EDD Format
- [ ] PDF

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary

Comments / Special Instructions

Lab filter all samples.
Omit J values.
Same recipient list.

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		11/20/14 1551				
2				1230	11/21/14	11/21/14 1230
3		11/21/14 1244				
4						
5						

Custody Seal # CO Intact / Not Intact | Preserved where applicable | On Ice | Cooler Temp. 2.2

T 1.8C

D64893: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D64893 **Client:** LT **Project:** LORENZ

Date / Time Received: 11/21/2014 12:45:00 PM **Delivery Method:** **Airbill #'s:** CO

Cooler Temps (Initial/Adjusted): #1: (2.2/2.2);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Bar Therm;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

D64893: Chain of Custody
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Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST

4036 Youngfield St. Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #:	D64893
Accutest Quote #:	0
AMS P.O. #:	
Project No.:	

Client Information	Subcontract Laboratory Information	Analytical Information
Name: Accutest Mountain States (AMS)	Name: Accutest - New England	
Address: 4036 Youngfield St.	Address: 495 Technology Center West, BLDG C	
City: Wheat Ridge, State: CO Zip: 80033	City: Marlborough State: MA Zip: 01752	
Send Report to: Scott Heideman	Contact:	
Any questions contact: Renea Rooks	Sample Management	
Phone/Fax #: (303) 425-6021; (303)425-6854	Phone: (508) 481-6200	

Field ID / Point of Collection	Collection Date	Collection Time		Matrix	# of bottles	Preservation HCL	NaOH	HNO3	H2SO4	None	V8260BTX	VMS+JNP12				Comments
D64893 -1	11/20/14	2:15 PM		AQ	3						x					
-2	11/20/14	3:58 PM		AQ	3						x					
-3	11/20/14	12:45 PM		AQ	3						x					
-4	11/20/14	12:34 PM		AQ	3						x					
-5	11/20/14	1:10 PM		AQ	3						x					
-6	11/20/14	12:20 PM		AQ	3						x					
-7	11/20/14	12:10 PM		AQ	3						x					
-8	11/20/14	1:20 PM		AQ	3						x					lot 284
-9	11/20/14	1:30 PM		AQ	3						x					

Turnaround Information

- [X] 3 - 5 Business Day Rush — Approved By:
- [ ] Other _____ (Days)

10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously approved.

Data Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] Commercial "BN"
- [ ] Reduced Tier 1
- [ ] Full Tier 1
- [ ] PDF
- [ ] Compact Disk Deliverable
- [ ] Electronic Delivery:
- [ ] State Forms
- [ ] Other (Specify)

Comments / Remarks

Please use Colorado regulations and RLs. J values

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by:	Date & Time:	Received By:	Date & Time:
1		11/21/14 17:30	1	1
2	FedEx	11-24-14 1030	2	2
3			3	3

For Subcontract Laborartory Use Only

Seal #: Headspace: Yes [ ] No [ ] NA [ ]

Preserved where applicable: [ ]

Temperature °C 21 On Ice [X]

6.1 6

D64893: Chain of Custody
Page 1 of 2
Accutest Labs of New England, Inc.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D64893 **Client:** AMS **Project:** SUB

Date / Time Received: 11/24/2014 10:30:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (2.1/2.1);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	G1;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:(508) 481-6200

495 Technology Center West, Bldg One
F: (508) 481-7753

Marlborough, MA 01752
www/accutest.com

D64893: Chain of Custody
Page 2 of 2

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D64893
Account: ALMS Accutest Mountain States
Project: NOBECOD: Lorenz UPRR 42-27 1, 41-27 3

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3426-MB	N92700.D	1	11/25/14	JB	n/a	n/a	MSN3426

The QC reported here applies to the following samples: **Method:** SW846 8260C

D64893-2, D64893-3, D64893-4, D64893-5, D64893-6, D64893-7, D64893-8

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.30	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	117%	70-130%
2037-26-5	Toluene-D8	99%	70-130%
460-00-4	4-Bromofluorobenzene	100%	70-130%

Method Blank Summary

Job Number: D64893
Account: ALMS Accutest Mountain States
Project: NOBECOD: Lorenz UPRR 42-27 1, 41-27 3

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3427-MB	N92726.D	1	11/26/14	JB	n/a	n/a	MSN3427

The QC reported here applies to the following samples: **Method:** SW846 8260C

D64893-1, D64893-9

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.30	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	117%	70-130%
2037-26-5	Toluene-D8	99%	70-130%
460-00-4	4-Bromofluorobenzene	101%	70-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Blank Spike Summary

Job Number: D64893
Account: ALMS Accutest Mountain States
Project: NOBECOD: Lorenz UPRR 42-27 1, 41-27 3

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3426-BS	N92697.D	1	11/25/14	JB	n/a	n/a	MSN3426

The QC reported here applies to the following samples: **Method:** SW846 8260C

D64893-2, D64893-3, D64893-4, D64893-5, D64893-6, D64893-7, D64893-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	53.0	106	70-130
100-41-4	Ethylbenzene	50	48.3	97	70-130
108-88-3	Toluene	50	52.1	104	70-130
1330-20-7	Xylene (total)	150	148	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	120%	70-130%
2037-26-5	Toluene-D8	101%	70-130%
460-00-4	4-Bromofluorobenzene	93%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D64893
Account: ALMS Accutest Mountain States
Project: NOBECOD: Lorenz UPRR 42-27 1, 41-27 3

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSN3427-BS	N92723.D	1	11/26/14	JB	n/a	n/a	MSN3427

The QC reported here applies to the following samples: **Method:** SW846 8260C

D64893-1, D64893-9

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	51.5	103	70-130
100-41-4	Ethylbenzene	50	46.6	93	70-130
108-88-3	Toluene	50	49.7	99	70-130
1330-20-7	Xylene (total)	150	144	96	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	121%	70-130%
2037-26-5	Toluene-D8	101%	70-130%
460-00-4	4-Bromofluorobenzene	95%	70-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: D64893
Account: ALMS Accutest Mountain States
Project: NOBECOD: Lorenz UPRR 42-27 1, 41-27 3

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D64893-9MS	N92747.D	5	11/26/14	JB	n/a	n/a	MSN3427
D64893-9	N92728.D	1	11/26/14	JB	n/a	n/a	MSN3427

The QC reported here applies to the following samples: **Method:** SW846 8260C

D64893-1, D64893-9

CAS No.	Compound	D64893-9 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
71-43-2	Benzene	38.4		250	306	107	70-130
100-41-4	Ethylbenzene	ND		250	227	91	70-130
108-88-3	Toluene	70.6		250	315	98	70-130
1330-20-7	Xylene (total)	782		750	1330	73	70-130

CAS No.	Surrogate Recoveries	MS	D64893-9	Limits
1868-53-7	Dibromofluoromethane	128%	120%	70-130%
2037-26-5	Toluene-D8	101%	101%	70-130%
460-00-4	4-Bromofluorobenzene	94%	95%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D64893
Account: ALMS Accutest Mountain States
Project: NOBECOD: Lorenz UPRR 42-27 1, 41-27 3

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC35118-1MS	N92720.D	5	11/26/14	JB	n/a	n/a	MSN3426
MC35118-1MSD	N92721.D	5	11/26/14	JB	n/a	n/a	MSN3426
MC35118-1	N92701.D	1	11/25/14	JB	n/a	n/a	MSN3426

The QC reported here applies to the following samples: **Method:** SW846 8260C

D64893-2, D64893-3, D64893-4, D64893-5, D64893-6, D64893-7, D64893-8

CAS No.	Compound	MC35118-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		250	269	108	250	282	113	5	70-130/30
100-41-4	Ethylbenzene	ND		250	239	96	250	253	101	6	70-130/30
108-88-3	Toluene	ND		250	258	103	250	276	110	7	70-130/30
1330-20-7	Xylene (total)	ND		750	732	98	750	781	104	6	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	MC35118-1	Limits
1868-53-7	Dibromofluoromethane	121%	117%	121%	70-130%
2037-26-5	Toluene-D8	101%	102%	100%	70-130%
460-00-4	4-Bromofluorobenzene	94%	93%	101%	70-130%

* = Outside of Control Limits.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

January 12, 2015

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

RE: NEP - Lorenz UPRR 42-27, 1, 42-27 3

Enclosed are the results of analyses for samples received by Summit Scientific on 01/09/15 17:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Paul Shrewsbury
President

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	1501064-01	Water	01/09/15 11:50	01/09/15 17:20
MW02	1501064-02	Water	01/09/15 10:30	01/09/15 17:20
MW03	1501064-03	Water	01/09/15 10:35	01/09/15 17:20
MW04	1501064-04	Water	01/09/15 10:40	01/09/15 17:20
MW05	1501064-05	Water	01/09/15 11:35	01/09/15 17:20
MW06	1501064-06	Water	01/09/15 10:45	01/09/15 17:20
MW07	1501064-07	Water	01/09/15 10:50	01/09/15 17:20
MW08	1501064-08	Water	01/09/15 11:45	01/09/15 17:20
MW09	1501064-09	Water	01/09/15 11:40	01/09/15 17:20
MW10	1501064-10	Water	01/09/15 11:00	01/09/15 17:20
MW11	1501064-11	Water	01/09/15 11:10	01/09/15 17:20
MW12	1501064-12	Water	01/09/15 11:20	01/09/15 17:20
MW13	1501064-13	Water	01/09/15 11:30	01/09/15 17:20

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

Summit Scientific 1501064.1

S2

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-277-9531 Fax

Page 1 of 2

Client: LT Environmental, Inc.
Address: 4600 West 60th Avenue
City/State/Zip: Arvada, CO 80003
Phone: (303) 433-9788 Fax: (303) 433-1432
Sampler Name:

Project Manager: charles Greeson
E-Mail: CGreeson@LTenv.com
Project Name:
Project Number:

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative: Other (Specify)	Matrix: Groundwater	Matrix: Soil	Matrix: Air - Canister Serial #	Matrix: Other (Specify)	Analyze For: BTEX 44	Special Instructions
MW01	1/9/15	1150	3			X		X				X	Lab filter
MW02		1030											
MW03		1035											
MW04		1040											
MW05		1135											
MW06		1045											
MW07		1050											
MW08		1105											
MW09		1140											
MW10		1100											

Relinquished by: Date/Time: 1/9/15 1720
Received by: Date/Time: 1/9/15 1720

Relinquished by: Date/Time:
Received by: Date/Time:

Relinquished by: Date/Time:
Received in Lab by: Date/Time:

Turn Around Time (Check)
Same Day [ ] 72 Hours [ ]
24 Hours [X] Standard [ ]
48 Hours [ ]

Sample Integrity:
Temperature Upon Receipt: 3.1°C
Intact: (Yes) No

Notes:
Results by tues morning

www.s2scientific.com

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

Summit Scientific 1501064.2

S2

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-277-9531 Fax

Page 2 of 2

Client: LT Environmental, Inc.
Address: 4600 West 60th Avenue
City/State/Zip: Arvada, CO 80003
Phone: (303) 433-9788 Fax: (303) 433-1432
Sampler Name:

Project Manager: Charles Greeson
E-Mail: CGreeson@LTenv.com
Project Name: Lorenz UPRR 42-27 1, 41-27 3
Project Number: 0083140 23

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative: Other (Specify)	Matrix: Groundwater	Matrix: Soil	Matrix: Air - Canister Serial #	Matrix: Other (Specify)	Analyze For: BTEX	Special Instructions
mw11	1/9/15	1110	3			X						X	Lab filter
mw12	↓	1120	↓			↓						↓	↓
mw13	↓	1130											

Relinquished by: Date/Time: 1/9/15 1720
Received by: Date/Time: 1/9/15 1720

Relinquished by: Date/Time:
Received by: Date/Time:

Relinquished by: Date/Time:
Received in Lab by: Date/Time:

Turn Around Time (Check)
Same Day [ ] 72 Hours [ ]
24 Hours [X] Standard [ ]
48 Hours [ ]

Sample Integrity:
Temperature Upon Receipt: 3.1°C
Intact: (Yes) No

Notes:
Results by Tues morning

www.s2scientific.com

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW01
1501064-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**30000**	100	ug/l	100	1501070	01/09/15	01/09/15	EPA 8260B	
Toluene	**190**	100	"	"	"	"	"	"	
Ethylbenzene	**1300**	100	"	"	"	"	"	"	
Xylenes (total)	**20000**	100	"	"	"	"	"	"	

Date Sampled: **01/09/15 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*98.6 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*95.0 %*	*45-146*		"	"	"	"	

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW02
1501064-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1501070	01/09/15	01/09/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **01/09/15 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*98.0 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.8 %*	*45-146*		"	"	"	"	

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW03
1501064-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1501070	01/09/15	01/09/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **01/09/15 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*98.1 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*100 %*	*45-146*		"	"	"	"	

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW04
1501064-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1501070	01/09/15	01/09/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **01/09/15 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*99.8 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.3 %*	*45-146*		"	"	"	"	

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW05
1501064-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**2.6**	1.0	ug/l	1	1501070	01/09/15	01/09/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **01/09/15 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*100 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.8 %*	*45-146*		"	"	"	"	

MW06
1501064-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1501070	01/09/15	01/09/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **01/09/15 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*98.9 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*95.6 %*	*45-146*		"	"	"	"	

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW07
1501064-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1501070	01/09/15	01/09/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **01/09/15 10:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*98.6 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.4 %*	*45-146*		"	"	"	"	

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW08
1501064-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**87**	1.0	ug/l	1	1501070	01/09/15	01/09/15	EPA 8260B	
Toluene	**39**	1.0	"	"	"	"	"	"	
Ethylbenzene	**60**	1.0	"	"	"	"	"	"	
Xylenes (total)	**2200**	1.0	"	"	"	"	"	"	

Date Sampled: **01/09/15 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*95.9 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*118 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*106 %*	*45-146*		"	"	"	"	

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW09
1501064-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**34**	1.0	ug/l	1	1501070	01/09/15	01/10/15	EPA 8260B	
Toluene	**2.7**	1.0	"	"	"	"	"	"	
Ethylbenzene	**120**	1.0	"	"	"	"	"	"	
Xylenes (total)	**5000**	100	"	100	"	"	"	"	

Date Sampled: **01/09/15 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*103 %*	*45-146*		"	"	"	"	

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW10
1501064-10 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1501070	01/09/15	01/10/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **01/09/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*97.0 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.2 %*	*45-146*		"	"	"	"	

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW11
1501064-11 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1501070	01/09/15	01/10/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	**2.1**	1.0	"	"	"	"	"	"	

Date Sampled: **01/09/15 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*107 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*100 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.2 %*	*45-146*		"	"	"	"	

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW12
1501064-12 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1501070	01/09/15	01/10/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **01/09/15 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*107 %*	*37-154*		"	"	"	"	
Surrogate: Toluene-d8		*96.8 %*	*45-149*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*101 %*	*45-146*		"	"	"	"	

LT Environmental, Inc. 4600 West 60th Avenue Arvada CO, 80003	Project: NEP - Lorenz UPRR 42-27, 1, 42-27 3 Project Number: 0083-14023 Project Manager: Chris Roy	**Reported:** 01/12/15 16:14

MW13
1501064-13 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/09/15 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	**990**	100	ug/l	100	1501070	01/09/15	01/10/15	EPA 8260B	
Toluene	**220**	1.0	"	1	"	"	01/10/15	"	
Ethylbenzene	**130**	1.0	"	"	"	"	"	"	
Xylenes (total)	**3900**	100	"	100	"	"	01/10/15	"	

Date Sampled: **01/09/15 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*102 %*		*37-154*	"	"	*01/10/15*	"	
Surrogate: Toluene-d8		*110 %*		*45-149*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.2 %*		*45-146*	"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1501070 - EPA 5030 Water MS										
Blank (1501070-BLK1)				Prepared & Analyzed: 01/09/15						
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	*13.3*		"	*13.2*		*100*	*37-154*			
Surrogate: Toluene-d8	*13.3*		"	*13.3*		*99.5*	*45-149*			
Surrogate: 4-Bromofluorobenzene	*12.9*		"	*13.3*		*96.9*	*45-146*			
LCS (1501070-BS1)				Prepared & Analyzed: 01/09/15						
Benzene	29.8	1.0	ug/l	33.3		89.4	51-132			
Toluene	28.4	1.0	"	33.3		85.4	51-138			
Ethylbenzene	29.6	1.0	"	33.1		89.5	58-146			
m,p-Xylene	59.7	2.0	"	66.5		89.7	57-144			
o-Xylene	30.6	1.0	"	32.8		93.2	53-146			
Surrogate: 1,2-Dichloroethane-d4	*13.4*		"	*13.2*		*102*	*37-154*			
Surrogate: Toluene-d8	*13.3*		"	*13.3*		*99.8*	*45-149*			
Surrogate: 4-Bromofluorobenzene	*13.1*		"	*13.3*		*98.6*	*45-146*			
Matrix Spike (1501070-MS1)	**Source: 1501064-02**			Prepared & Analyzed: 01/09/15						
Benzene	29.7	1.0	ug/l	33.3	ND	89.1	34-141			
Toluene	28.9	1.0	"	33.3	ND	86.6	27-151			
Ethylbenzene	30.6	1.0	"	33.1	ND	92.4	29-160			
m,p-Xylene	61.1	2.0	"	66.5	ND	91.8	20-166			
o-Xylene	30.7	1.0	"	32.8	ND	93.7	33-159			
Surrogate: 1,2-Dichloroethane-d4	*13.8*		"	*13.2*		*104*	*37-154*			
Surrogate: Toluene-d8	*13.4*		"	*13.3*		*101*	*45-149*			
Surrogate: 4-Bromofluorobenzene	*13.4*		"	*13.3*		*101*	*45-146*			

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1501070 - EPA 5030 Water MS										
Matrix Spike Dup (1501070-MSD1)		**Source: 1501064-02**		Prepared & Analyzed: 01/09/15						
Benzene	30.0	1.0	ug/l	33.3	ND	89.9	34-141	0.938	32	
Toluene	29.0	1.0	"	33.3	ND	87.0	27-151	0.518	25	
Ethylbenzene	30.5	1.0	"	33.1	ND	92.4	29-160	0.0655	50	
m,p-Xylene	60.3	2.0	"	66.5	ND	90.6	20-166	1.33	36	
o-Xylene	31.0	1.0	"	32.8	ND	94.5	33-159	0.810	26	
Surrogate: 1,2-Dichloroethane-d4	*15.0*		*"*	*13.2*		*113*	*37-154*			
Surrogate: Toluene-d8	*13.3*		*"*	*13.3*		*100*	*45-149*			
Surrogate: 4-Bromofluorobenzene	*14.2*		*"*	*13.3*		*106*	*45-146*			

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