



Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

REMEDIATION WORKPLAN (Cont.)

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

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

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

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

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

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: _____ Date Site Investigation Completed: _____ Date Remediation Plan Submitted: _____
Remediation Start Date: _____ Anticipated Completion Date: _____ Actual Completion Date: _____

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

Print Name: _____ Signed: _____

Title: _____ Date: 12/11/2013

OGCC Approved: _____ Title: **EPS** Date: **12/11/2013**



GROUNDWATER MONITORING AND WELL INSTALLATION REPORT OCTOBER 2013

KARCH BLUE DD 30-3J FLOWLINE COGCC TRACKING #2145657

LT Environmental, Inc. (LTE), under the direction of Noble Energy, Inc. (Noble), conducted well installation and groundwater monitoring activities at the Karch Blue DD 30-3J Flowline (Site). Site history and remediation activities were described in previous reports. The excavated areas are split into two distinct areas referred to as the North Excavation and the South Excavation. A site location map is included as Figure 1 and a site map showing both North and South excavations is included as Figure 2. The October 2013 groundwater monitoring event constitutes the first post-remediation performance groundwater monitoring event.

Soil Boring Advancement

LTE advanced a total of 23 soil borings on August 23 and September 25 and 26, 2013. The soil borings were installed using a direct-push rig operated by ACI Services of Englewood, Colorado. Soil borings MW01 through MW11 located in the North Excavation and MW01 through MW12 located in the South Excavation were constructed as monitoring wells to allow for groundwater sampling.

The soil borings were logged by an LTE scientist and the soil was characterized by visual inspection of the collected soil samples. The total depths of the soil borings were approximately 12 feet to 14 feet below ground surface (bgs). Depth to groundwater observed in the soil borings ranged from approximately 5 feet to 6 feet bgs. The soil boring and well completion diagrams are included as Attachment 1.

Soil Sampling

Soil borings were advanced using direct-push methods and sampled using a continuous sampler on August 23 and September 25 and 26, 2013. Field measurements and soil samples were collected to identify the vertical and horizontal extent of soil impact. Soil samples were submitted for analysis based on the sample interval above the soil saturation zone that exhibited visible soil staining or where the highest photo-ionization detector (PID) reading was observed. If field screening methods indicated minimal petroleum hydrocarbon impact was present, the soil sample was collected directly above the static water level.

Six soil samples from the North Excavation (MW01@4', MW02@5', MW03@4', MW04@4', MW05@4', and MW06@5') were submitted to Summit Scientific, Inc. (Summit) of Golden, Colorado, on August 23, 2013. Twelve soil samples from the South Excavation (MW01@5', MW02@5', MW03@4', MW04@5', MW05@4', MW06@4', MW07@5', MW08@5',

MW09@5', MW10@5', MW11@5', and MW12@5') were submitted to Summit on September 25, 2013. An additional five soil samples from the North Excavation (MW07@5', MW08@5', MW09@4', MW10@5', and MW11@5') were submitted to Summit on September 26, 2013. All soil samples were analyzed for 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 MW01 through MW11 in the North Excavation and MW01 through MW12 in the South Excavation were completed as temporary groundwater monitoring wells. The monitoring wells were constructed of 1-inch diameter polyvinyl chloride (PVC) casing extending from the ground surface to depths of approximately 12 feet to 14 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 well to one foot above the screen to act as a filter pack for the monitoring well. Bentonite chips were placed from the top of the silica sand to the ground surface and hydrated at each soil boring to provide a seal against surface contamination and precipitation infiltration. Well completion diagrams are included as Attachment 1.

Groundwater Sampling

Groundwater samples from monitoring wells MW01 through MW11 in the North Excavation and MW01 through MW12 in the South Excavation were collected on October 15, 2013. Prior to sampling each monitoring well, depth to static groundwater was measured and recorded for calculating well-specific purge volumes. Following well development and purging, samples were collected, placed on ice and delivered with a complete chain of custody form to Origins Laboratory, Inc. of Denver, Colorado for analysis of BTEX by EPA Method 8260C.

Hydrogeology

During the October 2013 monitoring event, the depth to static groundwater level at the North Excavation ranged from 4.10 feet below top of casing (btoc) in MW01 to 5.15 feet btoc in MW07 and MW10. The depth to static groundwater level at the South Excavation ranged from 4.05 feet below top of casing (btoc) in MW02 to 5.02 feet btoc in MW07. Groundwater in the North Excavation was calculated to flow north-northwest with an average hydraulic gradient of 0.005 feet per foot. Groundwater in the South Excavation was calculated to flow north-northwest with an average hydraulic gradient of 0.011 feet per foot. The relative groundwater elevations for the North Excavation and the South Excavation are depicted on Figures 3 and 4, respectively.

Soil Analytical Results

The Colorado Oil and Gas Conservation Commission (COGCC) 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 standards for naphthalene and TPH are 23 mg/kg and 500 mg/kg, respectively.

Soil analytical results from the North Excavation are in compliance with COGCC standards. Soil analytical results from the South Excavation indicate that MW01@5' and MW04@5' exceeded the COGCC standards for TPH at concentrations of 7,700 mg/kg and 4,798 mg/kg, respectively. The soil analytical results for the North Excavation and South Excavation are presented on Figures 5 and 6 and summarized in Tables 1 and 2, respectively. The laboratory analytical reports are included as Attachment 2.

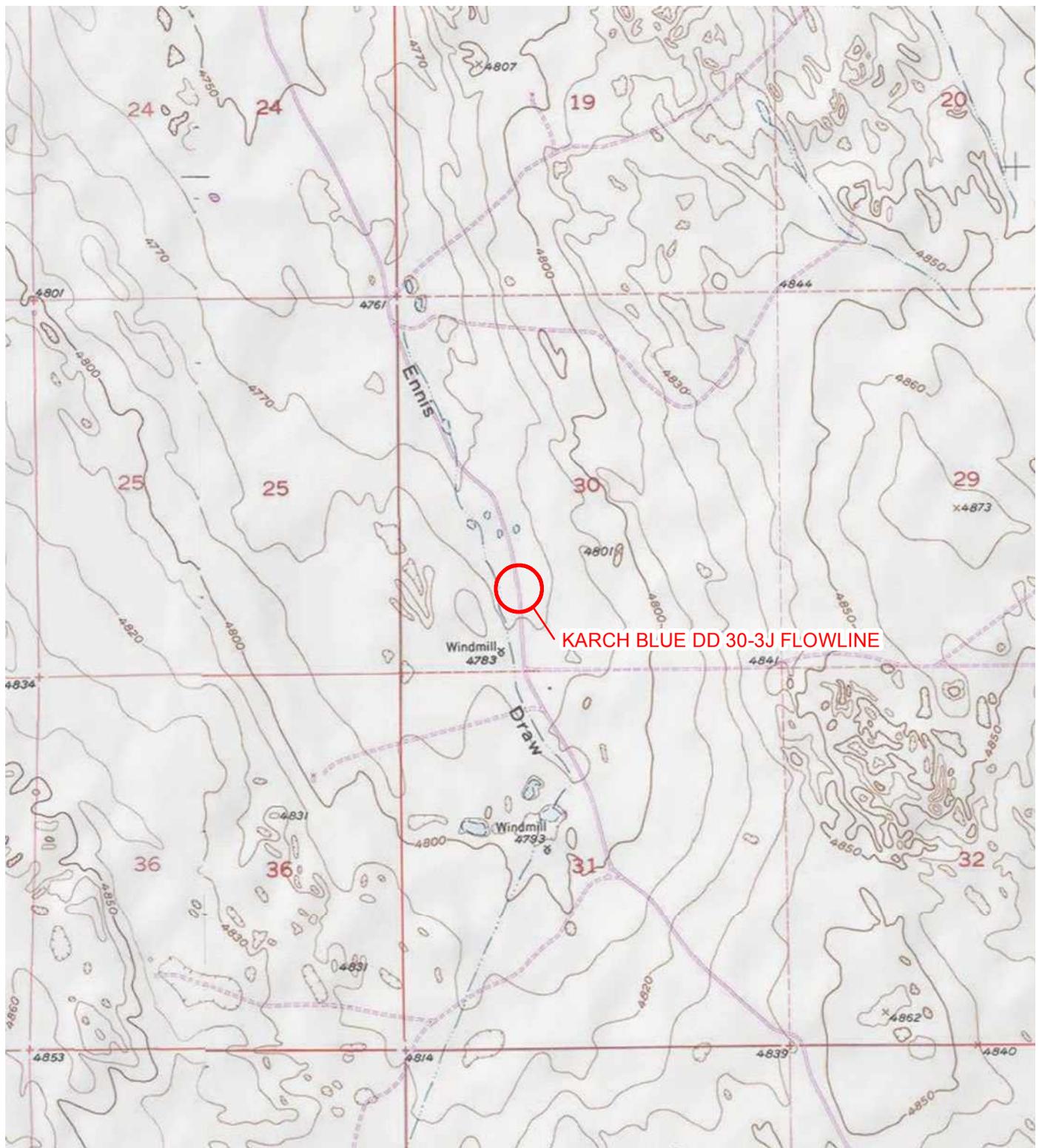
Groundwater Analytical Results

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 ($\mu\text{g/L}$), 560 $\mu\text{g/L}$, 700 $\mu\text{g/L}$, and 1,400 $\mu\text{g/L}$, respectively.

Groundwater analytical results for the North Excavation indicate BTEX concentrations are in compliance with WQCC Reg 41. Groundwater analytical results for the South Excavation indicate that MW04 exceeded the WQCC Reg 41 for benzene at a concentration of 177 $\mu\text{g/L}$. Groundwater analytical results for the North Excavation and South Excavation are presented on Figures 7 and 8 and summarized in Tables 3 and 4, respectively. The laboratory analytical reports are included as Attachment 2.

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 WQCC Reg 41. The next quarterly groundwater monitoring event is scheduled for January 2014.

FIGURES



LEGEND
 SITE LOCATION

IMAGE COURTESY OF ESRI/USGS

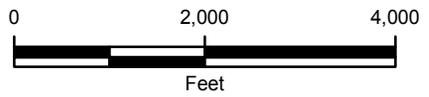
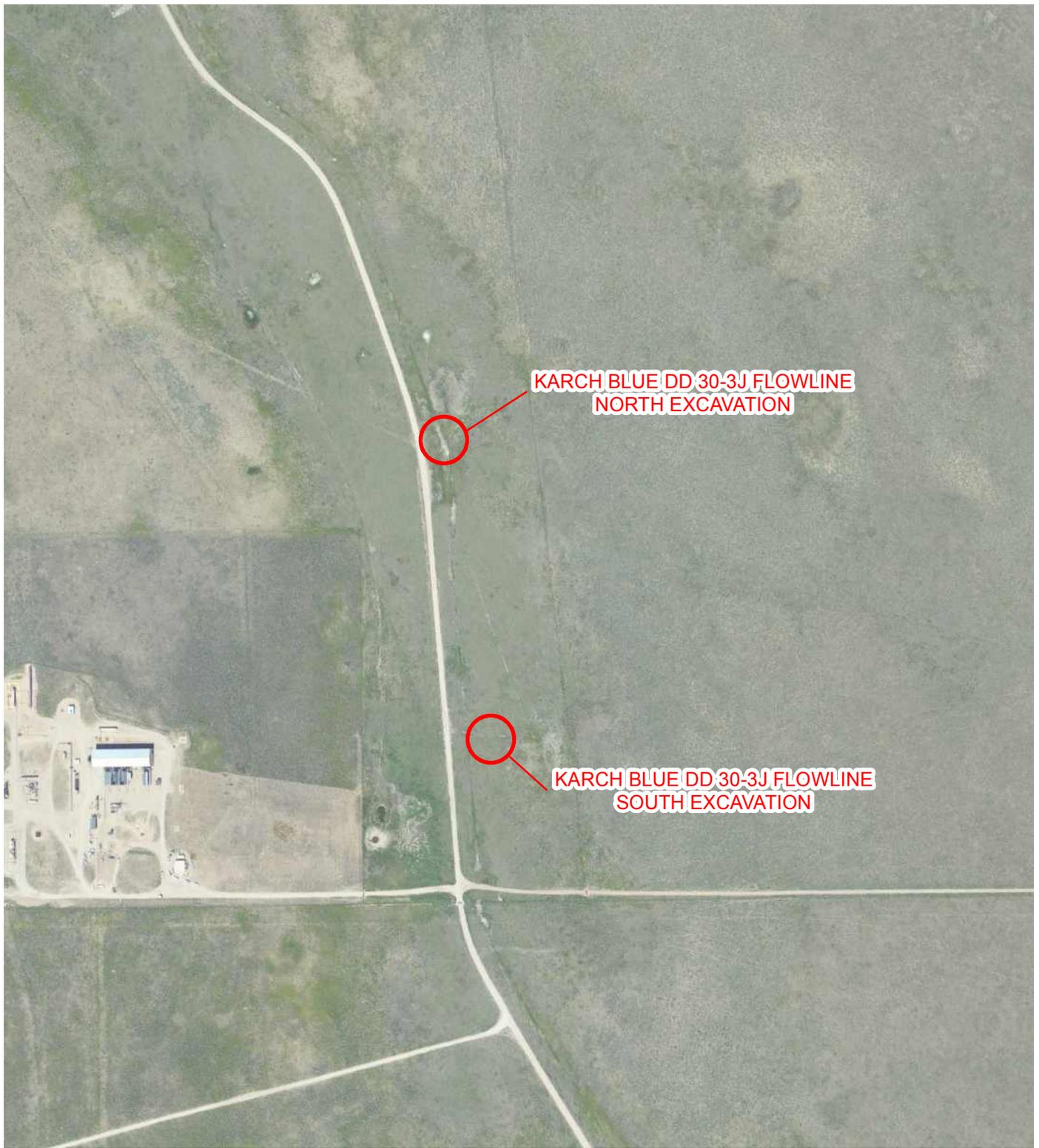


FIGURE 1
 SITE LOCATION MAP
 KARCH BLUE DD 30-3J FLOWLINE
 NESW SEC 30 T3N-R63W
 WELD COUNTY, COLORADO
 NOBLE ENERGY, INC.





LEGEND

 SITE LOCATION

IMAGE COURTESY OF ESRI/USGS

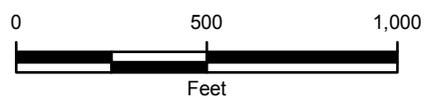


FIGURE 2
SITE MAP
KARCH BLUE DD 30-3J FLOWLINE
NESW SEC 30 T3N-R63W
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.





IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- MONITORING WELL
- ESTIMATED GROUNDWATER FLOW DIRECTION
- RELATIVE GROUNDWATER ELEVATION CONTOUR
CONTOUR INTERVAL = 0.25 FEET
GRADIENT = 0.005 FEET/FOOT
- UNDERGROUND UTILITIES
- EXCAVATION EXTENT

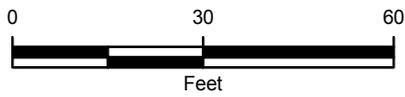


FIGURE 3
RELATIVE GROUNDWATER ELEVATION MAP - NORTH
KARCH BLUE DD 30-3J FLOWLINE
OCTOBER 15, 2013
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.



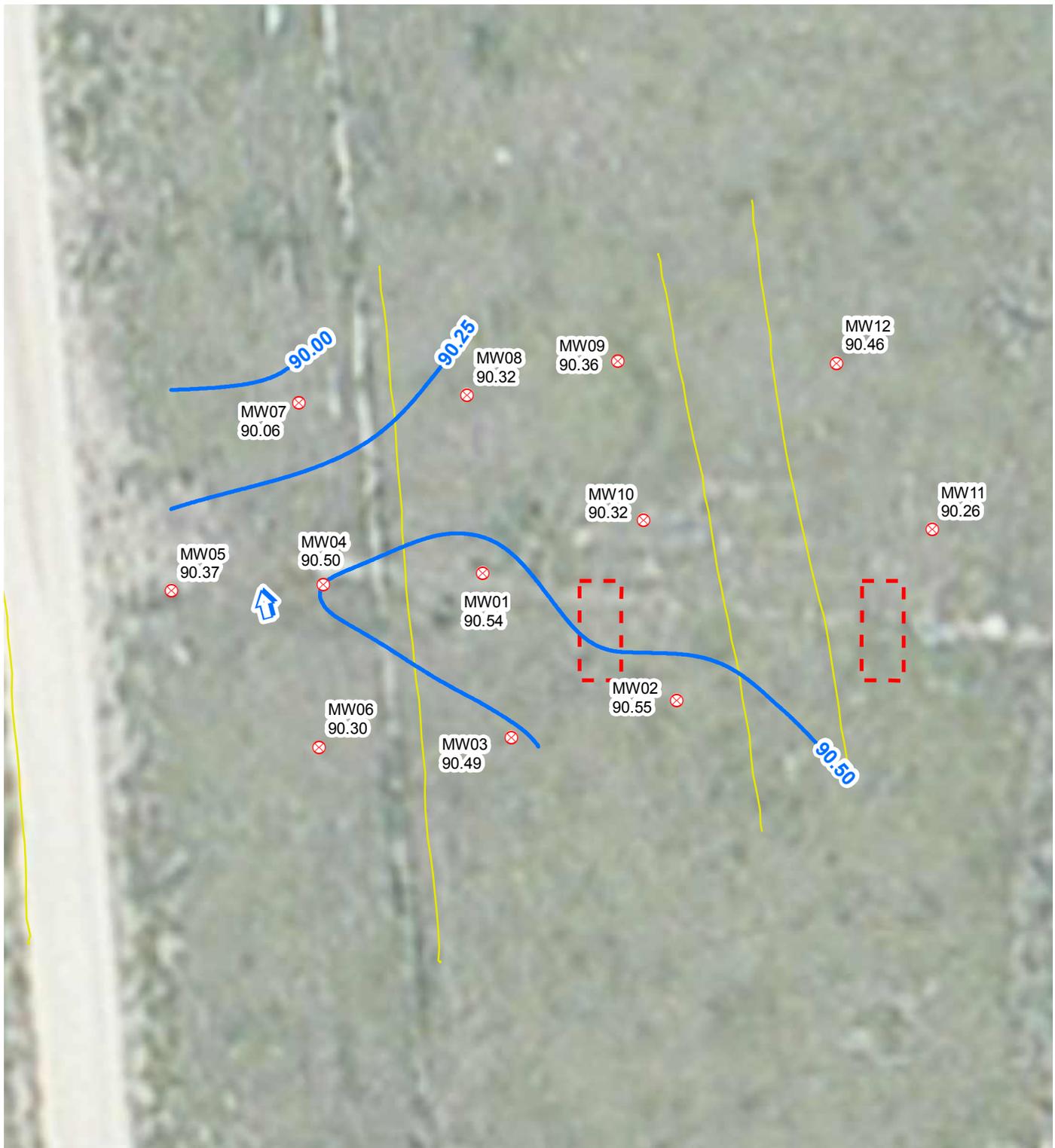


IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- ⊗ MONITORING WELL
- ↑ ESTIMATED GROUNDWATER FLOW DIRECTION
- RELATIVE GROUNDWATER ELEVATION CONTOUR
CONTOUR INTERVAL = 0.25 FEET
GRADIENT = 0.011 FEET/FOOT
- UNDERGROUND UTILITIES
- - - EXCAVATION EXTENT

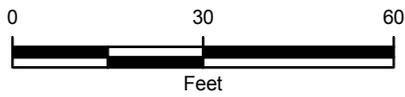


FIGURE 4
RELATIVE GROUNDWATER ELEVATION MAP - SOUTH
KARCH BLUE DD 30-3J FLOWLINE
OCTOBER 15, 2013
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.



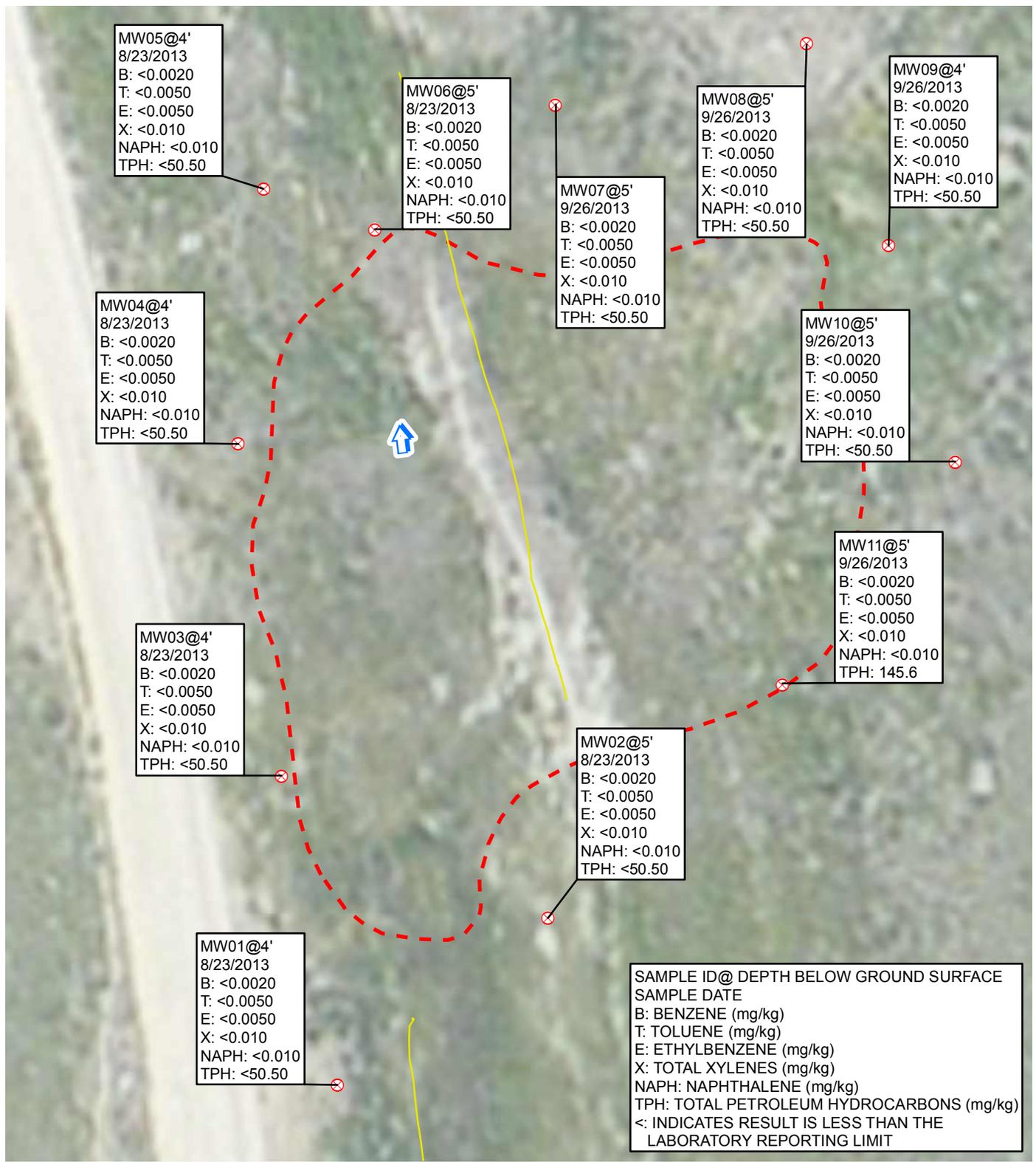


IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- MONITORING WELL
- ESTIMATED GROUNDWATER FLOW DIRECTION
- UNDERGROUND UTILITIES
- EXCAVATION EXTENT

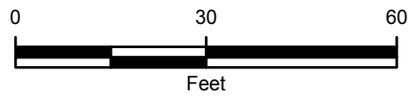
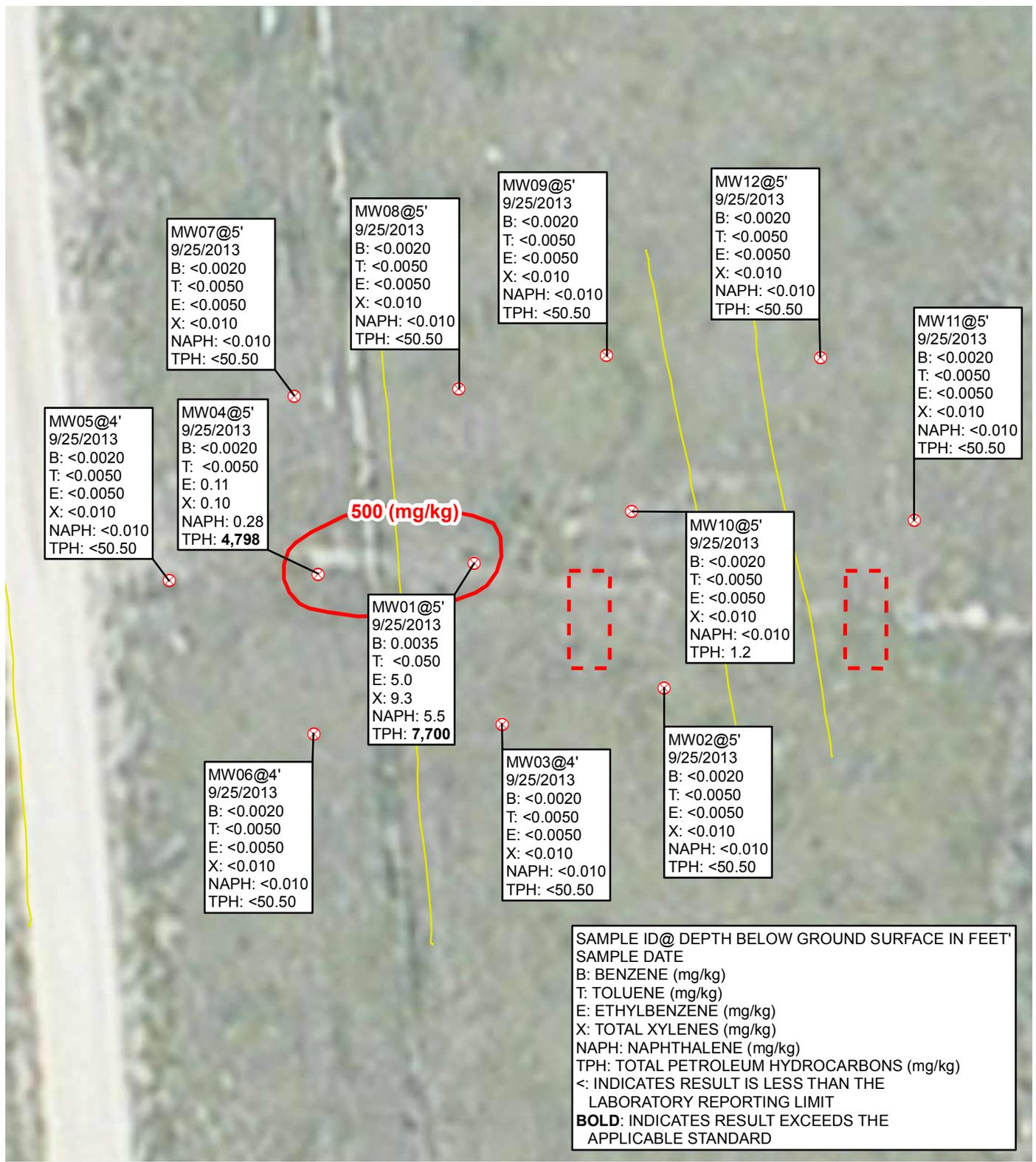


FIGURE 5
SOIL ANALYTICAL RESULTS - NORTH
KARCH BLUE DD 30-3J FLOWLINE
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.





SAMPLE ID@ DEPTH BELOW GROUND SURFACE IN FEET'
 SAMPLE DATE
 B: BENZENE (mg/kg)
 T: TOLUENE (mg/kg)
 E: ETHYLBENZENE (mg/kg)
 X: TOTAL XYLENES (mg/kg)
 NAPH: NAPHTHALENE (mg/kg)
 TPH: TOTAL PETROLEUM HYDROCARBONS (mg/kg)
 <: INDICATES RESULT IS LESS THAN THE
 LABORATORY REPORTING LIMIT
BOLD: INDICATES RESULT EXCEEDS THE
 APPLICABLE STANDARD

IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- MONITORING WELL
- UNDERGROUND UTILITIES
- TPH ISOCONCENTRATION CONTOUR
- EXCAVATION EXTENT

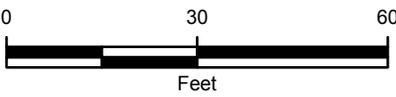
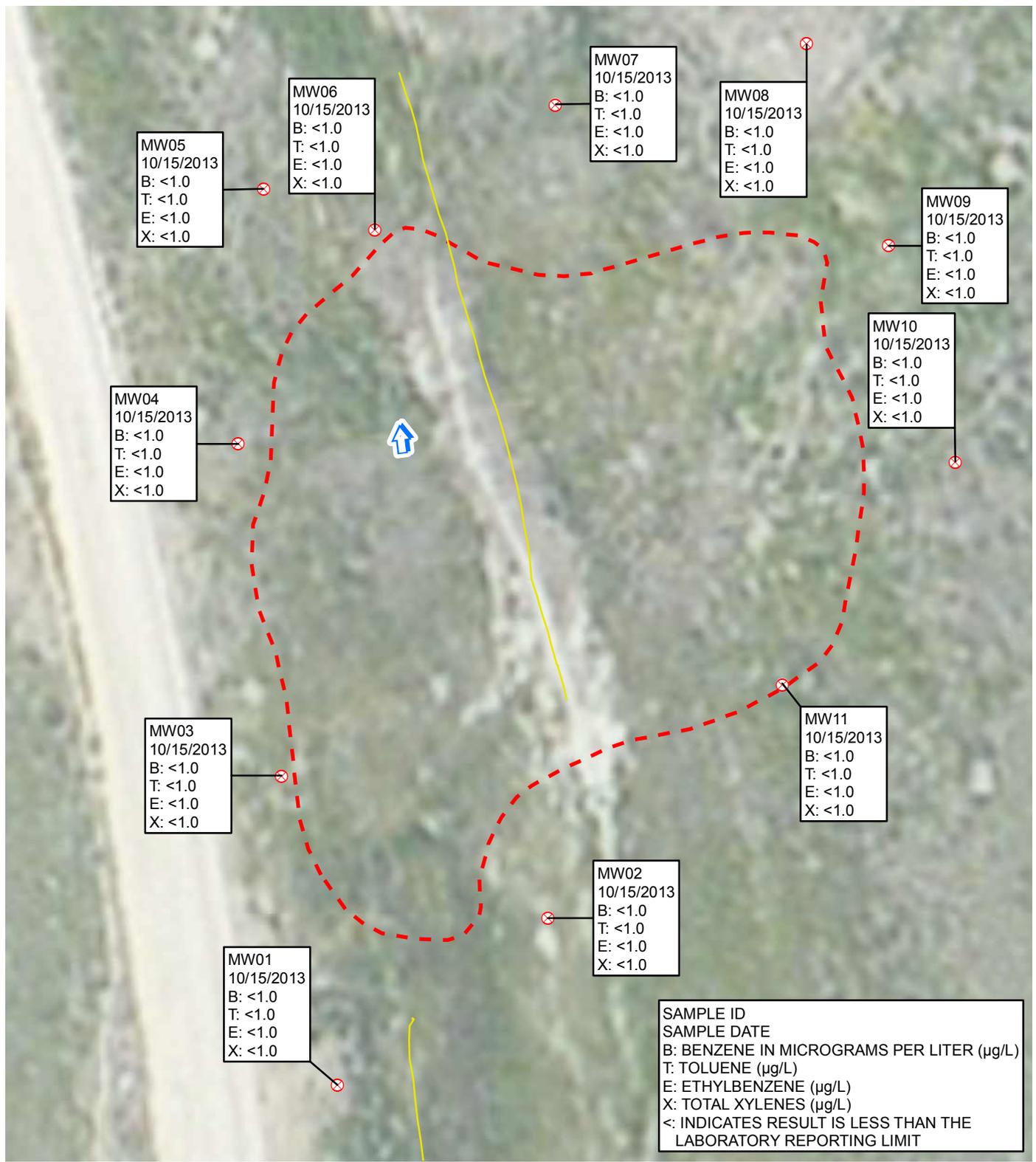


FIGURE 6
 SOIL ANALYTICAL RESULTS - SOUTH
 KARCH BLUE DD 30-3J FLOWLINE
 WELD COUNTY, COLORADO

NOBLE ENERGY, INC.





SAMPLE ID
 SAMPLE DATE
 B: BENZENE IN MICROGRAMS PER LITER (µg/L)
 T: TOLUENE (µg/L)
 E: ETHYLBENZENE (µg/L)
 X: TOTAL XYLENES (µg/L)
 <: INDICATES RESULT IS LESS THAN THE LABORATORY REPORTING LIMIT

IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- MONITORING WELL
- ESTIMATED GROUNDWATER FLOW DIRECTION
- UNDERGROUND UTILITIES
- EXCAVATION EXTENT

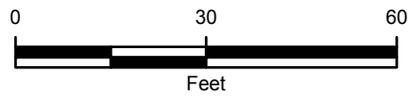
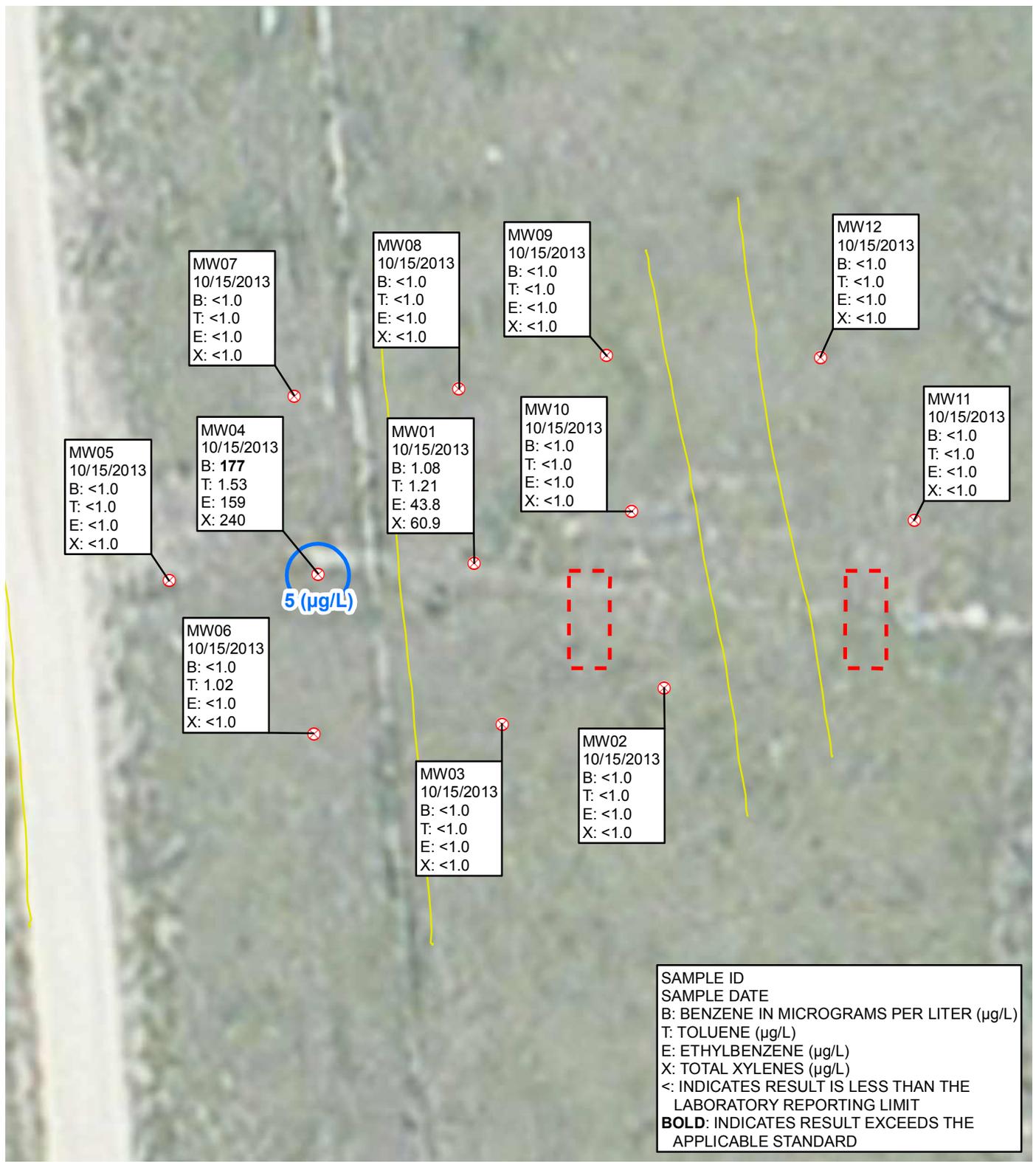


FIGURE 7
 GROUNDWATER ANALYTICAL RESULTS - NORTH
 KARCH BLUE DD 30-3J FLOWLINE
 WELD COUNTY, COLORADO



NOBLE ENERGY, INC.



SAMPLE ID
 SAMPLE DATE
 B: BENZENE IN MICROGRAMS PER LITER (µg/L)
 T: TOLUENE (µg/L)
 E: ETHYLBENZENE (µg/L)
 X: TOTAL XYLENES (µg/L)
 <: INDICATES RESULT IS LESS THAN THE LABORATORY REPORTING LIMIT
BOLD: INDICATES RESULT EXCEEDS THE APPLICABLE STANDARD

IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- MONITORING WELL
- UNDERGROUND UTILITIES
- BENZENE ISOCONCENTRATION CONTOUR
- EXCAVATION EXTENT

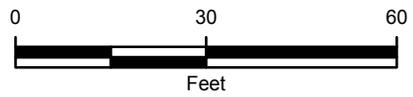


FIGURE 8
GROUNDWATER ANALYTICAL RESULTS - SOUTH
KARCH BLUE DD 30-3J FLOWLINE
WELD COUNTY, COLORADO



NOBLE ENERGY, INC.

TABLES

TABLE 1
SOIL ANALYTICAL RESULTS
KARCH BLUE DD 30-3J FLOWLINE - NORTH
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.

Soil Sample	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@4'	8/23/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW02@5'	8/23/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW03@4'	8/23/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW04@4'	8/23/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW05@4'	8/23/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW06@5'	8/23/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW07@5'	9/26/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW08@5'	9/26/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW09@4'	9/26/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW10@5'	9/26/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW11@5'	9/26/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	5.6	140	145.6
COGCC Table 910-1 Standards		0.17	85	100	175	23	--	--	500

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

TPH - total petroleum hydrocarbons

TPH is the sum of GRO and DRO

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

-- - not applicable

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

TABLE 2
SOIL ANALYTICAL RESULTS
KARCH BLUE DD 30-3J FLOWLINE - SOUTH
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.

Soil Sample	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@5'	9/25/2013	0.0035	<0.050	5.0	9.3	5.5	3,900	3,800	7,700
MW02@5'	9/25/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW03@4'	9/25/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW04@5'	9/25/2013	<0.0020	<0.0050	0.11	0.10	0.28	98	4,700	4,798
MW05@4'	9/25/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW06@4'	9/25/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW07@5'	9/25/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW08@5'	9/25/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW09@5'	9/25/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW10@5'	9/25/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	1.2	<50	1.2
MW11@5'	9/25/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
MW12@5'	9/25/2013	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
COGCC Table 910-1 Standards		0.17	85	100	175	23	--	--	500

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

TPH - total petroleum hydrocarbons

TPH is the sum of GRO and DRO

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

-- - not applicable

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

BOLD indicates result exceeds the applicable standard

TABLE 3

**GROUNDWATER ANALYTICAL RESULTS
KARCH BLUE 30-3J FLOWLINE - NORTH
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.**

Groundwater Sample	Date	Depth to Water (feet btoc)	Relative Groundwater Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW01	10/15/2013	4.10	90.84	<1.0	<1.0	<1.0	<1.0
MW02	10/15/2013	4.45	90.58	<1.0	<1.0	<1.0	<1.0
MW03	10/15/2013	4.45	90.49	<1.0	<1.0	<1.0	<1.0
MW04	10/15/2013	4.37	90.17	<1.0	<1.0	<1.0	<1.0
MW05	10/15/2013	5.00	89.90	<1.0	<1.0	<1.0	<1.0
MW06	10/15/2013	5.06	89.90	<1.0	<1.0	<1.0	<1.0
MW07	10/15/2013	5.15	89.81	<1.0	<1.0	<1.0	<1.0
MW08	10/15/2013	4.85	90.19	<1.0	<1.0	<1.0	<1.0
MW09	10/15/2013	5.00	90.20	<1.0	<1.0	<1.0	<1.0
MW10	10/15/2013	5.15	90.32	<1.0	<1.0	<1.0	<1.0
MW11	10/15/2013	4.76	90.50	<1.0	<1.0	<1.0	<1.0
CDPHE WQCC Reg 41				5.0	560	700	1,400

NOTES:

µg/L - micrograms per liter

btoc - below top of casing

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

CDPHE WQCC Reg 41 - Colorado Department of Public Health and Environment-Water Quality Control

Commission Regulation 41 covering The Basic Standards for Ground Water

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

TABLE 4

**GROUNDWATER ANALYTICAL RESULTS
KARCH BLUE 30-3J FLOWLINE - SOUTH
WELD COUNTY, COLORADO
NOBLE ENERGY, INC.**

Groundwater Sample	Date	Depth to Water (feet btoc)	Relative Groundwater Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW01	10/15/2013	4.30	90.54	1.08	1.21	43.8	60.9
MW02	10/15/2013	4.05	90.55	<1.0	<1.0	<1.0	<1.0
MW03	10/15/2013	4.45	90.49	<1.0	<1.0	<1.0	<1.0
MW04	10/15/2013	4.56	90.50	177	1.53	159	240
MW05	10/15/2013	4.83	90.37	<1.0	<1.0	<1.0	<1.0
MW06	10/15/2013	4.91	90.30	<1.0	1.02	<1.0	<1.0
MW07	10/15/2013	5.02	90.06	<1.0	<1.0	<1.0	<1.0
MW08	10/15/2013	4.66	90.32	<1.0	<1.0	<1.0	<1.0
MW09	10/15/2013	4.29	90.36	<1.0	<1.0	<1.0	<1.0
MW10	10/15/2013	4.30	90.32	<1.0	<1.0	<1.0	<1.0
MW11	10/15/2013	4.57	90.26	<1.0	<1.0	<1.0	<1.0
MW12	10/15/2013	4.60	90.46	<1.0	<1.0	<1.0	<1.0
CDPHE WQCC Reg 41				5.0	560	700	1,400

NOTES:

µg/L - micrograms per liter

btoc - below top of casing

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

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

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

BOLD indicates result exceeds the applicable standard

ATTACHMENT 1
WELL COMPLETION DIAGRAMS

Location Map



Compliance • Engineering • Remediation

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

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW01
DATE: 8/23/13
LOGGED BY: Danny Burns
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3J North
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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: 14' **DTW:** 5'

GROUT: NA

CASING LENGTH: 4'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Moist			0	SP		SP: Sand - 0'-3' - fine grained, brown, moist, no odor	
						5/5				
						5	SC		SP: Sand - 3'-5' - medium grained, white-gray, moist, no odor	
			Wet	MW01 @ 4'		5			SC: Sand - 5'-8' - medium grained, clayey, brown with orange oxydation staining, wet, no odor	
						5/5				
						10	SP		SP: Sand - 8'-10' - medium grained, light gray, wet, no odor	
						10			Collapsing sands - No sample collected Point to 14' Flush mount	
						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW02
DATE: 8/23/13
LOGGED BY: Danny Burns
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3J North
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

HOLE DIA.: 2.25"

TD: 14' **DTW:** 6'

GRAVEL PACK: 10-20 Silica Sand

SEAL: Bent. Chips

GROUT: NA

CASING TYPE: SCH. 40 PVC

CASING DIA.: 1"

CASING LENGTH: 4'

SCREEN TYPE: SCH. 40 PVC

SCREEN SLOT: 0.010"

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP	SP: Sand - 0'-2' - fine grained, brown, dry, no odor		
0.0					5/5	5	SC	SC: Sand - 2'-4' - medium grained, clayey, white-gray, moist, no odor		
0.0			Moist			5	CL	CL: Clay - 4'-6' - sandy, brown, moist, no odor		
				MW02 @ 5'		5	SC	SC: Sand - 6'-10' - medium grained alternating with fine clayey sands, gray-brown with orange oxydation staining, wet, no odor		
0.0			Wet		5/5	10		Collapsing sands - No sample collected Point to 14' Flush mount		
0.0						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW03
DATE: 8/23/13
LOGGED BY: Danny Burns
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3J North
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

HOLE DIA.: 2.25"

TD: 14' **DTW:** 5'

GRAVEL PACK: 10-20 Silica Sand

SEAL: Bent. Chips

GROUT: NA

CASING TYPE: SCH. 40 PVC

CASING DIA.: 1"

CASING LENGTH: 4'

SCREEN TYPE: SCH. 40 PVC

SCREEN SLOT: 0.010"

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP		SP: Sand - 0'-2' - medium grained, brown, dry, no odor	
0.0			Moist		5/5	5	SC		SC: Sand - 2'-5' - medium grained, clayey, light gray, moist, no odor	
0.0			Wet	MW03 @ 4'		5	SP		SP: Sand - 5'-10' - medium grained, gray-brown with orange oxydation staining, wet, no odor	
0.0					5/5	10			Collapsing sands - No sample collected Point to 14' Flush mount	
0.0						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW04
DATE: 8/23/13
LOGGED BY: Danny Burns
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3J North
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

HOLE DIA.: 2.25"

TD: 14' **DTW:** 5'

GRAVEL PACK: 10-20 Silica Sand

SEAL: Bent. Chips

GROUT: NA

CASING TYPE: SCH. 40 PVC

CASING DIA.: 1"

CASING LENGTH: 4'

SCREEN TYPE: SCH. 40 PVC

SCREEN SLOT: 0.010"

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP	SP: Sand - 0'-2' - fine grained, brown, dry, no odor		
0.0			Moist		5/5	5	SC	SC: Sand - 2'-5' - medium grained, clayey, light gray, moist, no odor		
0.0			Wet	MW04 @ 4'		5	SP	SP: Sand - 5'-10' - medium grained, gray-brown with orange oxydation staining, wet, no odor		
0.0					5/5	10		No Recovery - Collapsing sands Point to 14' Flush mount		
0.0					0/4	15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW05
DATE: 8/23/13
LOGGED BY: Danny Burns
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3J North
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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: 14' **DTW:** 5'

GROUT: NA

CASING LENGTH: 4'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP	SP: Sand - 0'-2' - fine grained, brown, dry, no odor		
0.0					5/5		SC	SC: Sand - 2'-5' - medium grained, clayey, white-gray, moist, no odor		
0.0			Moist	MW05 @ 4'		5	SP	SP: Sand - 5'-10' - medium grained, gray-brown with orange oxydation staining, wet, no odor		
0.0			Wet		5/5					
0.0						10		Collapsing sands - No sample collected Point to 14' Flush mount		
						15				

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW06
DATE: 8/23/13
LOGGED BY: Danny Burns
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3J North
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

HOLE DIA.: 2.25"

TD: 14' **DTW:** 6'

GRAVEL PACK: 10-20 Silica Sand

SEAL: Bent. Chips

GROUT: NA

CASING TYPE: SCH. 40 PVC

CASING DIA.: 1"

CASING LENGTH: 4'

SCREEN TYPE: SCH. 40 PVC

SCREEN SLOT: 0.010"

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP	SP: Sand - 0'-2' - fine grained, brown, dry, no odor		
0.0					5/5	5	SC	SC: Sand - 2'-6' - medium grained, clayey, white-gray, moist, no odor		
0.1			Moist	MW06 @ 5'		5				
			Wet			5	SP	SP: Sand - 6'-10' - medium grained, brown, wet, no odor		
0.0					5/5	10				
0.0						10		No recovery - Collapsing sands Point to 14' Flush mount		
					0/4					
						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW07
DATE: 9/26/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3J North
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP		SP: Sand - 0'-6' - fine grained, medium brown, some orange oxydation staining, dry, poorly graded, no odor	
						4/5				
			Moist	MW07 @ 5'		5				
			Wet			5/5			SP: Sand - 6'-10' - fine-medium grained, brown with orange oxydation staining, wet, poorly graded, no odor	
						10			No staining observed Point to 13' Flush mount	
						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW08
DATE: 9/26/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3J North
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP	SP: Sand - 0'-4' - fine grained, medium brown, dry, poorly graded, no odor		
						4/5				
						5	SC	SC: Sand - 4'-5' - fine grained, clayey, white-light brown, dry, no odor		
			Moist	MW08 @ 5'		5	SP	SP: Sand - 5'-10' - fine grained, gray-brown with orange oxydation staining, moist, wet @ 6', poorly graded, no odor		
			Wet			5/5				
						10		No staining observed Point to 13' Flush mount		
						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW09

DATE: 9/26/13

LOGGED BY: Dan Hosler

DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3J North

PROJECT NO.: 008313054

DRILLED BY: ACI

SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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:** 5'

GROUT: NA

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP		SP: Sand - 0'-5' - fine grained, trace clay, medium brown, dry, poorly graded, no odor	
0.0						4/5				
0.0				MW09 @ 4'		5			SP: Sand - 5'-10' - fine-medium grained, gray-brown with orange oxydation staining, wet, poorly graded, no odor 6" sandy clay lense @ 8'	
0.0			Wet			5/5				
0.0						10			No staining observed Point to 13' Flush mount	
						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW10

DATE: 9/26/13

LOGGED BY: Dan Hosler

DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3J North

PROJECT NO.: 008313054

DRILLED BY: ACI

SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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:** 5'

GROUT: NA

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SC		SC: Sand - 0'-2' - fine grained, clayey, white-brown, dry, no odor	
						4/5	SP		SP: Sand - 2'-10' - fine grained, brown with orange oxydation staining, dry, wet @ 5', poorly graded, no odor	
			Wet	MW10 @ 5'		5				
						5/5				
						10			No staining observed Point to 13' Flush mount	
						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW11
DATE: 9/26/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3J North
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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'

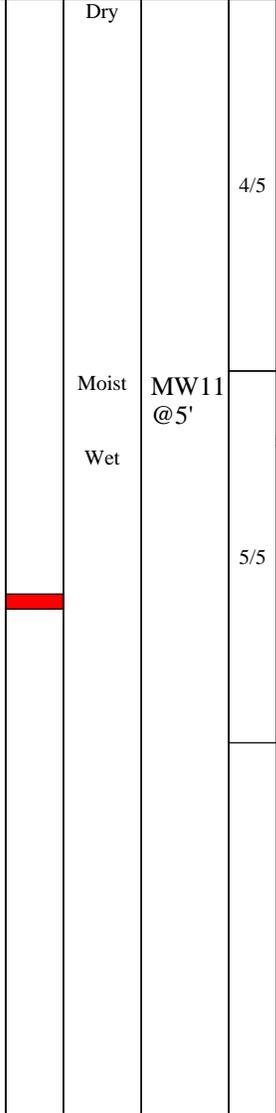
GROUT: NA

CASING LENGTH: 3'

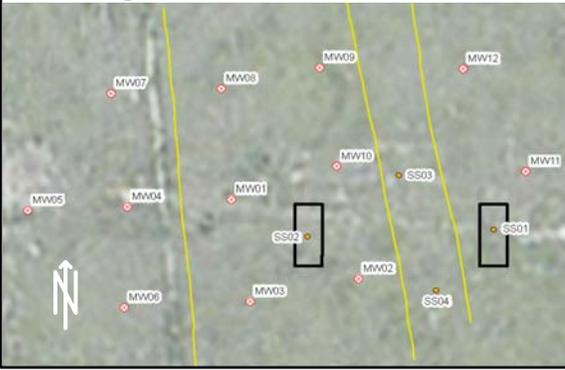
SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP		SP: Sand - 0'-4' - fine grained, trace clay, dark brown, dry, poorly graded, no odor	
						4/5				
						5	SC		SP: Sand - 4'-5' - fine grained, white-light brown, dry, poorly graded, no odor	
			Moist	MW11 @ 5'		5			SC: Sand - 5'-8' - fine grained, some clay-clayey, white-medium brown, moist, wet @ 6', no odor	
			Wet			5/5				
						5/5	SP		SP: Sand - 8'-10' - fine grained, brown with orange oxydation staining, 2" black stain with moderate odor @ 8', wet, poorly graded, no odor	
						10			Point to 13' Flush mount	
						15				

0.0
0.0
0.0
187.2
0.0



Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW01
DATE: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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: 12' **DTW:** 6'

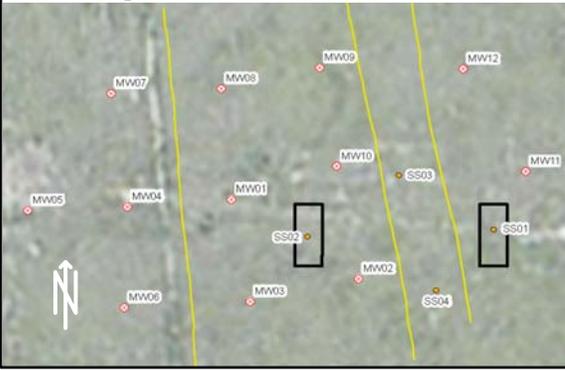
GROUT: NA

CASING LENGTH: 2'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0		Topsoil		
0.0						3/5	SP		SP: Sand - 0'-5' - fine-medium grained, trace-some clay, increase in clay with depth, medium brown, dry, no odor	
323.7		Moist		MW01 @ 5'		5			SP: Sand - 5'-10' - medium grained, black stain with slight odor @ 5'-7', medium brown, moist, wet @ 6', poorly graded	
18.2		Wet				5/5				
0.0						10			Point to 12' Flush mount	
						0/2				
						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW02
DATE: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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'

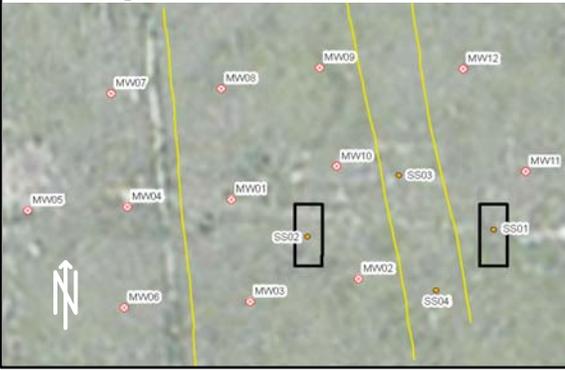
GROUT: NA

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP		SP: Sand - 0'-4' - fine-medium grained, trace-some clay, white-light brown, dry, no odor	
0.0						4/5				
0.0			Moist			5			SP: Sand - 4'-10' - fine grained, increase in grain size with depth, brown with orange oxydation staining, moist, wet @ 6', poorly graded, no odor	
				MW02 @ 5'		5/5				
0.0			Wet			10			No staining observed Point to 13' Flush mount	
0.0						0/3				
						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW03
DATE: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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:** 5'

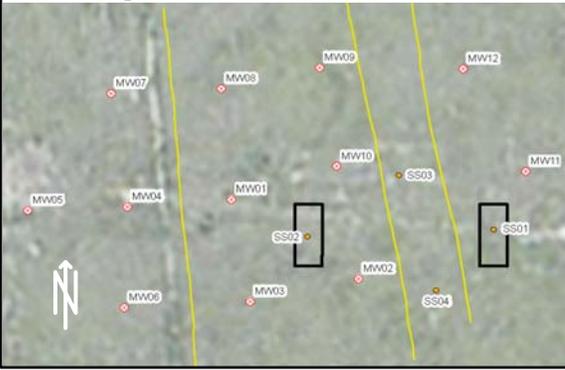
GROUT: NA

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SC	SC: Sand - 0'-4.5' - fine grained, some clay, medium brown, dry, no odor		
0.0						4/5				
0.0			Moist	MW03 @ 4'		5	SP	SP: Sand - 4.5'-10' - fine-medium grained, alternating gray-brown with orange oxydation staining, moist, wet @ 5', poorly graded, no odor		
0.0			Wet			5/5				
0.0						10				
						0/3		No staining observed Point to 13' Flush mount		
						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW04
DATE: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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'

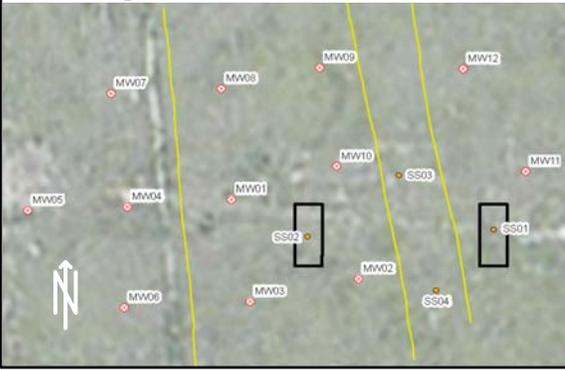
GROUT: NA

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP		SP: Sand - 0'-6' - fine grained, trace clay, light brown, dry, moist @ 4.5', poorly graded, no odor	
0.0						4/5				
0.0			Moist			5				
13.9		█		MW04 @ 5'		5/5			SP: Sand - 6'-10' - fine grained, medium brown, black stain with moderate odor @ 6'-8', wet, poorly graded	
499.3		█	Wet							
0.0						10			Point to 13' Flush mount	
						0/3				
						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW05
DATE: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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:** 5'

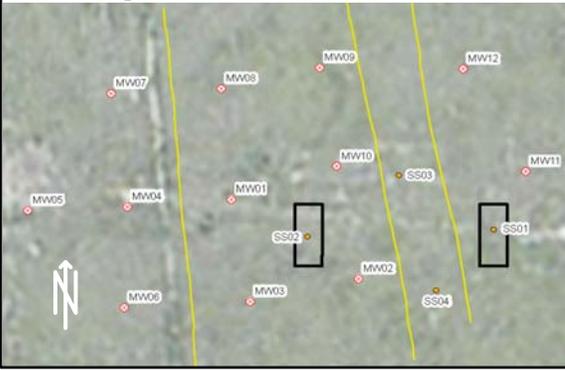
GROUT: NA

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP		SP: Sand - 0'-7' - fine grained, increase in grain size with depth, trace clay, medium brown, dry, wet @ 5', poorly graded, no odor	
0.0						4/5				
0.0				MW05 @ 4'		5				
			Wet			5/5			SP: Sand - 4'-10' - fine grained, trace-some clay, gray-brown, wet, poorly graded, no odor	
0.0						10				
						0/3			No staining observed Point to 13' Flush mount	
						15				

Location Map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW06
DATE: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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:** 5'

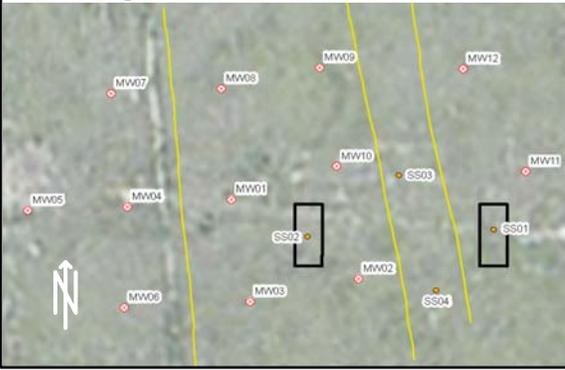
GROUT: NA

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SP		SP: Sand - 0'-5' - fine grained, trace clay, light brown, dry, moist @ 4.5', poorly graded, no odor	
0.0						4/5				
0.0			Moist	MW06 @ 4'		5			SP: Sand - 5'-10' - fine grained, gray-brown with orange oxydation staining, wet, poorly graded, no odor	
0.0			Wet			5/5				
0.0						10			No staining observed Point to 13' Flush mount	
						0/3				
						15				

Location Map



Compliance • Engineering • Remediation

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW07
DATE: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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'

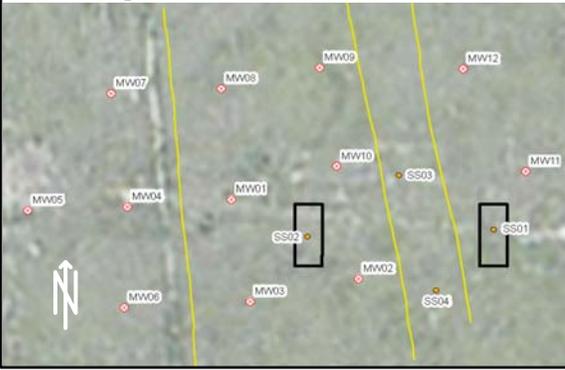
GROUT: NA

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SC		SC: Sand - 0'-2' - fine grained, some clay, medium brown, dry, no odor	
						4/5			SC: Sand - 2'-4.5' - fine grained, clayey, white-light brown, dry, low plasticity, low cohesion, no odor	
			Moist			5	SP		SP: Sand - 4.5'-10' - fine grained, trace clay @ 8'-8.5', gray-brown with orange oxydation staining, moist, wet @ 6', poorly graded, no odor	
			Wet	MW07 @ 5'		5/5				
						10			No staining observed Point to 13' Flush mount	
						0/3				
						15				

Location Map



Compliance • Engineering • Remediation

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

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW08
DATE: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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'

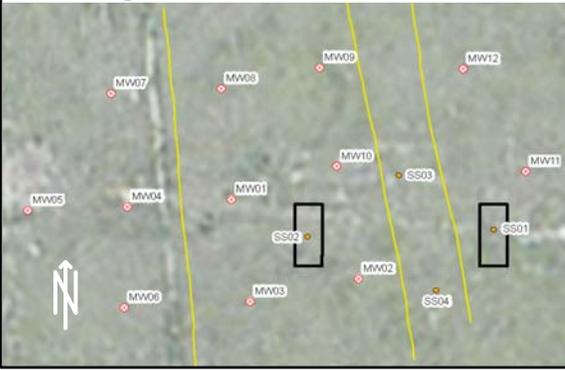
GROUT: NA

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SC		SC: Sand - 0'-3' - fine grained, some clay, medium brown, dry, no odor	
0.0						4/5			SC: Sand - 3'-6' - fine grained, clayey, white-light brown, dry, low plasticity, low cohesion, no odor	
						5				
			Wet	MW08 @ 5'		5/5	SP		SP: Sand - 6'-8' - fine-medium grained, gray-brown with orange oxydation staining, wet, poorly graded, no odor	
13.15									SP: Sand - 8'-10' - fine grained, trace-some clay, orange oxydation staining, poorly graded, no odor	
0.0						10			No staining observed Point to 13' Flush mount	
						0/3				
						15				

Location Map



Compliance • Engineering • Remediation

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

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW09
DATE: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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'

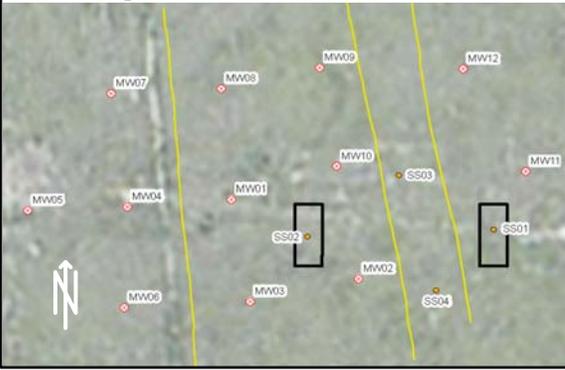
GROUT: NA

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SC	SC: Sand - 0'-5.5' - fine grained, clayey, white-light brown, dry, crumbly, no odor		
0.0						3/5				
0.0						5	SP	SP: Sand - 5.5'-10' - fine-medium grained, decrease in grain size with depth, trace clay, gray-brown with orange oxydation staining, wet, poorly graded, no odor		
0.0			Wet	MW09 @ 5'		5/5				
0.0						10		No staining observed Point to 13' Flush mount		
						0/3				
						15				

Location Map



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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: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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

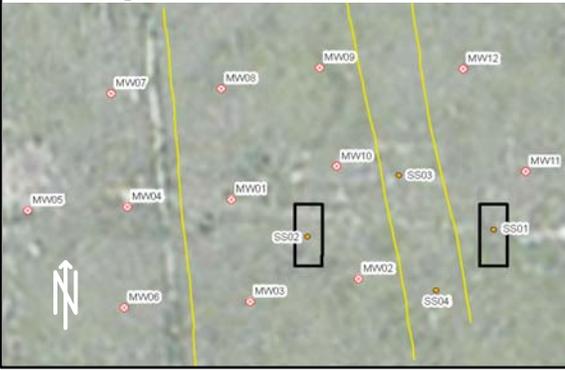
CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SC	Topsoil		
						3/5		SC: Sand - 1'-4' - fine grained, some clay, medium brown, dry, no odor		
						5		SC: Sand - 4'-6' - fine grained, clayey, light brown, dry, low plasticity, low cohesion, no odor		
			Wet			5/5	SP	SP: Sand - 6'-10' - fine-medium grained, medium brown, slight gray stain with slight odor @ 7'-8', wet, poorly graded, no odor		
	18.0	Red				10		Point to 13' Flush mount		
	0.0					0/3				
						15				

MW10 @ 5'

Location Map



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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: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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'

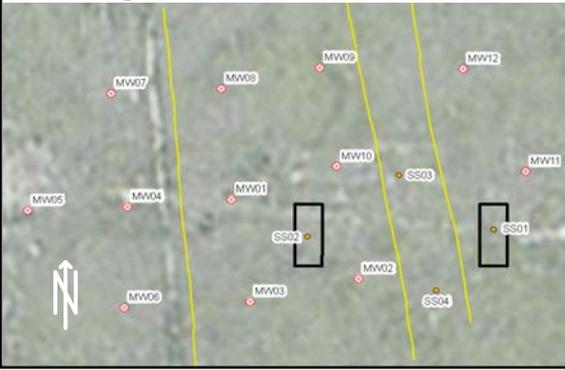
GROUT: NA

CASING LENGTH: 3'

SCREEN LENGTH: 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SC	SC: Sand - 0'-4' - fine grained, clayey, white-light brown, dry, crumbly, no odor		
0.0						4/5				
0.0			Moist			5	SP	SP: Sand - 4'-10' - fine grained, increase in grain size with depth, brown with orange oxydation staining, moist, wet @ 6', poorly graded, no odor		
				MW11 @ 5'		5/5				
0.0			Wet			10				
0.0						0/3			No staining observed Point to 13' Flush mount	
						15				

Location Map



Compliance • Engineering • Remediation

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

BORING/WELL NO.: MW12
DATE: 9/25/13
LOGGED BY: Dan Hosler
DRILL MTHD: Direct Push

PROJECT: Karch Blue 30-3j South
PROJECT NO.: 008313054
DRILLED BY: ACI
SAMPLE MTHD: Continuous

DETECTOR: MiniRae2000

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)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
			Dry			0	SC	SC: Sand - 0'-6' - fine grained, clayey, light brown with orange oxydation staining, crumbly, dry, no odor		
0.0						4/5				
0.0						5				
			Wet	MW12 @ 5'		5/5	SP	SP: Sand - 6'-10' - fine grained, trace-some clay, brown with orange oxydation staining, wet, poorly graded, no odor		
0.0						10				
0.0						0/3		No staining observed Point to 13' Flush mount		
						15				

ATTACHMENT 2
LABORATORY ANALYTICAL REPORTS

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 28, 2013

Rob Rebel

LT Environmental, Inc.

4600 West 60th Avenue

Arvada, CO 80003

RE: NEP - Karch Blue 30-3J,6J

Enclosed are the results of analyses for samples received by Summit Scientific on 08/23/13 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV

Laboratory Director

This report shall not be reproduced, except in its entirety, without the written approval of Summit Scientific. Test results relate only to samples analyzed.

Summit Scientific is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.



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

Project: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01@4'	R308243-01	Soil	08/23/13 00:00	08/23/13 17:30
MW02@5'	R308243-02	Soil	08/23/13 00:00	08/23/13 17:30
MW03@4'	R308243-03	Soil	08/23/13 00:00	08/23/13 17:30
MW04@4'	R308243-04	Soil	08/23/13 00:00	08/23/13 17:30
MW05@4'	R308243-05	Soil	08/23/13 00:00	08/23/13 17:30
MW06@5'	R308243-06	Soil	08/23/13 00:00	08/23/13 17:30

Summit Scientific

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

Project: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

Summit Scientific R308243

5:

741 Corporate Circle Suite 14 • Golden, Colorado 80401
303-277-9310 • 303-277-9531 Fax

Client: LT Environmental, Inc. Project Manager: Rob Rebel
Address: 4600 West 60th Avenue
City/State/Zip: Arvada, CO 80003 E-Mail: rebel@ltenv.com
Phone: (303) 433-9788 Fax: (303) 374-9933 Project Name: Karch Blue 30-3J,6J
Sampler Name: D. BERRY Project Number:

Page | of |

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative	Matrix	Analyze For:	Special Instructions
MW01 @ 4'	8/23/13		1	HCl None HNO ₃ Other (Specify)	Soil Groundwater Air - Canister Serial #	TEH-DRC BTEX-GRC Naphtalene Other (Specify)	
MW02 @ 5'							
MW03 @ 4'							
MW04 @ 4'							
MW05 @ 4'							
MW06 @ 5'							
Relinquished by: <i>[Signature]</i> Date/Time: 8/23/13 17:00 Received by: <i>[Signature]</i> Date/Time: 8/28/13 17:30 Turn Around Time (Check): <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours Sample Integrity: Temperature Upon Receipt: <input checked="" type="checkbox"/> Y/C <input type="checkbox"/> N Impact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> No							

www.s2scientific.com

[Signature]



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

Project: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

MW01@4'
R308243-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3082609	08/26/13	08/27/13	8015M	

Date Sampled: **08/23/13 00:00**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3082608	08/26/13	08/26/13	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: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	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: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

MW02@5'
R308243-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3082609	08/26/13	08/27/13	8015M	

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		91.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3082608	08/26/13	08/27/13	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: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		120 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		114 %	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: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

MW03@4'
R308243-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3082609	08/26/13	08/28/13	8015M	

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		86.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3082608	08/26/13	08/27/13	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: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.2 %	21-167		"	"	"	"	

Summit Scientific

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

Project: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

MW04@4'
R308243-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3082609	08/26/13	08/28/13	8015M	

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		94.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3082608	08/26/13	08/27/13	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: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.7 %	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: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

MW05@4'
R308243-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3082609	08/26/13	08/28/13	8015M	

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		88.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3082608	08/26/13	08/28/13	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: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		118 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.9 %	21-167		"	"	"	"	

Summit Scientific

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

Project: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

MW06@5'
R308243-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3082609	08/26/13	08/28/13	8015M	

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		81.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3082608	08/26/13	08/28/13	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: **08/23/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.3 %	21-167		"	"	"	"	

Summit Scientific

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

Project: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

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 3082609 - EPA 3550A

Blank (3082609-BLK1)			Prepared & Analyzed: 08/26/13							
C10-C28 (DRO)	ND	50	mg/kg							
Blank (3082609-BLK2)			Prepared & Analyzed: 08/26/13							
C10-C28 (DRO)	ND	50	mg/kg							
LCS (3082609-BS1)			Prepared & Analyzed: 08/26/13							
C10-C28 (DRO)	564	50	mg/kg	501		113	73-134			
LCS (3082609-BS2)			Prepared & Analyzed: 08/26/13							
C10-C28 (DRO)	547	50	mg/kg	501		109	73-134			
LCS Dup (3082609-BSD1)			Prepared & Analyzed: 08/26/13							
C10-C28 (DRO)	564	50	mg/kg	501		113	73-134	0.0193	11	
LCS Dup (3082609-BSD2)			Prepared & Analyzed: 08/26/13							
C10-C28 (DRO)	543	50	mg/kg	501		108	73-134	0.815	11	
Matrix Spike (3082609-MS1)			Source: R308243-01		Prepared & Analyzed: 08/26/13					
C10-C28 (DRO)	572	50	mg/kg	495	ND	116	50-148			
Matrix Spike (3082609-MS2)			Source: R308243-02		Prepared: 08/26/13 Analyzed: 08/27/13					
C10-C28 (DRO)	558	50	mg/kg	490	ND	114	50-148			
Matrix Spike Dup (3082609-MSD1)			Source: R308243-01		Prepared & Analyzed: 08/26/13					
C10-C28 (DRO)	583	50	mg/kg	499	ND	117	50-148	1.83	13	
Matrix Spike Dup (3082609-MSD2)			Source: R308243-02		Prepared: 08/26/13 Analyzed: 08/27/13					
C10-C28 (DRO)	567	50	mg/kg	498	ND	114	50-148	1.62	13	

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

Project: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

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 3082608 - EPA 5030 Soil MS

Blank (3082608-BLK1)

Prepared & Analyzed: 08/26/13

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>0.0437</i>		"	<i>0.0397</i>	<i>110</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0415</i>		"	<i>0.0400</i>	<i>104</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0450</i>		"	<i>0.0400</i>	<i>112</i>	<i>21-167</i>				

Blank (3082608-BLK2)

Prepared & Analyzed: 08/26/13

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>0.0450</i>		"	<i>0.0397</i>	<i>113</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0411</i>		"	<i>0.0400</i>	<i>103</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0459</i>		"	<i>0.0400</i>	<i>115</i>	<i>21-167</i>				

LCS (3082608-BS1)

Prepared & Analyzed: 08/26/13

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.0952	0.0020	"	0.100	95.2	58-130				
Toluene	0.113	0.0050	"	0.100	113	61-134				
Ethylbenzene	0.121	0.0050	"	0.100	121	74-139				
m,p-Xylene	0.224	0.010	"	0.200	112	73-137				
o-Xylene	0.115	0.0050	"	0.100	115	73-141				
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0446</i>		"	<i>0.0397</i>	<i>112</i>	<i>23-173</i>				
<i>Surrogate: Toluene-d8</i>	<i>0.0414</i>		"	<i>0.0400</i>	<i>103</i>	<i>20-170</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0438</i>		"	<i>0.0400</i>	<i>110</i>	<i>21-167</i>				

Summit Scientific

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

Project: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

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		

Batch 3082608 - EPA 5030 Soil MS

LCS (3082608-BS2)

Prepared & Analyzed: 08/26/13

Naphthalene	ND	0.010	mg/kg				66-138		
Benzene	0.0944	0.0020	"	0.100	94.4	58-130			
Toluene	0.112	0.0050	"	0.100	112	61-134			
Ethylbenzene	0.123	0.0050	"	0.100	123	74-139			
m,p-Xylene	0.227	0.010	"	0.200	114	73-137			
o-Xylene	0.116	0.0050	"	0.100	116	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0442		"	0.0397	111	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0400	104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0442		"	0.0400	110	21-167			

LCS Dup (3082608-BSD1)

Prepared & Analyzed: 08/26/13

Naphthalene	ND	0.010	mg/kg			66-138		12
Benzene	0.0965	0.0020	"	0.100	96.5	58-130	1.38	13
Toluene	0.114	0.0050	"	0.100	114	61-134	1.03	16
Ethylbenzene	0.122	0.0050	"	0.100	122	74-139	0.519	12
m,p-Xylene	0.225	0.010	"	0.200	112	73-137	0.562	14
o-Xylene	0.116	0.0050	"	0.100	116	73-141	0.260	12
Surrogate: 1,2-Dichloroethane-d4	0.0452		"	0.0397	114	23-173		
Surrogate: Toluene-d8	0.0415		"	0.0400	104	20-170		
Surrogate: 4-Bromofluorobenzene	0.0435		"	0.0400	109	21-167		

LCS Dup (3082608-BSD2)

Prepared & Analyzed: 08/26/13

Naphthalene	ND	0.010	mg/kg			66-138		12
Benzene	0.0922	0.0020	"	0.100	92.2	58-130	2.28	13
Toluene	0.110	0.0050	"	0.100	110	61-134	2.46	16
Ethylbenzene	0.123	0.0050	"	0.100	123	74-139	0.244	12
m,p-Xylene	0.227	0.010	"	0.200	113	73-137	0.212	14
o-Xylene	0.117	0.0050	"	0.100	117	73-141	1.19	12
Surrogate: 1,2-Dichloroethane-d4	0.0421		"	0.0397	106	23-173		
Surrogate: Toluene-d8	0.0407		"	0.0400	102	20-170		
Surrogate: 4-Bromofluorobenzene	0.0440		"	0.0400	110	21-167		

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

Project: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

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 3082608 - EPA 5030 Soil MS

Matrix Spike (3082608-MS1)		Source: R308243-01			Prepared & Analyzed: 08/26/13						
Naphthalene	ND	0.010	mg/kg		ND		10-158				
Benzene	0.0916	0.0020	"	0.0969	ND	94.6	30-131				
Toluene	0.109	0.0050	"	0.0969	ND	113	30-134				
Ethylbenzene	0.117	0.0050	"	0.0969	ND	121	22-153				
m,p-Xylene	0.218	0.010	"	0.194	ND	113	10-159				
o-Xylene	0.113	0.0050	"	0.0969	ND	117	31-151				
Surrogate: 1,2-Dichloroethane-d4	0.0443		"	0.0385		115	23-173				
Surrogate: Toluene-d8	0.0398		"	0.0388		103	20-170				
Surrogate: 4-Bromofluorobenzene	0.0434		"	0.0388		112	21-167				

Matrix Spike (3082608-MS2)		Source: R308243-02			Prepared & Analyzed: 08/26/13						
Naphthalene	ND	0.010	mg/kg		ND		10-158				
Benzene	0.0929	0.0020	"	0.0978	ND	95.0	30-131				
Toluene	0.112	0.0050	"	0.0978	ND	114	30-134				
Ethylbenzene	0.119	0.0050	"	0.0978	ND	122	22-153				
m,p-Xylene	0.222	0.010	"	0.196	ND	114	10-159				
o-Xylene	0.114	0.0050	"	0.0978	ND	117	31-151				
Surrogate: 1,2-Dichloroethane-d4	0.0451		"	0.0388		116	23-173				
Surrogate: Toluene-d8	0.0407		"	0.0391		104	20-170				
Surrogate: 4-Bromofluorobenzene	0.0436		"	0.0391		112	21-167				

Matrix Spike Dup (3082608-MSD1)		Source: R308243-01			Prepared & Analyzed: 08/26/13						
Naphthalene	ND	0.010	mg/kg		ND		10-158				42
Benzene	0.0936	0.0020	"	0.0967	ND	96.8	30-131	2.13			34
Toluene	0.110	0.0050	"	0.0967	ND	114	30-134	0.415			30
Ethylbenzene	0.118	0.0050	"	0.0967	ND	122	22-153	0.793			24
m,p-Xylene	0.220	0.010	"	0.193	ND	114	10-159	0.774			68
o-Xylene	0.114	0.0050	"	0.0967	ND	118	31-151	0.575			38
Surrogate: 1,2-Dichloroethane-d4	0.0449		"	0.0384		117	23-173				
Surrogate: Toluene-d8	0.0400		"	0.0387		103	20-170				
Surrogate: 4-Bromofluorobenzene	0.0427		"	0.0387		110	21-167				

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

Project: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

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 3082608 - EPA 5030 Soil MS

Matrix Spike Dup (3082608-MSD2)	Source: R308243-02			Prepared & Analyzed: 08/26/13						
Naphthalene	ND	0.010	mg/kg		ND		10-158			42
Benzene	0.0911	0.0020	"	0.0986	ND	92.4	30-131	1.97		34
Toluene	0.109	0.0050	"	0.0986	ND	110	30-134	2.69		30
Ethylbenzene	0.119	0.0050	"	0.0986	ND	121	22-153	0.301		24
m,p-Xylene	0.223	0.010	"	0.197	ND	113	10-159	0.402		68
o-Xylene	0.113	0.0050	"	0.0986	ND	115	31-151	1.18		38
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0436</i>		<i>"</i>	<i>0.0392</i>		<i>111</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0406</i>		<i>"</i>	<i>0.0394</i>		<i>103</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0431</i>		<i>"</i>	<i>0.0394</i>		<i>109</i>	<i>21-167</i>			

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

Project: NEP - Karch Blue 30-3J,6J

Project Number: 0083
Project Manager: Rob Rebel

Reported:
08/28/13 15:18

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

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 02, 2013

Rob Rebel

LT Environmental, Inc.

4600 West 60th Avenue

Arvada, CO 80003

RE: NEP - Karch Blue 30-3S (B)

Enclosed are the results of analyses for samples received by Summit Scientific on 09/25/13 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV

Laboratory Director

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

Project: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01@5'	R309209-01	Soil	09/25/13 09:00	09/25/13 17:00
MW02@5'	R309209-02	Soil	09/25/13 09:20	09/25/13 17:00
MW03@4'	R309209-03	Soil	09/25/13 09:40	09/25/13 17:00
MW04@5'	R309209-04	Soil	09/25/13 10:00	09/25/13 17:00
MW05@4'	R309209-05	Soil	09/25/13 10:20	09/25/13 17:00
MW06@4'	R309209-06	Soil	09/25/13 10:35	09/25/13 17:00
MW07@5'	R309209-07	Soil	09/25/13 11:00	09/25/13 17:00
MW08@5'	R309209-08	Soil	09/25/13 11:20	09/25/13 17:00
MW09@5'	R309209-09	Soil	09/25/13 11:40	09/25/13 17:00
MW10@5'	R309209-10	Soil	09/25/13 12:10	09/25/13 17:00
MW11@5'	R309209-11	Soil	09/25/13 12:40	09/25/13 17:00
MW12@5'	R309209-12	Soil	09/25/13 13:00	09/25/13 17:00

Summit Scientific

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

Project: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

R309209-1

Summit Scientific

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

Client: LTE Project Manager: Rob Rebel Page 1 of 2
Address: _____
City/State/Zip: _____ E-Mail: rebel@sumsci.com
Phone: 303-413-9788 Fax: _____ Project Name: Ceth Blue 30-3S (B)
Sampler Name: 1/15/13 Project Number: 008313054

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative			Matrix			Analyze For			Special Instructions	
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	BTX		CEC
MWD 51	9/15/13	0900	1					X						
MWD 52		0940	1											
MWD 53		0940	1											
MWD 54		1000	1											
MWD 55		1000	1											
MWD 56		1000	1											
MWD 57		1000	1											
MWD 58		1040	1											
MWD 59		1100	1											
Requisitioned by: <u>[Signature]</u>	Date Time: <u>9/15/13 1630</u>	Received by: <u>[Signature]</u>		Date Time: <u>9/25/13 1700</u>	Turn Around Time (Check)			Same Day <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 72 Hours <input checked="" type="checkbox"/> Standard <input checked="" type="checkbox"/>			Notes:			
Requisitioned by:	Date Time:	Received by:		Date Time:	Sample Integrity:			Temperature Upon Receipt: <u>SC</u>			Insect: <input checked="" type="checkbox"/> No <input type="checkbox"/>			

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[Signature]



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

Project: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW01@5'
R309209-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	3800	50	mg/kg	1	3092624	09/26/13	09/28/13	8015M	

Date Sampled: **09/25/13 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		59.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/13 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	5.5	0.10	mg/kg	10	3092623	09/26/13	09/29/13	EPA 8260B	
Benzene	0.0035	0.0020	"	1	"	"	"	"	
Toluene	ND	0.050	"	10	"	"	"	"	
Ethylbenzene	5.0	0.050	"	"	"	"	"	"	
Xylenes (total)	9.3	0.10	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	3900	100	"	200	"	"	"	"	

Date Sampled: **09/25/13 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		115 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.5 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		129 %	21-167		"	"	"	"	

Summit Scientific

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

Project: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW02@5'
R309209-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092624	09/26/13	09/28/13	8015M	

Date Sampled: **09/25/13 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/13 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092623	09/26/13	09/29/13	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: **09/25/13 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.8 %	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: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW03@4'
R309209-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092624	09/26/13	09/28/13	8015M	

Date Sampled: **09/25/13 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.1 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/13 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092623	09/26/13	09/29/13	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: **09/25/13 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.8 %	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: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW04@5'
R309209-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	4700	50	mg/kg	1	3092624	09/26/13	09/28/13	8015M	

Date Sampled: **09/25/13 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		29.6 %	30-150		"	"	"	"	S-02

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/13 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.28	0.10	mg/kg	10	3092623	09/26/13	09/29/13	EPA 8260B	
Benzene	ND	0.0020	"	1	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.11	0.050	"	10	"	"	"	"	
Xylenes (total)	0.10	0.010	"	1	"	"	"	"	
Gasoline Range Hydrocarbons	98	50	"	100	"	"	"	"	

Date Sampled: **09/25/13 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		93.6 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		100 %	21-167		"	"	"	"	

Summit Scientific

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

Project: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW05@4'
R309209-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092624	09/26/13	09/28/13	8015M	

Date Sampled: **09/25/13 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/13 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092623	09/26/13	09/29/13	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: **09/25/13 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	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: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW06@4'
R309209-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092624	09/26/13	09/28/13	8015M	

Date Sampled: **09/25/13 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		97.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/13 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092623	09/26/13	09/29/13	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: **09/25/13 10:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.3 %	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: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW07@5'
R309209-07 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092624	09/26/13	09/28/13	8015M	

Date Sampled: **09/25/13 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		88.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/13 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092623	09/26/13	09/29/13	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: **09/25/13 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		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: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW08@5'
R309209-08 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092624	09/26/13	09/28/13	8015M	

Date Sampled: **09/25/13 11:20**

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: **09/25/13 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092623	09/26/13	09/29/13	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: **09/25/13 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.6 %	21-167		"	"	"	"	

Summit Scientific

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

Project: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW09@5'
R309209-09 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092624	09/26/13	09/28/13	8015M	

Date Sampled: **09/25/13 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/13 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092623	09/26/13	09/29/13	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: **09/25/13 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.8 %	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: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW10@5'
R309209-10 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092624	09/26/13	09/28/13	8015M	

Date Sampled: **09/25/13 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		96.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/13 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092623	09/26/13	09/29/13	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.2	0.50	"	"	"	"	"	"	

Date Sampled: **09/25/13 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.9 %	21-167		"	"	"	"	

Summit Scientific

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

Project: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW11@5'
R309209-11 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092624	09/26/13	09/29/13	8015M	

Date Sampled: **09/25/13 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		89.6 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/13 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092623	09/26/13	09/29/13	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: **09/25/13 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.3 %	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: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

MW12@5'
R309209-12 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/25/13 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092624	09/26/13	09/29/13	8015M	

Date Sampled: **09/25/13 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		86.1 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/25/13 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092623	09/26/13	09/29/13	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: **09/25/13 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.7 %	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: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

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 3092624 - EPA 3550A

Blank (3092624-BLK1)				Prepared: 09/26/13 Analyzed: 09/28/13						
C10-C28 (DRO)	ND	50	mg/kg							
Blank (3092624-BLK2)				Prepared: 09/26/13 Analyzed: 09/28/13						
C10-C28 (DRO)	ND	50	mg/kg							
LCS (3092624-BS1)				Prepared: 09/26/13 Analyzed: 09/28/13						
C10-C28 (DRO)	522	50	mg/kg	501		104	73-134			
LCS (3092624-BS2)				Prepared: 09/26/13 Analyzed: 09/28/13						
C10-C28 (DRO)	497	50	mg/kg	501		99.1	73-134			
LCS Dup (3092624-BSD1)				Prepared: 09/26/13 Analyzed: 09/28/13						
C10-C28 (DRO)	540	50	mg/kg	501		108	73-134	3.45	11	
LCS Dup (3092624-BSD2)				Prepared: 09/26/13 Analyzed: 09/28/13						
C10-C28 (DRO)	490	50	mg/kg	501		97.8	73-134	1.36	11	
Matrix Spike (3092624-MS1)				Source: R309199-01 Prepared: 09/26/13 Analyzed: 09/28/13						
C10-C28 (DRO)	488	50	mg/kg	501	ND	97.4	50-148			
Matrix Spike (3092624-MS2)				Source: R309199-02 Prepared: 09/26/13 Analyzed: 09/28/13						
C10-C28 (DRO)	463	50	mg/kg	501	ND	92.4	50-148			
Matrix Spike Dup (3092624-MSD1)				Source: R309199-01 Prepared: 09/26/13 Analyzed: 09/28/13						
C10-C28 (DRO)	479	50	mg/kg	501	ND	95.5	50-148	1.97	13	
Matrix Spike Dup (3092624-MSD2)				Source: R309199-02 Prepared: 09/26/13 Analyzed: 09/28/13						
C10-C28 (DRO)	497	50	mg/kg	501	ND	99.3	50-148	7.22	13	

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: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

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		

Batch 3092623 - EPA 5030 Soil MS

Blank (3092623-BLK1)

Prepared: 09/26/13 Analyzed: 09/28/13

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	0.0438		"	0.0397	110	23-173				
Surrogate: Toluene-d8	0.0397		"	0.0400	99.2	20-170				
Surrogate: 4-Bromofluorobenzene	0.0383		"	0.0400	95.8	21-167				

LCS (3092623-BS1)

Prepared: 09/26/13 Analyzed: 09/28/13

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.0867	0.0020	"	0.100	86.7	58-130				
Toluene	0.0988	0.0050	"	0.100	98.8	61-134				
Ethylbenzene	0.103	0.0050	"	0.100	103	74-139				
m,p-Xylene	0.203	0.010	"	0.200	102	73-137				
o-Xylene	0.106	0.0050	"	0.100	106	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0436		"	0.0397	110	23-173				
Surrogate: Toluene-d8	0.0400		"	0.0400	100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400	98.0	21-167				

LCS (3092623-BS2)

Prepared: 09/26/13 Analyzed: 09/28/13

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.0835	0.0020	"	0.100	83.5	58-130				
Toluene	0.0955	0.0050	"	0.100	95.5	61-134				
Ethylbenzene	0.101	0.0050	"	0.100	101	74-139				
m,p-Xylene	0.196	0.010	"	0.200	97.9	73-137				
o-Xylene	0.103	0.0050	"	0.100	103	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0434		"	0.0397	109	23-173				
Surrogate: Toluene-d8	0.0400		"	0.0400	100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400	97.2	21-167				

Summit Scientific

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

Project: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

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 3092623 - EPA 5030 Soil MS

LCS Dup (3092623-BSD1)

Prepared: 09/26/13 Analyzed: 09/28/13

Naphthalene	ND	0.010	mg/kg				66-138		12	
Benzene	0.0876	0.0020	"	0.100		87.6	58-130	0.998	13	
Toluene	0.0964	0.0050	"	0.100		96.4	61-134	2.46	16	
Ethylbenzene	0.101	0.0050	"	0.100		101	74-139	2.29	12	
m,p-Xylene	0.200	0.010	"	0.200		100	73-137	1.43	14	
o-Xylene	0.105	0.0050	"	0.100		105	73-141	1.08	12	
Surrogate: 1,2-Dichloroethane-d4	0.0457		"	0.0397		115	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0399		"	0.0400		99.8	21-167			

LCS Dup (3092623-BSD2)

Prepared: 09/26/13 Analyzed: 09/28/13

Naphthalene	ND	0.010	mg/kg				66-138		12	
Benzene	0.0863	0.0020	"	0.100		86.3	58-130	3.29	13	
Toluene	0.0991	0.0050	"	0.100		99.1	61-134	3.70	16	
Ethylbenzene	0.102	0.0050	"	0.100		102	74-139	0.800	12	
m,p-Xylene	0.198	0.010	"	0.200		99.0	73-137	1.11	14	
o-Xylene	0.105	0.0050	"	0.100		105	73-141	1.93	12	
Surrogate: 1,2-Dichloroethane-d4	0.0435		"	0.0397		110	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.5	21-167			

Matrix Spike (3092623-MS1)

Source: R309199-01

Prepared: 09/26/13 Analyzed: 09/28/13

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0273	0.0020	"	0.100	ND	27.3	30-131			QM-07
Toluene	0.0374	0.0050	"	0.100	ND	37.4	30-134			
Ethylbenzene	0.0751	0.0050	"	0.100	ND	75.1	22-153			
m,p-Xylene	0.0994	0.010	"	0.200	ND	49.7	10-159			
o-Xylene	0.0916	0.0050	"	0.100	ND	91.6	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0436		"	0.0397		110	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0411		"	0.0400		103	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: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

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 3092623 - EPA 5030 Soil MS

Matrix Spike (3092623-MS2)		Source: R309199-02			Prepared: 09/26/13		Analyzed: 09/28/13	
Naphthalene	ND	0.010	mg/kg		ND		10-158	
Benzene	0.0838	0.0020	"	0.100	ND	83.8	30-131	
Toluene	0.0943	0.0050	"	0.100	ND	94.3	30-134	
Ethylbenzene	0.101	0.0050	"	0.100	ND	101	22-153	
m,p-Xylene	0.200	0.010	"	0.200	ND	99.9	10-159	
o-Xylene	0.103	0.0050	"	0.100	ND	103	31-151	
Surrogate: 1,2-Dichloroethane-d4	0.0428		"	0.0397		108	23-173	
Surrogate: Toluene-d8	0.0392		"	0.0400		98.1	20-170	
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		101	21-167	

Matrix Spike Dup (3092623-MSD1)		Source: R309199-01			Prepared: 09/26/13		Analyzed: 09/28/13	
Naphthalene	ND	0.010	mg/kg		ND		10-158	42
Benzene	0.0358	0.0020	"	0.100	ND	35.8	30-131	27.2 34
Toluene	0.0465	0.0050	"	0.100	ND	46.5	30-134	21.8 30
Ethylbenzene	0.0802	0.0050	"	0.100	ND	80.2	22-153	6.57 24
m,p-Xylene	0.105	0.010	"	0.200	ND	52.3	10-159	5.03 68
o-Xylene	0.0950	0.0050	"	0.100	ND	95.0	31-151	3.73 38
Surrogate: 1,2-Dichloroethane-d4	0.0442		"	0.0397		111	23-173	
Surrogate: Toluene-d8	0.0397		"	0.0400		99.2	20-170	
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.2	21-167	

Matrix Spike Dup (3092623-MSD2)		Source: R309199-02			Prepared: 09/26/13		Analyzed: 09/28/13	
Naphthalene	ND	0.010	mg/kg		ND		10-158	42
Benzene	0.0824	0.0020	"	0.100	ND	82.4	30-131	1.73 34
Toluene	0.0950	0.0050	"	0.100	ND	95.0	30-134	0.760 30
Ethylbenzene	0.100	0.0050	"	0.100	ND	100	22-153	1.07 24
m,p-Xylene	0.196	0.010	"	0.200	ND	97.8	10-159	2.14 68
o-Xylene	0.103	0.0050	"	0.100	ND	103	31-151	0.612 38
Surrogate: 1,2-Dichloroethane-d4	0.0429		"	0.0397		108	23-173	
Surrogate: Toluene-d8	0.0399		"	0.0400		99.7	20-170	
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		97.0	21-167	

Summit Scientific

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

Project: NEP - Karch Blue 30-3S (B)

Project Number: 0083-13054
Project Manager: Rob Rebel

Reported:
10/02/13 11:03

Notes and Definitions

- S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 02, 2013

Rob Rebel

LT Environmental, Inc.

4600 West 60th Avenue

Arvada, CO 80003

RE: NEP - Karch Blue 30-3J (A)

Enclosed are the results of analyses for samples received by Summit Scientific on 09/26/13 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Ben Shrewsbury For Joseph J Egry IV
Laboratory Director



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

Project: NEP - Karch Blue 30-3J (A)

Project Number: 0083-13056
Project Manager: Rob Rebel

Reported:
10/02/13 19:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW07@5'	R309234-01	Soil	09/26/13 11:30	09/26/13 17:00
MW08@5'	R309234-02	Soil	09/26/13 11:50	09/26/13 17:00
MW09@4'	R309234-03	Soil	09/26/13 12:10	09/26/13 17:00
MW10@5'	R309234-04	Soil	09/26/13 12:20	09/26/13 17:00
MW11@5'	R309234-05	Soil	09/26/13 12:50	09/26/13 17:00

Summit Scientific

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



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

Project: NEP - Karch Blue 30-3J (A)

Project Number: 0083-13056
Project Manager: Rob Rebel

Reported:
10/02/13 19:26

MW07@5'
R309234-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/26/13 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092802	09/28/13	09/29/13	8015M	

Date Sampled: **09/26/13 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		92.6 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/26/13 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092801	09/28/13	09/30/13	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: **09/26/13 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		122 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.6 %	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: NEP - Karch Blue 30-3J (A)

Project Number: 0083-13056
Project Manager: Rob Rebel

Reported:
10/02/13 19:26

MW08@5'
R309234-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/26/13 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092802	09/28/13	09/29/13	8015M	

Date Sampled: **09/26/13 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		94.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/26/13 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092801	09/28/13	09/30/13	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: **09/26/13 11:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		119 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.7 %	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: NEP - Karch Blue 30-3J (A)

Project Number: 0083-13056
Project Manager: Rob Rebel

Reported:
10/02/13 19:26

MW09@4'
R309234-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/26/13 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092802	09/28/13	09/29/13	8015M	

Date Sampled: **09/26/13 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		93.4 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/26/13 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092801	09/28/13	09/30/13	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: **09/26/13 12:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		123 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.3 %	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: NEP - Karch Blue 30-3J (A)

Project Number: 0083-13056
Project Manager: Rob Rebel

Reported:
10/02/13 19:26

MW10@5'
R309234-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/26/13 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	3092802	09/28/13	09/29/13	8015M	

Date Sampled: **09/26/13 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		93.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/26/13 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092801	09/28/13	09/30/13	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: **09/26/13 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %	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: NEP - Karch Blue 30-3J (A)

Project Number: 0083-13056
Project Manager: Rob Rebel

Reported:
10/02/13 19:26

MW11@5'
R309234-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/26/13 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	140	50	mg/kg	1	3092802	09/28/13	09/29/13	8015M	

Date Sampled: **09/26/13 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		96.4 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/26/13 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	3092801	09/28/13	09/30/13	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	5.6	0.50	"	"	"	"	"	"	

Date Sampled: **09/26/13 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		116 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.6 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		105 %	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: NEP - Karch Blue 30-3J (A)

Project Number: 0083-13056
Project Manager: Rob Rebel

Reported:
10/02/13 19:26

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 3092802 - EPA 3550A

Blank (3092802-BLK1)											Prepared & Analyzed: 09/28/13	
C10-C28 (DRO)	ND	50	mg/kg									
Blank (3092802-BLK2)											Prepared & Analyzed: 09/28/13	
C10-C28 (DRO)	ND	50	mg/kg									
LCS (3092802-BS1)											Prepared & Analyzed: 09/28/13	
C10-C28 (DRO)	449	50	mg/kg	501		89.7	73-134					
LCS (3092802-BS2)											Prepared & Analyzed: 09/28/13	
C10-C28 (DRO)	459	50	mg/kg	501		91.5	73-134					
LCS Dup (3092802-BSD1)											Prepared & Analyzed: 09/28/13	
C10-C28 (DRO)	456	50	mg/kg	501		91.1	73-134	1.58		11		
LCS Dup (3092802-BSD2)											Prepared & Analyzed: 09/28/13	
C10-C28 (DRO)	465	50	mg/kg	501		92.9	73-134	1.49		11		
Matrix Spike (3092802-MS1)											Source: R309230-01 Prepared & Analyzed: 09/28/13	
C10-C28 (DRO)	477	50	mg/kg	501	ND	95.2	50-148					
Matrix Spike (3092802-MS2)											Source: R309230-02 Prepared: 09/28/13 Analyzed: 09/29/13	
C10-C28 (DRO)	474	50	mg/kg	501	ND	94.5	50-148					
Matrix Spike Dup (3092802-MSD1)											Source: R309230-01 Prepared: 09/28/13 Analyzed: 09/29/13	
C10-C28 (DRO)	493	50	mg/kg	501	ND	98.5	50-148	3.32		13		
Matrix Spike Dup (3092802-MSD2)											Source: R309230-02 Prepared: 09/28/13 Analyzed: 09/29/13	
C10-C28 (DRO)	485	50	mg/kg	501	ND	96.8	50-148	2.38		13		

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: NEP - Karch Blue 30-3J (A)

Project Number: 0083-13056
Project Manager: Rob Rebel

Reported:
10/02/13 19:26

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 3092801 - EPA 5030 Soil MS

Blank (3092801-BLK1)

Prepared: 09/28/13 Analyzed: 09/29/13

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	0.0458		"	0.0397		115	23-173			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		98.9	21-167			

LCS (3092801-BS1)

Prepared: 09/28/13 Analyzed: 09/29/13

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0839	0.0020	"	0.100		83.9	58-130			
Toluene	0.0980	0.0050	"	0.100		98.0	61-134			
Ethylbenzene	0.104	0.0050	"	0.100		104	74-139			
m,p-Xylene	0.204	0.010	"	0.200		102	73-137			
o-Xylene	0.107	0.0050	"	0.100		107	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0432		"	0.0397		109	23-173			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.6	21-167			

LCS (3092801-BS2)

Prepared: 09/28/13 Analyzed: 09/29/13

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0911	0.0020	"	0.100		91.1	58-130			
Toluene	0.0990	0.0050	"	0.100		99.0	61-134			
Ethylbenzene	0.105	0.0050	"	0.100		105	74-139			
m,p-Xylene	0.205	0.010	"	0.200		102	73-137			
o-Xylene	0.108	0.0050	"	0.100		108	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0455		"	0.0397		115	23-173			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.8	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: NEP - Karch Blue 30-3J (A)

Project Number: 0083-13056
Project Manager: Rob Rebel

Reported:
10/02/13 19:26

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 3092801 - EPA 5030 Soil MS

LCS Dup (3092801-BSD1)

Prepared: 09/28/13 Analyzed: 09/29/13

Naphthalene	ND	0.010	mg/kg				66-138		12	
Benzene	0.0839	0.0020	"	0.100		83.9	58-130	0.0358	13	
Toluene	0.0981	0.0050	"	0.100		98.1	61-134	0.122	16	
Ethylbenzene	0.104	0.0050	"	0.100		104	74-139	0.0576	12	
m,p-Xylene	0.205	0.010	"	0.200		103	73-137	0.499	14	
o-Xylene	0.107	0.0050	"	0.100		107	73-141	0.0841	12	
Surrogate: 1,2-Dichloroethane-d4	0.0427		"	0.0397		107	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0410		"	0.0400		103	21-167			

LCS Dup (3092801-BSD2)

Prepared: 09/28/13 Analyzed: 09/29/13

Naphthalene	ND	0.010	mg/kg				66-138		12	
Benzene	0.0899	0.0020	"	0.100		89.9	58-130	1.29	13	
Toluene	0.100	0.0050	"	0.100		100	61-134	1.12	16	
Ethylbenzene	0.106	0.0050	"	0.100		106	74-139	1.48	12	
m,p-Xylene	0.209	0.010	"	0.200		105	73-137	2.14	14	
o-Xylene	0.109	0.0050	"	0.100		109	73-141	1.66	12	
Surrogate: 1,2-Dichloroethane-d4	0.0441		"	0.0397		111	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400		101	21-167			

Matrix Spike (3092801-MS1)

Source: R309230-01

Prepared: 09/28/13 Analyzed: 09/29/13

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0579	0.0020	"	0.100	ND	57.9	30-131			
Toluene	0.0492	0.0050	"	0.100	ND	49.2	30-134			
Ethylbenzene	0.0410	0.0050	"	0.100	ND	41.0	22-153			
m,p-Xylene	0.0601	0.010	"	0.200	ND	30.1	10-159			
o-Xylene	0.0453	0.0050	"	0.100	ND	45.3	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0473		"	0.0397		119	23-173			
Surrogate: Toluene-d8	0.0396		"	0.0400		99.1	20-170			
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0400		95.1	21-167			

Summit Scientific

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

Project: NEP - Karch Blue 30-3J (A)

Project Number: 0083-13056
Project Manager: Rob Rebel

Reported:
10/02/13 19:26

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 3092801 - EPA 5030 Soil MS

Matrix Spike (3092801-MS2)

Source: R309230-02 Prepared: 09/28/13 Analyzed: 09/29/13

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0483	0.0020	"	0.100	ND	48.3	30-131			
Toluene	0.0413	0.0050	"	0.100	ND	41.3	30-134			
Ethylbenzene	0.0296	0.0050	"	0.100	ND	29.6	22-153			
m,p-Xylene	0.0526	0.010	"	0.200	ND	26.3	10-159			
o-Xylene	0.0360	0.0050	"	0.100	ND	36.0	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0454		"	0.0397		114	23-173			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.2	21-167			

Matrix Spike Dup (3092801-MSD1)

Source: R309230-01 Prepared: 09/28/13 Analyzed: 09/29/13

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0546	0.0020	"	0.100	ND	54.6	30-131	5.87	34	
Toluene	0.0416	0.0050	"	0.100	ND	41.6	30-134	16.9	30	
Ethylbenzene	0.0306	0.0050	"	0.100	ND	30.6	22-153	29.0	24	QM-07
m,p-Xylene	0.0432	0.010	"	0.200	ND	21.6	10-159	32.7	68	
o-Xylene	0.0367	0.0050	"	0.100	ND	36.7	31-151	21.0	38	
Surrogate: 1,2-Dichloroethane-d4	0.0462		"	0.0397		116	23-173			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.7	21-167			

Matrix Spike Dup (3092801-MSD2)

Source: R309230-02 Prepared: 09/28/13 Analyzed: 09/29/13

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0494	0.0020	"	0.100	ND	49.4	30-131	2.15	34	
Toluene	0.0436	0.0050	"	0.100	ND	43.6	30-134	5.23	30	
Ethylbenzene	0.0348	0.0050	"	0.100	ND	34.8	22-153	16.1	24	
m,p-Xylene	0.0573	0.010	"	0.200	ND	28.6	10-159	8.63	68	
o-Xylene	0.0412	0.0050	"	0.100	ND	41.2	31-151	13.4	38	
Surrogate: 1,2-Dichloroethane-d4	0.0458		"	0.0397		115	23-173			
Surrogate: Toluene-d8	0.0405		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.2	21-167			

Summit Scientific

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

Project: NEP - Karch Blue 30-3J (A)

Project Number: 0083-13056
Project Manager: Rob Rebel

Reported:
10/02/13 19:26

Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference



October 18, 2013

LT Environmental, Inc.

Chris Roy

4600 West 60th Avenue

Arvada

CO 80003

Project Name - Noble - Karch Blue 30-3J 14 North

Project Number - 008313054

Attached are you analytical results for Noble - Karch Blue 30-3J 14 North received by Origins Laboratory, Inc. October 15, 2013. This project is associated with Origins project number X310078-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods specified in SW-846. The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody.

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

Chris Roy
Project Number: 008313054
Project: Noble - Karch Blue 30-3J 14 North

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	X310078-01	Water	October 15, 2013 14:00	10/15/2013 16:00
MW02	X310078-02	Water	October 15, 2013 14:05	10/15/2013 16:00
MW03	X310078-03	Water	October 15, 2013 14:10	10/15/2013 16:00
MW04	X310078-04	Water	October 15, 2013 14:15	10/15/2013 16:00
MW05	X310078-05	Water	October 15, 2013 14:20	10/15/2013 16:00
MW06	X310078-06	Water	October 15, 2013 14:30	10/15/2013 16:00
MW07	X310078-07	Water	October 15, 2013 14:40	10/15/2013 16:00
MW08	X310078-08	Water	October 15, 2013 14:45	10/15/2013 16:00
MW09	X310078-09	Water	October 15, 2013 14:50	10/15/2013 16:00
MW10	X310078-10	Water	October 15, 2013 14:55	10/15/2013 16:00
MW11	X310078-11	Water	October 15, 2013 15:00	10/15/2013 16:00

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.

Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

www.originslaboratory.com

page 1 of 2

ORIGINS
 LABORATORY, INC

X310078

Client: LTE
 Address: _____
 Telephone Number: 303-433-9788
 Email Address: Croy@ltenv.com

Project Manager: Chris Roy
 Project Name: Karch Blue 30-3J, 14 North
 Project Number: 008313054 North
 Samples Collected By: CM/MLZ

1725 EIK Place | Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Analysis	Sample Instructions	Turnaround Time:	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa Canister #	Other				Time:
MWD1	10/15/13	1400	3	✓	✓	✓		✓							24 Hr <input type="checkbox"/>
MWD2		1405		✓				✓							48 Hr <input type="checkbox"/>
MWD3		1410		✓				✓							Standard <input checked="" type="checkbox"/>
MWD4		1415		✓				✓							
MWD5		1420		✓				✓							
MWD6		1430		✓				✓							
MWD7		1440		✓				✓							
MWD8		1445		✓				✓							
MWD9		1450		✓				✓							
MWD10		1455		✓				✓							
Relinquished By: <u>AMG</u>	Date: <u>10/15/13</u>	Time: <u>1600</u>	Time: _____	Received By: _____	Date: <u>10/15/13</u>	Time: <u>16:00</u>	Time: _____	Received By: <u>[Signature]</u>	Date: <u>10/15/13</u>	Time: <u>16:00</u>	Time: _____	Time: _____	Standard <input checked="" type="checkbox"/>	Turnaround Time:	24 Hr <input type="checkbox"/>
Relinquished By: _____	Date: _____	Time: _____	Time: _____	Received By: _____	Date: _____	Time: _____	Time: _____	Received By: _____	Date: _____	Time: _____	Time: _____	Time: _____	Standard <input type="checkbox"/>	48 Hr <input type="checkbox"/>	

Origins Laboratory, Inc.

 Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X310078

Client: LTE

Client Project ID: Karch Blue 30-3J North

Checklist Completed by: Jace Smith

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

Date/time completed: 01/15/13 16:20

Airbill #: NA

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 (Describe)

Cooler Number/Temperature: 16.8 °C / _____ °C / _____ °C / _____ °C

Thermometer ID: T802

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		<u>Sampled Same Day</u>
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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>			<u>NCC</u>
Additional Comments (if any):				

⁽¹⁾ 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)

10/18/13 10:34
 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.

Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

MW01

10/15/2013 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X310078-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"	
Surrogate: Toluene-d8	97.9 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	109 %	84-114			"	"	"	

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 E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

MW02

10/15/2013 2:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X310078-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"	
Surrogate: Toluene-d8	96.9 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	111 %	84-114			"	"	"	

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 E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

MW03

10/15/2013 2:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X310078-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	100 %	84-121			"	"	"	
Surrogate: Toluene-d8	97.8 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	109 %	84-114			"	"	"	

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 E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

MW04

10/15/2013 2:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X310078-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	100 %	84-121			"	"	"	
Surrogate: Toluene-d8	96.0 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	109 %	84-114			"	"	"	

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 E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

MW05

10/15/2013 2:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X310078-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	99.2 %	84-121			"	"	"	
Surrogate: Toluene-d8	97.5 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

MW06

10/15/2013 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X310078-06 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	
Surrogate: Toluene-d8	96.3 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

MW07

10/15/2013 2:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X310078-07 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"	
Surrogate: Toluene-d8	96.9 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	111 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

MW08

10/15/2013 2:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X310078-08 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"	
Surrogate: Toluene-d8	98.6 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	106 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

MW09

10/15/2013 2:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X310078-09 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	
Surrogate: Toluene-d8	98.4 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	107 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

MW10

10/15/2013 2:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X310078-10 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	99.9 %	84-121			"	"	"	
Surrogate: Toluene-d8	97.9 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	107 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

MW11

10/15/2013 3:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X310078-11 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"	
Surrogate: Toluene-d8	97.2 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

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 3J16007 - EPA 5030B (Water)

Blank (3J16007-BLK1)

Prepared: 10/16/2013 Analyzed: 10/16/2013

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5	101		84-121			
Surrogate: Toluene-d8	61		"	62.5	96.9		85-115			
Surrogate: 4-Bromofluorobenzene	69		"	62.5	110		84-114			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

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 3J16007 - EPA 5030B (Water)

Blank (3J16007-BLK2)

Prepared: 10/16/2013 Analyzed: 10/16/2013

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5	99.7		84-121			
Surrogate: Toluene-d8	62		"	62.5	99.0		85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5	106		84-114			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

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 3J16007 - EPA 5030B (Water)

LCS (3J16007-BS1)

Prepared: 10/16/2013 Analyzed: 10/16/2013

Benzene	51.3	1.0	ug/L	50.0		103	74-130			
Toluene	50.5	1.0	"	50.0		101	76-128			
Ethylbenzene	52.8	1.0	"	50.0		106	78-130			
m,p-Xylene	106	2.0	"	100		106	75-134			
o-Xylene	52.7	1.0	"	50.0		105	76-129			
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		93.9	84-121			
Surrogate: Toluene-d8	60		"	62.5		95.4	85-115			
Surrogate: 4-Bromofluorobenzene	68		"	62.5		109	84-114			

Origins Laboratory, Inc.



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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

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 3J16007 - EPA 5030B (Water)

LCS (3J16007-BS2)

Prepared: 10/16/2013 Analyzed: 10/16/2013

Benzene	57.6	1.0	ug/L	50.0		115	74-130			
Toluene	56.9	1.0	"	50.0		114	76-128			
Ethylbenzene	59.8	1.0	"	50.0		120	78-130			
m,p-Xylene	119	2.0	"	100		119	75-134			
o-Xylene	58.7	1.0	"	50.0		117	76-129			
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.4	84-121			
Surrogate: Toluene-d8	61		"	62.5		96.9	85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	84-114			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

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 3J16007 - EPA 5030B (Water)

Matrix Spike (3J16007-MS1)	Source: X310067-02			Prepared: 10/16/2013 Analyzed: 10/16/2013						
Benzene	53.3	1.0	ug/L	50.0	ND	107	74-130			
Toluene	53.5	1.0	"	50.0	0.3	106	73-131			
Ethylbenzene	56.2	1.0	"	50.0	ND	112	76-132			
m,p-Xylene	112	2.0	"	100	ND	112	69-139			
o-Xylene	55.5	1.0	"	50.0	ND	111	74-131			
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		92.9	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.5	85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		108	84-114			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

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 3J16007 - EPA 5030B (Water)

Matrix Spike (3J16007-MS2)	Source: X310067-01			Prepared: 10/16/2013 Analyzed: 10/16/2013						
Benzene	51.9	1.0	ug/L	50.0	ND	104	74-130			
Toluene	52.5	1.0	"	50.0	ND	105	73-131			
Ethylbenzene	53.6	1.0	"	50.0	ND	107	76-132			
m,p-Xylene	108	2.0	"	100	ND	108	69-139			
o-Xylene	54.9	1.0	"	50.0	ND	110	74-131			
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		93.9	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.9	85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		108	84-114			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

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 3J16007 - EPA 5030B (Water)

Matrix Spike Dup (3J16007-MSD1)	Source: X310067-02				Prepared: 10/16/2013 Analyzed: 10/16/2013					
Benzene	52.3	1.0	ug/L	50.0	ND	105	74-130	1.87	20	
Toluene	52.6	1.0	"	50.0	0.3	105	73-131	1.70	20	
Ethylbenzene	54.4	1.0	"	50.0	ND	109	76-132	3.27	20	
m,p-Xylene	109	2.0	"	100	ND	109	69-139	2.71	20	
o-Xylene	54.7	1.0	"	50.0	ND	109	74-131	1.49	20	
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		92.4	84-121			
Surrogate: Toluene-d8	60		"	62.5		96.5	85-115			
Surrogate: 4-Bromofluorobenzene	70		"	62.5		112	84-114			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J 14 North

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 3J16007 - EPA 5030B (Water)

Matrix Spike Dup (3J16007-MSD2)	Source: X310067-01				Prepared: 10/16/2013 Analyzed: 10/16/2013					
Benzene	52.8	1.0	ug/L	50.0	ND	106	74-130	1.68	20	
Toluene	52.5	1.0	"	50.0	ND	105	73-131	0.0762	20	
Ethylbenzene	54.0	1.0	"	50.0	ND	108	76-132	0.817	20	
m,p-Xylene	109	2.0	"	100	ND	109	69-139	0.877	20	
o-Xylene	55.5	1.0	"	50.0	ND	111	74-131	1.01	20	
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		93.8	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.8	85-115			
Surrogate: 4-Bromofluorobenzene	68		"	62.5		109	84-114			

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

Chris Roy
Project Number: 008313054
Project: Noble - Karch Blue 30-3J 14 North

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit
RPD Relative Percent Difference

Origins Laboratory, Inc.



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Noelle E Doyle, President

October 17, 2013

LT Environmental, Inc.

Chris Roy

4600 West 60th Avenue

Arvada CO 80003

Project Name - Noble - Karch Blue 30-3J South Project Number - 008313054

Attached are you analytical results for Noble - Karch Blue 30-3J South received by Origins Laboratory, Inc. October 15, 2013. This project is associated with Origins project number X310077-01.

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

Chris Roy
Project Number: 008313054
Project: Noble - Karch Blue 30-3J South

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	X310077-01	Water	October 15, 2013 11:15	10/15/2013 15:55
MW02	X310077-02	Water	October 15, 2013 11:20	10/15/2013 15:55
MW03	X310077-03	Water	October 15, 2013 11:25	10/15/2013 15:55
MW04	X310077-04	Water	October 15, 2013 11:30	10/15/2013 15:55
MW05	X310077-05	Water	October 15, 2013 11:35	10/15/2013 15:55
MW06	X310077-06	Water	October 15, 2013 11:40	10/15/2013 15:55
MW07	X310077-07	Water	October 15, 2013 11:45	10/15/2013 15:55
MW08	X310077-08	Water	October 15, 2013 11:50	10/15/2013 15:55
MW09	X310077-09	Water	October 15, 2013 11:55	10/15/2013 15:55
MW10	X310077-10	Water	October 15, 2013 12:00	10/15/2013 15:55
MW11	X310077-11	Water	October 15, 2013 12:05	10/15/2013 15:55
MW12	X310077-12	Water	October 15, 2013 12:10	10/15/2013 15:55

Origins Laboratory, Inc.



Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

www.originslaboratory.com

X310077
 page 1 of 2

Client: LTE
 Address: 4600 W. 60th Ave.
 Telephone Number: 303-433-9788
 Email Address: C.Roy@Henv.com

Project Manager: Chris Roy
 Project Name: Karch Blue 30-3J South
 Project Number: 008313054
 Samples Collected By: Ryan K. Teberger

1725 Elk Place | Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	Turnaround Time:		
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #				Other	
MW01	10/15/13	1115	3	X				X					1		Same Day <input type="checkbox"/>
MW02		1120	3	X				X					2		48 Hr <input type="checkbox"/>
MW03		1125	3	X				X					3		72 Hr <input type="checkbox"/>
MW04		1130	3	X				X					4		Standard <input checked="" type="checkbox"/>
MW05		1135	3	X				X					5		
MW06		1140	3	X				X					6		
MW07		1145	3	X				X					7		
MW08		1150	3	X				X					8		
MW09		1155	3	X				X					9		
MW10		1200	3	X				X					10		
Relinquished By: [Signature]	Date: 10/15/13	Time: 15:55		Received By: [Signature]	Date: 10/15/13	Time: 15:55		Received By: [Signature]	Date: 10/15/13	Time: 15:55					
Relinquished By:	Date:	Time:		Received By:	Date:	Time:		Received By:	Date:	Time:					

Date Results Needed

Origins Laboratory, Inc.

Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X310077

Client: LTE
 Client Project ID: Karch Blue 30-35 South

Checklist Completed by: Jace Smith
 Date/time completed: 10/15/13 16:11

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

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

Cooler Number/Temperature: _____ / 6.8 °C _____ / _____ °C _____ / _____ °C (Describe)

Thermometer ID: B02

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		X		<u>Sampled Same Day</u>
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 ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	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 ⁽¹⁾ ? (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, ZnAc+NaOH)		X		<u>Samples will be analyzed within 7 Days of Collection</u>
Additional Comments (if any):				

⁽¹⁾ 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) 10-17-13 1348
 Date/Time Reviewed

Origins Laboratory, Inc.

[Signature]

Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW01
 10/15/2013 11:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-01 (Water)

BTEX by EPA 8260C

Benzene	1.08	1.0	ug/L	1	3J16007	10/16/2013	10/16/2013	
Toluene	1.21	1.0	"	"	"	"	"	
Ethylbenzene	43.8	1.0	"	"	"	"	"	
Xylenes, total	60.9	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	102 %	84-121			"	"	"	
<i>Surrogate: Toluene-d8</i>	96.9 %	85-115			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	109 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW02
 10/15/2013 11:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/16/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"	
Surrogate: Toluene-d8	97.2 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW03
 10/15/2013 11:25:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/16/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"	
Surrogate: Toluene-d8	97.3 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	106 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW04
 10/15/2013 11:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-04 (Water)

BTEX by EPA 8260C

Benzene	177	1.0	ug/L	1	3J16007	10/16/2013	10/16/2013	
Toluene	1.53	1.0	"	"	"	"	"	
Ethylbenzene	159	10.0	"	10	"	"	10/17/2013	
Xylenes, total	240	1.0	"	1	"	"	10/16/2013	

Surrogate: 1,2-Dichloroethane-d4	99.0 %	84-121			"	"	"	
Surrogate: Toluene-d8	103 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	113 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
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Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW05
 10/15/2013 11:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	102 %	84-121			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.4 %	85-115			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	108 %	84-114			"	"	"	

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LT Environmental, Inc.
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 Arvada CO 80003

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW06
 10/15/2013 11:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-06 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	1.02	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	
Surrogate: Toluene-d8	96.5 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	84-114			"	"	"	

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LT Environmental, Inc.
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 Arvada CO 80003

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW07
 10/15/2013 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-07 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"	
Surrogate: Toluene-d8	98.3 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	84-114			"	"	"	

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW08
 10/15/2013 11:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-08 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	102 %	84-121			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.1 %	85-115			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	107 %	84-114			"	"	"	

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Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW09
 10/15/2013 11:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-09 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	103 %	84-121			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.2 %	85-115			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	108 %	84-114			"	"	"	

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 4600 West 60th Avenue
 Arvada CO 80003

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW10
 10/15/2013 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-10 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>101 %</i>	<i>84-121</i>			<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>	<i>97.6 %</i>	<i>85-115</i>			<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>	<i>84-114</i>			<i>"</i>	<i>"</i>	<i>"</i>	

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LT Environmental, Inc.
 4600 West 60th Avenue
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Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW11
 10/15/2013 12:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-11 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	

<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>100 %</i>	<i>84-121</i>			<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>	<i>98.2 %</i>	<i>85-115</i>			<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>110 %</i>	<i>84-114</i>			<i>"</i>	<i>"</i>	<i>"</i>	

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

MW12
 10/15/2013 12:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X310077-12 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	3J16007	10/16/2013	10/17/2013	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	102 %	84-121			"	"	"	
<i>Surrogate: Toluene-d8</i>	97.4 %	85-115			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	109 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

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 3J16007 - EPA 5030B (Water)

Blank (3J16007-BLK1)

Prepared: 10/16/2013 Analyzed: 10/16/2013

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>101</i>		<i>84-121</i>			
<i>Surrogate: Toluene-d8</i>	<i>61</i>		<i>"</i>	<i>62.5</i>	<i>96.9</i>		<i>85-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>69</i>		<i>"</i>	<i>62.5</i>	<i>110</i>		<i>84-114</i>			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

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 3J16007 - EPA 5030B (Water)

Blank (3J16007-BLK2)

Prepared: 10/16/2013 Analyzed: 10/16/2013

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>	62		"	62.5	99.7		84-121			
<i>Surrogate: Toluene-d8</i>	62		"	62.5	99.0		85-115			
<i>Surrogate: 4-Bromofluorobenzene</i>	66		"	62.5	106		84-114			

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Noelle E Doyle, President

LT Environmental, Inc.
 4600 West 60th Avenue
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Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

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 3J16007 - EPA 5030B (Water)

LCS (3J16007-BS1)

Prepared: 10/16/2013 Analyzed: 10/16/2013

Benzene	51.3	1.0	ug/L	50.0		103	74-130			
Toluene	50.5	1.0	"	50.0		101	76-128			
Ethylbenzene	52.8	1.0	"	50.0		106	78-130			
m,p-Xylene	106	2.0	"	100		106	75-134			
o-Xylene	52.7	1.0	"	50.0		105	76-129			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>59</i>		<i>"</i>	<i>62.5</i>		<i>93.9</i>	<i>84-121</i>			
<i>Surrogate: Toluene-d8</i>	<i>60</i>		<i>"</i>	<i>62.5</i>		<i>95.4</i>	<i>85-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>68</i>		<i>"</i>	<i>62.5</i>		<i>109</i>	<i>84-114</i>			

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Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

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 3J16007 - EPA 5030B (Water)

LCS (3J16007-BS2)

Prepared: 10/16/2013 Analyzed: 10/16/2013

Benzene	57.6	1.0	ug/L	50.0		115	74-130			
Toluene	56.9	1.0	"	50.0		114	76-128			
Ethylbenzene	59.8	1.0	"	50.0		120	78-130			
m,p-Xylene	119	2.0	"	100		119	75-134			
o-Xylene	58.7	1.0	"	50.0		117	76-129			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>60</i>		<i>"</i>	<i>62.5</i>		<i>96.4</i>	<i>84-121</i>			
<i>Surrogate: Toluene-d8</i>	<i>61</i>		<i>"</i>	<i>62.5</i>		<i>96.9</i>	<i>85-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>67</i>		<i>"</i>	<i>62.5</i>		<i>107</i>	<i>84-114</i>			

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 Arvada CO 80003

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

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 3J16007 - EPA 5030B (Water)

Matrix Spike (3J16007-MS1)	Source: X310067-02			Prepared: 10/16/2013 Analyzed: 10/16/2013						
Benzene	53.3	1.0	ug/L	50.0	ND	107	74-130			
Toluene	53.5	1.0	"	50.0	0.3	106	73-131			
Ethylbenzene	56.2	1.0	"	50.0	ND	112	76-132			
m,p-Xylene	112	2.0	"	100	ND	112	69-139			
o-Xylene	55.5	1.0	"	50.0	ND	111	74-131			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>58</i>		<i>"</i>	<i>62.5</i>		<i>92.9</i>	<i>84-121</i>			
<i>Surrogate: Toluene-d8</i>	<i>61</i>		<i>"</i>	<i>62.5</i>		<i>97.5</i>	<i>85-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>67</i>		<i>"</i>	<i>62.5</i>		<i>108</i>	<i>84-114</i>			

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 Arvada CO 80003

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

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 3J16007 - EPA 5030B (Water)

Matrix Spike (3J16007-MS2)	Source: X310067-01			Prepared: 10/16/2013 Analyzed: 10/16/2013						
Benzene	51.9	1.0	ug/L	50.0	ND	104	74-130			
Toluene	52.5	1.0	"	50.0	ND	105	73-131			
Ethylbenzene	53.6	1.0	"	50.0	ND	107	76-132			
m,p-Xylene	108	2.0	"	100	ND	108	69-139			
o-Xylene	54.9	1.0	"	50.0	ND	110	74-131			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>59</i>		<i>"</i>	<i>62.5</i>		<i>93.9</i>	<i>84-121</i>			
<i>Surrogate: Toluene-d8</i>	<i>61</i>		<i>"</i>	<i>62.5</i>		<i>97.9</i>	<i>85-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>67</i>		<i>"</i>	<i>62.5</i>		<i>108</i>	<i>84-114</i>			

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Chris Roy
 Project Number: 008313054
 Project: Noble - Karch Blue 30-3J South

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 3J16007 - EPA 5030B (Water)

Matrix Spike Dup (3J16007-MSD1)	Source: X310067-02			Prepared: 10/16/2013 Analyzed: 10/16/2013						
Benzene	52.3	1.0	ug/L	50.0	ND	105	74-130	1.87	20	
Toluene	52.6	1.0	"	50.0	0.3	105	73-131	1.70	20	
Ethylbenzene	54.4	1.0	"	50.0	ND	109	76-132	3.27	20	
m,p-Xylene	109	2.0	"	100	ND	109	69-139	2.71	20	
o-Xylene	54.7	1.0	"	50.0	ND	109	74-131	1.49	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>58</i>		<i>"</i>	<i>62.5</i>		<i>92.4</i>	<i>84-121</i>			
<i>Surrogate: Toluene-d8</i>	<i>60</i>		<i>"</i>	<i>62.5</i>		<i>96.5</i>	<i>85-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>70</i>		<i>"</i>	<i>62.5</i>		<i>112</i>	<i>84-114</i>			

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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 3J16007 - EPA 5030B (Water)

Matrix Spike Dup (3J16007-MSD2)	Source: X310067-01			Prepared: 10/16/2013 Analyzed: 10/16/2013						
Benzene	52.8	1.0	ug/L	50.0	ND	106	74-130	1.68	20	
Toluene	52.5	1.0	"	50.0	ND	105	73-131	0.0762	20	
Ethylbenzene	54.0	1.0	"	50.0	ND	108	76-132	0.817	20	
m,p-Xylene	109	2.0	"	100	ND	109	69-139	0.877	20	
o-Xylene	55.5	1.0	"	50.0	ND	111	74-131	1.01	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>59</i>		<i>"</i>	<i>62.5</i>		<i>93.8</i>	<i>84-121</i>			
<i>Surrogate: Toluene-d8</i>	<i>61</i>		<i>"</i>	<i>62.5</i>		<i>97.8</i>	<i>85-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>68</i>		<i>"</i>	<i>62.5</i>		<i>109</i>	<i>84-114</i>			

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Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit
RPD Relative Percent Difference

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