3R - 444

WORKPLANS

2012 - 2013

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.

2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096 / F 970.385.1873

April 23, 2013

Mr. Matt Webre
Williams Four Corners, LLC
188 County Road 4900
Bloomfield, NM 87413

RE: Revised Work Plan for BOS 200® Amendment
Williams Four Corners, LLC
Dogie Compressor Station
Rio Arriba County, New Mexico

Dear Mr. Webre:

LT Environmental, Inc. (LTE) is providing the following work plan to Williams Four Corners, LLC (Williams) to apply BOS 200® to an open excavation at the former J Vent at the Dogie Compressor Station (Site) to address historical petroleum hydrocarbon impacts to groundwater. The BOS 200® application and subsequent groundwater monitoring is proposed as a groundwater remediation program since a majority of the impacted soil has been removed and groundwater infiltration is impeding additional excavation progress. The following work plan provides details of the proposed remediation for which Williams is requesting temporary permission for a discharge for a period not to exceed 120 days from the New Mexico Oil Conservation Division (NMOCD) under 20.6.2.3106B of the New Mexico Administrative Code (NMAC).

Site Description and Background

The Site is located in the northwest quarter of the northwest quarter of Section 4, Township 25N, and Range 6W in Rio Arriba County, New Mexico in Largo Canyon as depicted in Figure 1. The former J Vent was periodically used to vent natural gas at the Site during emergency shutdown. In 2011, the venting equipment was updated and moved to the south approximately 75 feet. Petroleum hydrocarbon staining was visible at the location of the former J Vent, most likely the source of natural gas condensate, which is often a byproduct of the blow down process.

Williams excavated soil beneath the former J Vent to the extent shown on Figure 2. The excavation is approximately 80 feet long and 60 feet wide. The total depth of the excavation ranges from 5 feet to 7 feet below ground surface (bgs). Confirmation soil samples were collected above the smear zone along the sidewalls of the excavation by depositing five aliquots of soil into plastic bags, thoroughly mixing the contents and sampling into four ounce glass jars. Soil samples were stored on ice and delivered to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico following strict chain-of-custody procedures. The soil samples were analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX) by United States Environmental Protection Agency (USEPA) Method 8021B and total petroleum hydrocarbons (TPH) by USEPA Method 8015B. Laboratory analytical results are listed in

Table 1 and indicate soil samples did not exceed NMOCD standards. The complete laboratory analytical report is included in Attachment A.

Groundwater was encountered in the excavation at approximately 6 feet bgs. No sheen or odor was observed on the pooling groundwater. Groundwater was sampled by collecting a grab sample identified as GW-1 on September 17, 2012 from the location presented in Figure 2 in a decontaminated glass jar and immediately filling three pre-cleaned and pre-preserved 40-milliliter (ml) glass vials with zero headspace to prevent degradation of the sample. The groundwater sample was delivered on ice to HEAL and analyzed for BTEX according to USEPA Method 8021B. Table 2 includes the laboratory analytical results and indicates benzene, toluene, and total xylenes concentrations exceeded New Mexico Water Quality Control Commission (NMWQCC) standards. The complete laboratory analytical report is included in Attachment A.

Proposed Work Plan

To address the remaining impacted soil present on the bottom of the excavation and impacted groundwater, LTE proposes to apply an amendment in a single application for no more than 120 days to the excavation floor to enhance bioremediation of the smear zone, then backfill and monitor groundwater quality to document remediation progress and final closure. The BOS 200® product is a mix of activated carbon, petroleum-consuming microbes, calcium sulfate (gypsum), and nutrients. A material safety data sheet is included in Attachment B. The product removes hydrocarbons from the groundwater and saturated sediments through biological degradation of the hydrocarbon compounds. The product is applied directly to the smear zone during backfilling and the activated carbon attracts the hydrocarbons and adsorbs them where the hydrocarbons are co-located with microbes, nutrients, and electron acceptors. As the hydrocarbons are adsorbed into the activated carbon, microbes will use the hydrocarbons as a food source for respiratory and metabolic processes.

The following sections provide detailed information for a discharge as required by 20.6.2.3106C NMAC. It is important to note that the proposed addition of BOS 200® to the groundwater exposed by the open excavation is not designed as a slurry injection, but rather addition of the powder form of BOS 200® directly to the smear zone.

20.6.2.3106C (1)

LTE will apply a total of 1,000 pounds of BOS 200® to the base of the excavation prior to backfilling. The BOS 200® will be mixed into the smear zone soil and groundwater in powder form using a trackhoe. Once the BOS 200® has been applied, the excavation will be backfilled with clean overburden stockpiled onsite during the original excavation and additional clean fill material obtained from an offsite location. The backfilled excavation will be graded to match the surrounding topography upon completion.

In evaluating the Site, LTE has designed the application to reduce benzene concentrations from 630 micrograms per liter (µg/l) to less than 10 µg/l by applying approximately 20 pounds of BOS 200® to each 10-foot square area of the exposed smear zone.

BOS 200® is a mixture of approximately 80 percent (%) powdered or granulated activated carbon which is combined with a blend of sulfate reduction material and micronutrients at the factory. The selected nutrients include phosphorus (calcium phosphate), nitrogen (ammonium nitrate), and potassium (potassium chloride). Additional electron acceptors include iron, nitrate, and a time-release source of sulfate. The source of the time-release sulfate is gypsum or calcium sulfate.

When the BOS 200® is applied to the groundwater, the resulting mixture will have elevated concentrations of nitrate, sulfate, and chloride, but the effects will be minimal and temporary. At first, microbes will utilize oxygen during aerobic degradation. When oxygen is depleted, nitrate is the next highest energy electron acceptor. The first step in the de-nitrification is the formation of nitrite. Over the first month or two (post application), nitrate concentrations typically drop and low levels of nitrite are often observed. Finally, fermentation, sulfate reduction, and methanogenic respiration become the dominant pathways.

Metabolic by-products of the application will vary depending on what metabolic pathway is being used for hydrocarbon degradation. Carbon dioxide and water are the ultimate products of aerobic and most anaerobic biodegradations of hydrocarbons. The intermediate products of aerobic degradation may include simple acids, alcohols, and fatty acids. Acetate is produced by aerobic conditions, anaerobic fermentation, and methanogenic respiration. Other products include lactate, formate, butyrate, isobutyrate, pyruvate, and proprionate, along with methane.

Remediation Products, Inc. (RPI), the manufacturer of BOS 200®, used the following site-specific characteristics and design criteria of the application to estimate the concentrations of ingredients of concern for this application:

- The excavation area is approximately 4,800 square feet
- The open excavation contains approximately 1 foot of standing groundwater
- The default porosity value of the silty sand is 0.3
- LTE will apply 1,000 pounds of product.

Based on these assumptions and the composition of BOS 200®, RPI estimated concentrations of ingredients of concern as shown on Table 3. The remaining ingredients are activated carbon, calcium from the gypsum, and a proprietary blend of microbes.

LTE compared the ingredients of BOS 200® and associated by-products of the remediation process to the list of constituents identified in Subsections A and B of 20.6.2.3103 NMAC. The only constituents that are included in BOS 200® are nitrate, sulfate, chloride, and iron. These concentrations do not exceed NMWQCC standards (Table 4). Additionally, there are not enough water-soluble salts in BOS 200® given the parameters of this application to exceed 1,000 ppm total dissolved solids (TDS).

Once added to the groundwater, the BOS 200® application will migrate downgradient as part of normal groundwater flow behavior. However, the ingredients of concern will not exceed

NMWQCC standards. Additionally, the BOS 200® application will help prevent migration of petroleum hydrocarbon impacts by remediating the source.

20.6.2.3106C (2)

Groundwater monitoring wells were installed previously to address impacted groundwater unrelated to the J-Vent. Currently there are six existing monitoring wells (MW-3, MW-9, MW-10, MW-11, MW-12, and TMW-1) at the Site. These monitoring wells were installed north, east, and west of the J-Vent as part of the Dogie North Pit groundwater remediation (NMOCD Administrative/Environmental Order 3RP-313). Monitoring of these wells is no longer performed. Depth to groundwater is approximately 6 feet bgs and groundwater flow direction is toward the northwest based on previous groundwater monitoring events. Groundwater quality was analyzed from a sample collected on December 17, 1997 from monitoring well MW-1, which appears to have not been impacted from releases associated with operations at the Site. The approximate location of former MW-1 is depicted on Figure 2. The laboratory analytical results are included on Table 4 as background water quality data and indicate the sulfate concentration is 889 milligrams per liter (mg/l) and total dissolved solids (TDS) are 1,983 mg/l. The background concentrations indicate that sulfate and TDS naturally exceed the NMWQCC standards of 600 mg/l and 1,000 mg/l, respectively.

It should be noted that sulfate concentrations already exceed the NMWQCC standard at the Site. The addition of sulfate through the BOS 200® application may not increase sulfate concentrations above existing concentrations. Chloride was detected in former monitoring well MW-1 at a concentration of 13.6 mg/l; therefore, an additional 1.15 parts per million (ppm) from the BOS 200® application will not cause the chloride concentration to exceed the NMWQCC standard of 250 mg/l. Nitrate and iron concentrations were not analyzed in the groundwater sample from MW-1; however, the concentrations estimated to be added through the BOS 200® application (6.6 mg/l and 0.4 mg/l respectively) do not exceed the NMWQCC standards of 10 mg/l for nitrate and 1 mg/l for iron.

20.6.2.3106C (4)

The Site is located within the Largo Canyon floodplain. Excessive precipitation, such as a 100-year flood event could result in flooding of the Site.

20.6.2.3106C (5)

Following the BOS 200® application and backfilling, LTE proposes to install four groundwater monitoring wells to monitor groundwater quality (Figure 3). The monitoring wells will be constructed of schedule 40, two-inch diameter polyvinyl-chloride (PVC) and will include 15 feet of 0.01-inch machine slotted flush-threaded PVC well screen. At least ten feet of screen will be set beneath the water table and approximately three feet above to allow for seasonal fluctuations and a proper seal during well construction. A clean 10-20 grade silica sand gravel pack will be placed from the bottom of the boring to two feet above the top of the screen. One foot of 3/8-inch natural bentonite chips will be set above the gravel pack to the surface and completed with a

locking protective steel casing. Wells located within or near vehicle right-of-ways will be surrounded by three protective posts to prevent vehicle impact to the well. The new wells will be surveyed after construction. Top-of-casing elevations will be determined to an accuracy of no less than plus or minus 0.01 feet so that groundwater flow direction and gradient can be determined.

Following installation of monitoring wells, each new well will be developed utilizing a clean, disposable PVC bailer. LTE will purge fluid until the pH, specific conductivity and temperature is stabilized and turbidity is reduced to the greatest extent possible. All purge water will be collected and properly disposed of in accordance with applicable regulations.

Post-excavation groundwater monitoring will be conducted quarterly with the goal of observing eight consecutive quarters with analytical results in compliance with NMWQCC standards. Results will be presented in subsequent monitoring reports. Depth to water and total depth of the wells will be measured with a Keck oil-water interface probe. The interface probe will be decontaminated with Aloconox™ soap and rinsed with de-ionized water prior to each measurement. A minimum of three casing volumes will be removed from each well while pH, specific conductivity and temperature are monitored for stabilization. Once these parameters stabilize, the wells will be sampled by filling three pre-cleaned and pre-preserved 40 milliliter (ml) glass vials with zero headspace. The groundwater samples will be shipped on ice to a laboratory and analyzed for BTEX according to USEPA Method 8021B. Additionally, sulfate, chloride, iron, nitrate, and TDS will be analyzed to monitor concentrations in groundwater and demonstrate eventual consumption of the electron acceptors. Strict chain-of-custody procedures will be followed during transport of the samples to the laboratory. Groundwater will be monitored quarterly until eight consecutive quarters show results that are below NMWQCC standards.

Although metabolic by-products are likely to occur, acetate, lactate, formate, butyrate, isobutyrate, pyruvate, and methane are not regulated by NMWQCC and will not be monitored. Concentrations are not expected to be significantly elevated.

Quarterly groundwater monitoring will be documented and submitted in annual reports to the NMOCD. Reports will include groundwater elevations, relevant figures including site location and potentiometric surface maps, and analytical results. The initial annual report will include soil boring and monitoring well completion logs as well as cross sections.

20.6.2.3106C (6)

Shallow groundwater occurs at approximately 6 feet bgs. Depth to bedrock is unknown.

20.6.2.3106C (7)

See Sections 20.6.2.3106C (1), 20.6.2.3106C (3), and 20.6.2.3106C (5).

20.6.2.3106C (8)

No injection wells are being installed.

If you have any questions or comments regarding the scope of work, please do not hesitate to contact me at (970) 385-1096 or via email at aager@ltenv.com. You may also contact Matt Webre at (505) 632-4442 or at matt.webre@williams.com.

Sincerely,

LT ENVIRONMENTAL, INC.

Ashley L. Ager

Ashley L. Ager, M.S.
Senior Geologist

Attachments (9)

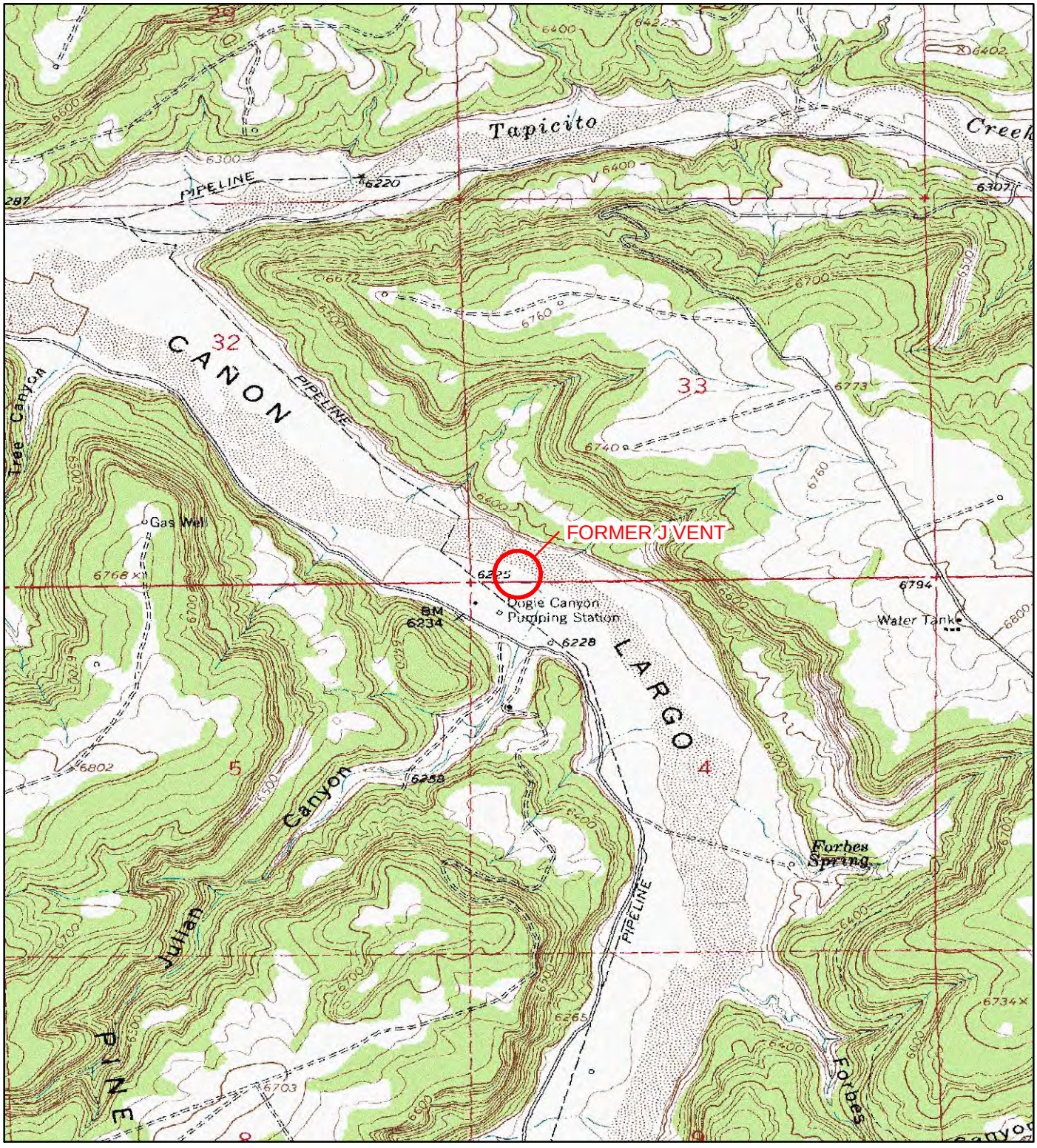
Figure 1 – Site Location Map
Figure 2 – Site Map
Figure 3 – Proposed Monitoring Well Locations

Table 1 – Soil Analytical Results
Table 2 – Groundwater Analytical Results
Table 3 – Concentrations of Ionic Ingredients of BOS 200® Amendment When Applied at the Site
Table 4 – Composition of BOS 200® Amendment Compared to NMWQCC Standards and Background Water Quality

Attachment A – Laboratory Analytical Reports

Attachment B - BOS 200® Material Safety Data Sheet

FIGURES



LEGEND

SITE LOCATION

IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

0 2,000 4,000

Feet

N

FIGURE 1
SITE LOCATION MAP
FORMER J VENT
DOGIE COMPRESSOR STATION
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS, LLC

P:\Williams Four Corners\GIS\MXD\034012001_DOGIE\034012002_DOGIE_FIG01_SL_MAP.mxd

IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- FORMER MONITORING WELL
- EXISTING MONITORING WELL
- GRAB SAMPLE FROM EXCAVATION
- FENCE
- FORMER J VENT
- EXCAVATION EXTENT

0 100 200
Feet

N

FIGURE 2
SITE MAP
FORMER J VENT
DOGIE COMPRESSOR STATION
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS, LLC

P:\Williams Four Corners\GIS\MXD\034012001_DOGIE\034012002_DOGIE_FIG02_SITE_MAP.mxd

IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- PROPOSED MONITORING WELL
- FENCE
- FORMER J VENT
- EXCAVATION EXTENT

0 100 200

Feet

N

FIGURE 3
PROPOSED MONITORING WELLS
FORMER J VENT
DOGIE COMPRESSOR STATION
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS, LLC

P:\Williams Four Corners\GIS\MXD\034012001_DOGIE\034012002_DOGIE_FIG03_PROP_MW.mxd

TABLES

TABLE 1

EXCAVATION SOIL ANALYTICAL RESULTS
FORMER J-VENT
WILLIAMS FOUR CORNERS, LLC

Sample ID	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH (mg/kg)
North Wall	9/17/2012	< 0.050	< 0.050	< 0.050	< 0.10	0 - < 0.25	< 5.0	< 9.6	< 48	0 - < 62.6
South Wall	9/17/2012	< 0.050	< 0.050	< 0.050	< 0.10	0 - < 0.25	< 5.0	< 9.9	< 50	0 - < 64.9
East Wall	9/17/2012	< 0.050	< 0.050	< 0.050	< 0.10	0 - < 0.25	< 5.0	< 9.7	< 49	0 - < 63.7
West Wall	9/17/2012	< 0.050	< 0.050	< 0.050	< 0.10	0 - < 0.25	< 5.0	< 10.0	< 50	0 - < 65.0
NMOCD Standard		**10**				**50**				**100**

Notes:
BTEX - benzene, toluene, ethylbenzene, and total xylenes
DRO - diesel range organics
GRO - gasoline range organics
mg/kg - milligrams per kilogram
MRO - motor oil range organics
NMOCD - New Mexico Oil Conservation Commission
TPH - total petroleum hydrocarbons
< - indicates result is less than the stated laboratory method detection limit

TABLE 2

EXCAVATION GROUNDWATER ANALYTICAL RESULTS
FORMER J-VENT
WILLIAMS FOUR CORNERS, LLC

Sample ID	Date Sampled	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Total Xylenes (µg/l)
GW-1	9/17/2012	**630**	**2,800**	190	**2,000**
NMWQCC Standard		**10**	**750**	**750**	**620**

Notes:

NMWQCC - New Mexico Water Quality Control Commission

µg/l - micrograms per liter

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

Bold - indicates sample exceeds NMWQCC standard

TABLE 3

ESTIMATED SITE-SPECIFIC CONCENTRATIONS OF BOS 200® INGREDIENTS
FORMER J-VENT
WILLIAMS FOUR CORNERS, LLC

Constituent	BOS 200® Application (ppm)
Nitrate:Nitrogen	6.6
Chloride	1.15
Sulfate	210
Iron	0.8
Potassium	1.26
Phosphate	ND

Notes:
ND - Not Detectable
ppm - parts per million
Activated carbon, gypsum, and microbes are the primary constituents of BOS 200®
Concentrations listed above are estimated based on the following assumptions:
- The excavation area is approximately 4,800 square feet
- The open excavation contains approximately 1 foot of standing groundwater
- The default porosity value of the silty sand is 0.3
- Application of 1,000 pounds of BOS 200®

TABLE 4

COMPOSITION OF BOS 200® AMENDMENT COMPARED TO NMWQCC STANDARDS AND BACKGROUND WATER QUALITY FORMER J-VENT WILLIAMS FOUR CORNERS, LLC

Subsection A & B of 20.6.2.3103 Constituent	NMWQCC Standard (mg/l)	BOS 200® Application (ppm)	Background Sample (MW-1) September 17, 1997
Arsenic (As)	0.1	NA	NT
Barium (Ba)	1.0	NA	NT
Cadmium (Cd)	0.01	NA	NT
Chromium (Cr)	0.05	NA	NT
Cyanide (CN)	0.2	NA	NT
Fluoride (F)	1.6	NA	NT
Lead (Pb)	0.05	NA	NT
Total Mercury (Hg)	0.002	NA	NT
Nitrate (NO3 as N)	10	6.6	NT
Selenium (Se	0.05	NA	NT
Silver (Ag)	0.05	NA	NT
Uranium (U)	0.03	NA	NT
Benzene	0.01	NA	<0.0002
Polychlorinated biphenyls (PCB's)	0.001	NA	NT
Toluene	0.75	NA	<0.0002
Carbon Tetrachloride	0.01	NA	NT
1,2-dichloroethane (EDC)	0.01	NA	NT
1,1-dichloroethylene (1,1-DCE)	0.005	NA	NT
1,1,2,2-tetrachloroethylene (PCE)	0.02	NA	NT
1,1,2-trichloroethylene (TCE)	0.1	NA	NT
ethylbenzene	0.75	NA	<0.0002
total xylenes	0.62	NA	<0.0004
methylene chloride	0.1	NA	NT
chloroform	0.1	NA	NT
1,1-dichloroethane	0.025	NA	NT
ethylene dibromide (EDB)	0.0001	NA	NT
1,1,1-trichloroethane	0.06	NA	NT
1,1,2-tetrachloroethane	0.01	NA	NT
1,1,2,2-tetrachloroethane	0.01	NA	NT
vinyl chloride	0.001	NA	NT
PAHs: total naphthalene plus monomethylnaphthalenes	0.03	NA	NT
benzo-a-pyrene	0.0007	NA	NT
Chloride (Cl)	250	1.15	13.6
Copper (Cu)	1.0	NA	NT
Iron (Fe)	1.0	0.4	NT
Manganese (Mn)	0.2	NA	NT
Phenols	0.005	NA	NT
Sulfate (SO4)	600	210	**889**
Total Dissolved Solids (TDS)	1,000	<1,000	**1,983**
Zinc (Zn)	10	NA	NT
pH	between 6 and 9	NA	7.66

Notes:
NA - Not Applicable
NMWQCC - New Mexico Water Quality Control Commission
NT - Not Tested
mg/l - milligrams per liter
ppm - parts per million
< - indicates result is less than the stated laboratory method detection limit
Bold - indicates sample exceeds NMWQCC standard
Concentrations for BOS 200® listed above are estimated based on the following assumptions:
- The excavation area is approximately 4,800 square feet
- The open excavation contains approximately 1 foot of standing groundwater
- The default porosity value of the silty sand is 0.3
- Application of 1,000 pounds of BOS 200®

ATTACHMENT A

LABORATORY ANALYTICAL REPORTS

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 19, 2012

Ashley Ager

LTE
2243 Main Ave Suite 3
Durango, CO 81301
TEL: (970) 946-1093
FAX

RE: J Vent OrderNo.: 1209694

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 4 sample(s) on 9/18/2012 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1209694**
Date Reported: **9/19/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: North Walll
Project: J Vent
Collection Date: 9/17/2012 10:27:00 AM
Lab ID: 1209694-001
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/19/2012 7:30:09 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/19/2012 7:30:09 AM
Surr: DNOP	111	77.6-140		%REC	1	9/19/2012 7:30:09 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 2:01:25 PM
Surr: BFB	100	84-116		%REC	1	9/18/2012 2:01:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 2:01:25 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 2:01:25 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 2:01:25 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 2:01:25 PM
Surr: 4-Bromofluorobenzene	99.1	80-120		%REC	1	9/18/2012 2:01:25 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: South Wall
Project: J Vent
Collection Date: 9/17/2012 10:33:00 AM
Lab ID: 1209694-002
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/19/2012 7:51:37 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/19/2012 7:51:37 AM
Surr: DNOP	104	77.6-140		%REC	1	9/19/2012 7:51:37 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 2:30:11 PM
Surr: BFB	100	84-116		%REC	1	9/18/2012 2:30:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 2:30:11 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 2:30:11 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 2:30:11 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 2:30:11 PM
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	9/18/2012 2:30:11 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: East Wall
Project: J Vent
Collection Date: 9/17/2012 9:40:00 AM
Lab ID: 1209694-003
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/19/2012 8:13:18 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/19/2012 8:13:18 AM
Surr: DNOP	109	77.6-140		%REC	1	9/19/2012 8:13:18 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 2:59:02 PM
Surr: BFB	101	84-116		%REC	1	9/18/2012 2:59:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 2:59:02 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 2:59:02 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 2:59:02 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 2:59:02 PM
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	9/18/2012 2:59:02 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: West Wall
Project: J Vent
Collection Date: 9/17/2012 10:30:00 AM
Lab ID: 1209694-004
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/19/2012 8:34:50 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/19/2012 8:34:50 AM
Surr: DNOP	111	77.6-140		%REC	1	9/19/2012 8:34:50 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 3:27:52 PM
Surr: BFB	101	84-116		%REC	1	9/18/2012 3:27:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 3:27:52 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 3:27:52 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 3:27:52 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 3:27:52 PM
Surr: 4-Bromofluorobenzene	103	80-120		%REC	1	9/18/2012 3:27:52 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID	**MB-3802**	SampType:	**MBLK**		TestCode:	**EPA Method 8015B: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**3802**		RunNo:	**5617**				
Prep Date:	**9/18/2012**	Analysis Date:	**9/19/2012**		SeqNo:	**161020**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		103	77.6	140			

Sample ID	**LCS-3802**	SampType:	**LCS**		TestCode:	**EPA Method 8015B: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**3802**		RunNo:	**5617**				
Prep Date:	**9/18/2012**	Analysis Date:	**9/19/2012**		SeqNo:	**161021**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	29	10	50.00	0	58.5	52.6	130			
Surr: DNOP	4.2		5.000		84.2	77.6	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID	**MB-3765**	SampType:	**MBLK**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160814**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		99.3	84	116			

Sample ID	**LCS-3765**	SampType:	**LCS**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160815**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	74	117			
Surr: BFB	1000		1000		103	84	116			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID	**MB-3765**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160837**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Sample ID	**LCS-3765**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160838**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	100	76.3	117			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.0	0.050	1.000	0	103	77	116			
Xylenes, Total	3.1	0.10	3.000	0	104	76.7	117			
Surr: 4-Bromofluorobenzene	1.1		1.000		109	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID **mb-3765**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBS**	Batch ID: **3765**	RunNo: **5580**
Prep Date: **9/14/2012**	Analysis Date: **9/17/2012**	SeqNo: **160199** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.43		0.5000		85.0	70	130			
Surr: 4-Bromofluorobenzene	0.42		0.5000		83.7	70	130			
Surr: Dibromofluoromethane	0.43		0.5000		85.9	70	130			
Surr: Toluene-d8	0.38		0.5000		75.9	70	130			

Sample ID **lcs-3765**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSS**	Batch ID: **3765**	RunNo: **5580**
Prep Date: **9/14/2012**	Analysis Date: **9/17/2012**	SeqNo: **160219** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.42		0.5000		83.5	70	130			
Surr: 4-Bromofluorobenzene	0.42		0.5000		83.5	70	130			
Surr: Dibromofluoromethane	0.43		0.5000		86.8	70	130			
Surr: Toluene-d8	0.36		0.5000		72.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: LTE Work Order Number: 1209694

Received by/date: LM 09/18/12

Logged By: **Michelle Garcia** 9/18/2012 10:00:00 AM Michelle Garcia

Completed By: **Michelle Garcia** 9/18/2012 10:25:57 AM Michelle Garcia

Reviewed By: 09/18/12

Chain of Custody

1. Were seals intact? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☑ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☑ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
10. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
11. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
12. Were any sample containers received broken? Yes ☐ No ☑
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
15. Is it clear what analyses were requested? Yes ☑ No ☐
16. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

18. Additional remarks:

19. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

Chain-of-Custody Record

Client: LTE

Mailing Address: 2243 Main Ave #3
Durango, CO 81301

Phone #: 970 385 1096

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush 24 hrs

Project Name:
J Vent

Project #:

Project Manager:
Ashley Ager

Sampler: Ashley Ager
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No 1209094	BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel) + MRO	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
9-17-12	10:27	soil	North Wall	4oz/1	cool	-001	✓		✓													
9-17-12	10:33	soil	South Wall	4oz/1	cool	-002	✓		✓													
9-17-12	9:40	soil	East Wall	4oz/1	cool	-003	✓		✓													
9-17-12	10:30	soil	West Wall	4oz/1	cool	-004	✓		✓													
~~9-17-12~~		soil		4oz/1	cool	nd																

Date:	Time:	Relinquished by:	Received by:	Date	Time
9-17-12	13:50	Ashley L Ager	Christie Walker	9/17/12	1350
9/17/12	1740	Christie Walker		09/18/12	1000

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 21, 2012

Ashley Ager

LTE
2243 Main Ave Suite 3
Durango, CO 81301
TEL: (970) 946-1093
FAX

RE: J Vent OrderNo.: 1209693

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/18/2012 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1209693**
Date Reported: **9/21/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: GW-1
Project: J Vent
Collection Date: 9/17/2012 12:11:00 PM
Lab ID: 1209693-001
Matrix: AQUEOUS
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	630	50		µg/L	50	9/18/2012 12:38:57 PM
Toluene	2800	50		µg/L	50	9/18/2012 12:38:57 PM
Ethylbenzene	190	50		µg/L	50	9/18/2012 12:38:57 PM
Xylenes, Total	2000	100		µg/L	50	9/18/2012 12:38:57 PM
Surr: 4-Bromofluorobenzene	102	69.7-152		%REC	50	9/18/2012 12:38:57 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209693**

21-Sep-12

Client: LTE

Project: J Vent

Sample ID	**5ML RB**	SampType:	**MBLK**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**PBW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160860**	Units:	**%REC**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		19		20.00		93.2	69.8	119			

Sample ID	**2.5UG GRO LCS**	SampType:	**LCS**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**LCSW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160861**	Units:	**%REC**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		21		20.00		104	69.8	119			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209693**

21-Sep-12

Client: LTE

Project: J Vent

Sample ID	**5ML RB**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160875**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	19		20.00		94.2	69.7	152			

Sample ID	**100NG BTEX LCS**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160876**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.5	80	120			
Toluene	20	1.0	20.00	0	102	80	120			
Ethylbenzene	21	1.0	20.00	0	105	80	120			
Xylenes, Total	64	2.0	60.00	0	107	80	120			
Surr: 4-Bromofluorobenzene	19		20.00		92.6	69.7	152			

Sample ID	**1209693-001AMS**	SampType:	**MS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**GW-1**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160881**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1700	50	1000	626.5	104	74.1	124			
Toluene	4000	50	1000	2847	112	75.2	124			
Ethylbenzene	1200	50	1000	187.4	105	69	125			
Xylenes, Total	5300	100	3000	1997	109	73.1	126			
Surr: 4-Bromofluorobenzene	930		1000		93.3	69.7	152			

Sample ID	**1209693-001AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**GW-1**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160882**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1600	50	1000	626.5	100	74.1	124	2.08	11.2	
Toluene	3900	50	1000	2847	110	75.2	124	0.523	11.9	
Ethylbenzene	1200	50	1000	187.4	103	69	125	1.91	13.5	
Xylenes, Total	5200	100	3000	1997	106	73.1	126	1.63	13	
Surr: 4-Bromofluorobenzene	1000		1000		99.8	69.7	152	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: LTE | Work Order Number: 1209693

Received by/date: 09/18/12

Logged By: **Lindsay Mangin** | 9/18/2012 10:00:00 AM

Completed By: **Lindsay Mangin** | 9/18/2012 10:22:24 AM

Reviewed By: 09/18/12

Chain of Custody

1. Were seals intact?	Yes	No	Not Present ✔
2. Is Chain of Custody complete?	Yes ✔	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Coolers are present? (see 19. for cooler specific information)	Yes ✔	No	NA
5. Was an attempt made to cool the samples?	Yes ✔	No	NA
6. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
7. Sample(s) in proper container(s)?	Yes ✔	No	
8. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
9. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
10. Was preservative added to bottles?	Yes	No ✔	NA
11. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
12. Were any sample containers received broken?	Yes	No ✔	
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH:
14. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	(<2 or >12 unless noted)
15. Is it clear what analyses were requested?	Yes ✔	No	Adjusted?
16. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes | No | NA ✔

Person Notified: _____ Date: _____

By Whom: _____ Via: eMail | Phone | Fax | In Person

Regarding: _____

Client Instructions: _____

18. Additional remarks:

19. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

Chain-of-Custody Record

Client: LTE

Mailing Address: 2243 Main Ave #3
Durango, CO 81301

Phone #: 970 385 1096

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 24 hr

Project Name:
J Vint

Project #:

Project Manager:
Ashley Ager

Sampler: Ashley Ager

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1209693	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
9-17-12	12:11	GW	GW-1	40mL/3	HCl	-001	✓											

Date:	Time:	Relinquished by:	Received by:	Date	Time
9-17-12	1351	Ashley L Ager	Christine Walters	9/17/12	1351
9/17/12	1740	Christine Walters		09/18/12	1000

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

ATTACHMENT B

BOS 200® MATERIAL SAFETY DATA SHEET

Material Safety Data Sheet
Trap & Treat® BOS-200®

Section I

Manufacturer's Name *Remediation Products Inc.*	Emergency Telephone Number *303.487.1000*
Address *(Number, Street, City, State, and ZIP Code)* *6390 Joyce Drive, Suite 150 W, Golden, CO 80403*	Telephone Number for Information *303-487-1000*
Prepared by *B. Elliott*	Date Prepared *11/8/2012*
	Signature of Preparer *(optional)*

Section II - Hazard Ingredients/Identity Information

Non-hazardous components are listed at 3 percent (%) or greater. This is not intended to be a complete compositional disclosure.

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	%*(optional)*
Carbon	5mg/M^3 (respirable)	10mg/M^3 (Total)	N/A	77
Calcium Sulfate (Gypsum)	"	"	N/A	19
N/A = Not Applicable PELs and TLVs are 8-hour TWAs unless otherwise noted.				

Section III - Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H_2O = 1)	2.33 g/cc real density
Vapor Pressure (mm Hg.)	N/A	Melting Point	Decomposes at 1450°C
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water: Negligible			
Appearance and Odor: Black powder. No odor.			

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used) Not combustible	Flammable Limits	LEL N/A	UEL N/A
Extinguishing Media Flood with plenty of water			
Special Fire Fighting Procedures None			
Unusual Fire and Explosion Hazards			

Contact with strong oxidizer, such as ozone, liquid oxygen, chlorine, permanganate, etc., may result in fire.
NFPA Rating: Health=0; Reactivity=0; Flammability=1

Section V - Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	None
Incompatibility *(Materials to Avoid)*			
Strong oxidizers, such as ozone, liquid oxygen, chlorine, permanganate, etc., and acids.			
Hazardous Decomposition	May Occur	X	Conditions to Avoid Above 1450° - SO_2 & CaO
	Will Not Occur		

Section VI - Health Hazard Data

Route(s) of Entry:	Inhalation? Yes	Skin? Yes	Ingestion? Yes
Health Hazards *(Acute and Chronic)*			
The effects of long-term, low-level exposures to carbon have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures. Persons subjected to excessive dust will be forced to leave area because of nuisance; i.e., coughing, sneezing and nasal irritation. **CAUTION!!!** This material, when wet, removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, state, and federal regulations.			
Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	N/A	N/A	No
Signs and Symptoms of Exposure			
Effects and Hazards of Eye Contact: The physical nature of this product may produce eye irritation, if exposed to dusting conditions without protective eye equipment. **Effects and Hazards of Skin Contact:** The product is not a primary skin irritant. The primary skin irritation (Rabbit) is 0. **Effects and Hazards of Inhalation Breathing):** This product is practically non-toxic through inhalation. The acute inhalation LD_{50} (Rat) is >6.4 mg/l (nominal concentration). Could cause irritation to respiratory passages, if exposed to dusting conditions without protective respiratory equipment. **Effects and Hazards of Ingestion (Swallowing):** Material is non-toxic through ingestion. The acute oral LD_{50} (Rat) is >10g/kg.			
Medical Conditions Generally Aggravated by Exposure			
N/A			
Emergency and First Aid Procedures			
Eyes: Flush with plenty of water for at least 15 minutes. Call physician if irritation continues. Skin: Wash with soap and water. Inhalation: Move to fresh air.			

Ingestion: N/A

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled
Sweep or vacuum material from spillages into a waste container for disposal or repackage. Avoid dusting conditions.
Waste Disposal Method
Dispose of unused product in waste container. Dispose of in accordance with local, state, and federal or national regulations.
Precautions to Be Taken in Handling and Storing
CAUTION!!! This product, when wet, removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, state, and federal or national regulations. Be sure proper ventilation and respiratory and eye protection are used under dusting conditions.
Other Precautions
Wash thoroughly after handling. Exercise caution in the storage and handling of all chemical substances.

Section VIII - Control Measures

Respiratory Protection *(Specify Type)* Carbon-A NIOSH-approved particulate filter respirator is recommended, if excessive dust is generated.		
Ventilation	Local Exhaust Recommended, when used indoors or in confined spaces	Special Not Required
	Mechanical *(General)* Recommended, when used indoors or in confined spaces	Other Not required
Protective Gloves Recommended	Eye Protection Safety glasses or goggles recommended	
Other Protective Clothing or Equipment Not required		
Work/Hygienic Practices Use of Tyvek® or Nomex® suits is suggested to protect skin from becoming excessively dirty and clothing from being ruined by contact with product.		

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096 / F 970.385.1873

November 30, 2012

Mr. Matt Webre
Williams Four Corners, LLC
188 County Road 4900
Bloomfield, NM 87413

RE: Work Plan for BOS 200® Amendment
Williams Four Corners, LLC
Dogie Compressor Station
Rio Arriba County, New Mexico

Dear Mr. Webre:

LT Environmental, Inc. (LTE) is providing the following work plan to Williams Four Corners, LLC (Williams) to apply BOS 200® to an open excavation at the former J Vent at the Dogie Compressor Station (Site) to address historical petroleum hydrocarbon impacts to groundwater. The BOS 200® application and subsequent groundwater monitoring is proposed as a groundwater remediation program since a majority of the impacted soil has been removed and groundwater infiltration is impeding additional excavation progress. The following work plan provides details of the proposed remediation for which Williams is requesting temporary permission for a discharge from the New Mexico Oil Conservation Division (NMOCD) under 20.6.2.3106B of the New Mexico Administrative Code (NMAC).

Site Description and Background

The Site is located in the northwest quarter of the northwest quarter of Section 4, Township 25N, and Range 6W in Rio Arriba County, New Mexico in Largo Canyon as depicted in Figure 1. The former J Vent was periodically used to vent natural gas at the Site during emergency shutdown. In 2011, the venting equipment was updated and moved to the south approximately 75 feet. Petroleum hydrocarbon staining was visible at the location of the former J Vent, most likely the source of natural gas condensate, which is often a byproduct of the blow down process.

Williams excavated soil beneath the former J Vent to the extent shown on Figure 2. The excavation is approximately 80 feet long and 60 feet wide. The total depth of the excavation ranges from 5 feet to 7 feet below ground surface (bgs). Confirmation soil samples were collected above the smear zone along the sidewalls of the excavation by depositing five aliquots of soil into plastic bags, thoroughly mixing the contents and sampling into four ounce glass jars. Soil samples were stored on ice and delivered to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico following strict chain-of-custody procedures. The soil samples were analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX) by United States Environmental Protection Agency (USEPA) Method

8021B and total petroleum hydrocarbons (TPH) by USEPA Method 8015B. Laboratory analytical results are listed in Table 1 and indicate soil samples did not exceed NMOCD standards. The complete laboratory analytical report is included in Attachment A.

Groundwater was encountered in the excavation at approximately 6 feet bgs. No sheen or odor was observed on the pooling groundwater. Groundwater was sampled by collecting a grab sample in a decontaminated glass jar and immediately filling three pre-cleaned and pre-preserved 40-milliliter (ml) glass vials with zero headspace to prevent degradation of the sample. The groundwater sample was delivered on ice to HEAL and analyzed for BTEX according to USEPA Method 8021B. Table 2 includes the laboratory analytical results and indicates benzene, toluene, and total xylenes concentrations exceeded New Mexico Water Quality Control Commission (NMWQCC) standards. The complete laboratory analytical report is included in Attachment A.

Proposed Work Plan

To address the remaining impacted soil present on the bottom of the excavation and impacted groundwater, LTE proposes to apply an amendment to the excavation floor to enhance bioremediation of the smear zone, then backfill and monitor groundwater quality to document remediation progress and final closure. The BOS 200® product is a mix of activated carbon, petroleum-consuming microbes, calcium sulfate (gypsum), and nutrients. A material safety data sheet is included in Attachment B. The product removes hydrocarbons from the groundwater and saturated sediments through biological degradation of the hydrocarbon compounds. The product is applied directly to the smear zone during backfilling and the activated carbon attracts the hydrocarbons and adsorbs them where the hydrocarbons are co-located with microbes, nutrients, and electron acceptors. As the hydrocarbons are adsorbed into the activated carbon, microbes will use the hydrocarbons as a food source for respiratory and metabolic processes.

The following sections provide detailed information for a discharge as required by 20.6.2.3106B NMAC. It is important to note that the proposed addition of BOS 200® to the groundwater exposed by the open excavation is not designed as a slurry injection, but rather addition of the powder form of BOS 200® directly to the smear zone.

20.6.2.3106B (1)

LTE will apply a total of 1,000 pounds of BOS 200® to the base of the excavation prior to backfilling. In evaluating the Site, LTE has designed the application to reduce benzene concentrations from 630 micrograms per liter (µg/l) to less than 10 µg/l by applying approximately 20 pounds of BOS 200® to each 10-foot square area of the exposed smear zone.

BOS 200® is a mixture of approximately 80 percent (%) powdered or granulated activated carbon which is combined with a blend of sulfate reduction material and micronutrients at

the factory. The selected nutrients include phosphorus (calcium phosphate), nitrogen (ammonium nitrate), and potassium (potassium chloride). Additional electron acceptors include iron, nitrate, and a time-release source of sulfate. The source of the time-release sulfate is gypsum or calcium sulfate.

When the BOS 200® is applied to the groundwater, the resulting mixture will have elevated concentrations of nitrate, sulfate, and chloride, but the effects will be minimal and temporary. At first, microbes will utilize oxygen during aerobic degradation. When oxygen is depleted, nitrate is the next highest energy electron acceptor. The first step in the de-nitrification is the formation of nitrite. Over the first month or two (post application), nitrate concentrations typically drop and low levels of nitrite are often observed. Finally, fermentation, sulfate reduction, and methanogenic respiration become the dominant pathways.

Metabolic by-products of the application will vary depending on what metabolic pathway is being used for hydrocarbon degradation. Carbon dioxide and water are the ultimate products of aerobic and most anaerobic biodegradations of hydrocarbons. The intermediate products of aerobic degradation may include simple acids, alcohols, and fatty acids. Acetate is produced by aerobic conditions, anaerobic fermentation, and methanogenic respiration. Other products include lactate, formate, butyrate, isobutyrate, pyruvate, and proprionate, along with methane.

Remediation Products, Inc. (RPI), the manufacturer of BOS 200®, used the following site-specific characteristics and design criteria of the application to estimate the concentrations of ingredients of concern for this application:

- The excavation area is approximately 4,800 square feet
- The open excavation contains approximately 1 foot of standing groundwater
- The default porosity value of the silty sand is 0.3
- LTE will apply 1,000 pounds of product.

Based on these assumptions and the composition of BOS 200®, RPI estimated concentrations of ingredients of concern as shown on Table 3. The remaining ingredients are activated carbon, calcium from the gypsum, and a proprietary blend of microbes.

LTE compared the ingredients of BOS 200® and associated by-products of the remediation process to the list of constituents identified in Subsections A and B of 20.6.2.3103 NMAC. The only constituents that are included in BOS 200® are nitrate, sulfate, chloride, and iron. These concentrations do not exceed NMWQCC standards (Table 4). Additionally, there are not enough water-soluble salts in BOS 200® given the parameters of this application to exceed 1,000 ppm total dissolved solids (TDS).

Once added to the groundwater, the BOS 200® application will migrate downgradient as part of normal groundwater flow behavior. However, the ingredients of concern will not

exceed NMWQCC standards. Additionally, the BOS 200® application will help prevent migration of petroleum hydrocarbon impacts by remediating the source.

20.6.2.3106B (2)

The Site is within the Largo Canyon flood plain, which drains into the San Juan River approximately 28 miles to the north. Largo Wash is 900 feet to the north-northeast. An-oilfield maintenance water well permitted by the New Mexico Office of the State Engineer is located at the Site, but no additional permitted water wells exist within a one-mile radius. There are no active discharge sites within a one-mile radius.

20.6.2.3106B (3)

Groundwater monitoring wells were installed previously to address impacted groundwater unrelated to the J-Vent. Currently there are six existing monitoring wells (MW-3, MW-9, MW-10, MW-11, MW-12, and TMW-1) at the Site. These monitoring wells were installed north, east, and west of the J-Vent as part of the Dogie North Pit groundwater remediation (NMOCD Administrative/Environmental Order 3RP-313). Monitoring of these wells is no longer performed. Depth to groundwater is approximately 6 feet bgs and groundwater flow direction is toward the northwest based on previous groundwater monitoring events. Groundwater quality was analyzed from a sample collected on December 17, 1997 from monitoring well MW-1, which appears to have not been impacted from releases associated with operations at the Site. The approximate location of former MW-1 is depicted on Figure 2. The laboratory analytical results are included on Table 4 as background water quality data and indicate the sulfate concentration is 889 milligrams per liter (mg/l) and total dissolved solids (TDS) are 1,983 mg/l. The background concentrations indicate that sulfate and TDS naturally exceed the NMWQCC standards of 600 mg/l and 1,000 mg/l, respectively.

Since sulfate concentrations already exceed the NMWQCC standard at the Site, addition of sulfate through the BOS 200® application will not degrade the existing water quality. Chloride was detected in former monitoring well MW-1 at a concentration of 13.6 mg/l; therefore, an additional 1.15 parts per million (ppm) from the BOS 200® application will not cause the chloride concentration to exceed the NMWQCC standard of 250 mg/l. Nitrate and iron concentrations were not analyzed in the groundwater sample from MW-1; however, the concentrations estimated to be added through the BOS 200® application (6.6 mg/l and 0.4 mg/l respectively) do not exceed the NMWQCC standards of 10 mg/l for nitrate and 1 mg/l for iron.

20.6.2.3106B (4)

The Site is located within the Largo Canyon floodplain. Excessive precipitation, such as a 100-year flood event could result in flooding of the Site.

20.6.2.3106B (5)

Following the BOS 200® application and backfilling, LTE proposes to install three groundwater monitoring wells to monitor groundwater quality (Figure 3). The monitoring wells will be constructed of schedule 40, two-inch diameter polyvinyl-chloride (PVC) and will include ten feet of 0.01-inch machine slotted flush-threaded PVC well screen. Five feet of screen will be set beneath the water table and five feet above to allow for seasonal fluctuations. A clean 10-20 grade silica sand gravel pack will be placed from the bottom of the boring to three feet above the top of the screen. Two feet of 3/8-inch natural bentonite chips will be set above the gravel pack followed by a neat cement slurry, containing a minimum of five percent powdered bentonite, to the surface and completed with a locking protective steel casing. Wells located within or near vehicle right-of-ways will be surrounded by three protective posts to prevent vehicle impact to the well. The new wells will be surveyed after construction. Top-of-casing elevations will be determined to an accuracy of no less than plus or minus 0.01 feet so that groundwater flow direction and gradient can be determined.

Following installation of monitoring wells, each new well will be developed utilizing a clean, disposable PVC bailer. LTE will purge fluid until the pH, specific conductivity and temperature is stabilized and turbidity is reduced to the greatest extent possible. All purge water will be collected and properly disposed.

Post-excavation groundwater monitoring will be conducted quarterly with the goal of observing eight consecutive quarters with analytical results in compliance with NMWQCC standards. Results will be presented in subsequent monitoring reports. Depth to water and total depth of the wells will be measured with a Keck oil-water interface probe. The interface probe will be decontaminated with Aloconox™ soap and rinsed with de-ionized water prior to each measurement. A minimum of three casing volumes will be removed from each well while pH, specific conductivity and temperature are monitored for stabilization. Once these parameters stabilize, the wells will be sampled by filling three pre-cleaned and pre-preserved 40 milliliter (ml) glass vials with zero headspace. The groundwater samples will be shipped on ice to a laboratory and analyzed for BTEX according to USEPA Method 8021B. Additionally, sulfate, chloride, iron, nitrate, and TDS will be analyzed to monitor concentrations in groundwater and demonstrate eventual consumption of the electron acceptors. Strict chain-of-custody procedures will be followed during transport of the samples to the laboratory. Groundwater will be monitored quarterly until eight consecutive quarters show results that are below NMWQCC standards.

Although metabolic by-products are likely to occur, acetate, lactate, formate, butyrate, isobutyrate, pyruvate, and methane are not regulated by NMWQCC and will not be monitored. Concentrations are not expected to be significantly elevated.

Quarterly groundwater monitoring will be documented and submitted in annual reports to the NMOCD. Reports will include groundwater elevations and potentiometric surface maps as well as analytical results.

20.6.2.3106B (6)

Shallow groundwater occurs at approximately 6 feet bgs. Depth to bedrock is unknown.

20.6.2.3106B (7)

See Sections 20.6.2.3106B (1), 20.6.2.3106B (3), and 20.6.2.3106B (5).

20.6.2.3106B (8)

No injection wells are being installed.

If you have any questions or comments regarding the scope of work, please do not hesitate to contact me at (970) 385-1096 or via email at aager@ltenv.com. You may also contact Matt Webre at (505) 632-4442 or at matt.webre@williams.com.

Sincerely,

LT ENVIRONMENTAL, INC.

Ashley L. Ager, M.S.
Senior Geologist

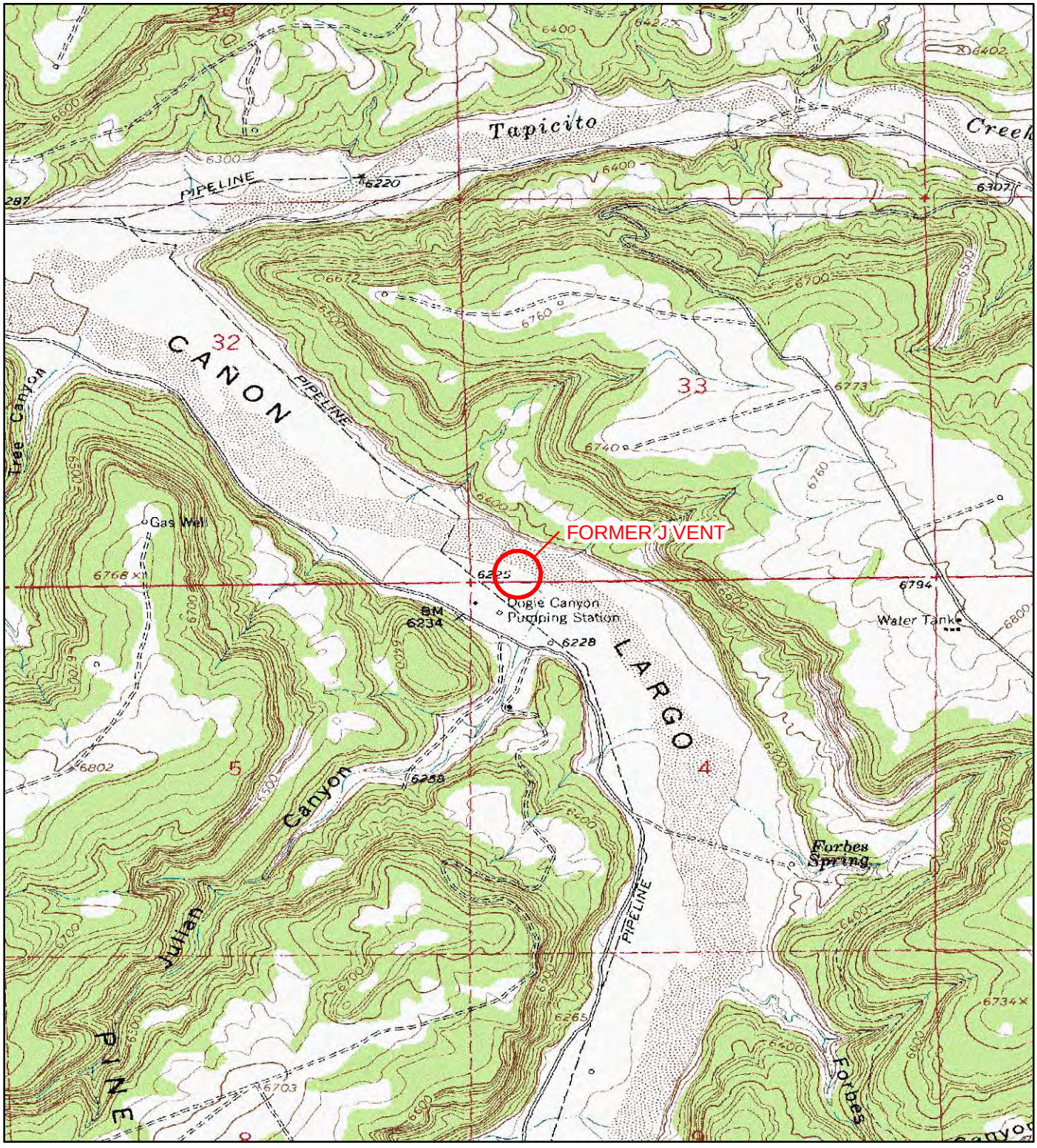
Attachments (9)

Figure 1 – Site Location Map
Figure 2 – Site Map
Figure 3 – Proposed Monitoring Well Locations

Table 1 – Soil Analytical Results
Table 2 – Groundwater Analytical Results
Table 3 – Concentrations of Ionic Ingredients of BOS 200® Amendment When Applied at the Site
Table 4 – Composition of BOS 200® Amendment Compared to NMWQCC Standards and Background Water Quality

Attachment A – Laboratory Analytical Reports
Attachment B - BOS 200® Material Safety Data Sheet

FIGURES



LEGEND

SITE LOCATION

IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

0 2,000 4,000

Feet

N

FIGURE 1
SITE LOCATION MAP
FORMER J VENT
DOGIE COMPRESSOR STATION
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS, LLC

P:\Williams Four Corners\GIS\MXD\034012001_DOGIE\034012002_DOGIE_FIG01_SL_MAP.mxd

IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- FORMER MONITORING WELL
- EXISTING MONITORING WELL
- FENCE
- FORMER J VENT
- EXCAVATION EXTENT

0 100 200
Feet

N

FIGURE 2
SITE MAP
FORMER J VENT
DOGIE COMPRESSOR STATION
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS, LLC

P:\Williams Four Corners\GIS\MXD\034012001_DOGIE\034012002_DOGIE_FIG02_SITE_MAP.mxd

IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- PROPOSED MONITORING WELL
- FENCE
- FORMER J VENT
- EXCAVATION EXTENT

0 100 200

Feet

N

FIGURE 3
PROPOSED MONITORING WELLS
FORMER J VENT
DOGIE COMPRESSOR STATION
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS, LLC

P:\Williams Four Corners\GIS\MXD\034012001_DOGIE\034012002_DOGIE_FIG02_SITE_MAP.mxd

TABLES

TABLE 1

EXCAVATION SOIL ANALYTICAL RESULTS
FORMER J-VENT
WILLIAMS FOUR CORNERS, LLC

Sample ID	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH (mg/kg)
North Wall	9/17/2012	< 0.050	< 0.050	< 0.050	< 0.10	0 - < 0.25	< 5.0	< 9.6	< 48	0 - < 62.6
South Wall	9/17/2012	< 0.050	< 0.050	< 0.050	< 0.10	0 - < 0.25	< 5.0	< 9.9	< 50	0 - < 64.9
East Wall	9/17/2012	< 0.050	< 0.050	< 0.050	< 0.10	0 - < 0.25	< 5.0	< 9.7	< 49	0 - < 63.7
West Wall	9/17/2012	< 0.050	< 0.050	< 0.050	< 0.10	0 - < 0.25	< 5.0	< 10.0	< 50	0 - < 65.0
NMOCD Standard		**10**				**50**				**100**

Notes:
BTEX - benzene, toluene, ethylbenzene, and total xylenes
DRO - diesel range organics
GRO - gasoline range organics
mg/kg - milligrams per kilogram
MRO - motor oil range organics
NMOCD - New Mexico Oil Conservation Commission
TPH - total petroleum hydrocarbons
< - indicates result is less than the stated laboratory method detection limit

TABLE 2

EXCAVATION GROUNDWATER ANALYTICAL RESULTS
FORMER J-VENT
WILLIAMS FOUR CORNERS, LLC

Sample ID	Date Sampled	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Total Xylenes (µg/l)
GW-1	9/17/2012	**630**	**2,800**	190	**2,000**
NMWQCC Standard		**10**	**750**	**750**	**620**

Notes:

NMWQCC - New Mexico Water Quality Control Commission

µg/l - micrograms per liter

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

Bold - indicates sample exceeds NMWQCC standard

TABLE 3

ESTIMATED SITE-SPECIFIC CONCENTRATIONS OF BOS 200® INGREDIENTS
FORMER J-VENT
WILLIAMS FOUR CORNERS, LLC

Constituent	BOS 200® Application (ppm)
Nitrate:Nitrogen	6.6
Chloride	1.15
Sulfate	210
Iron	0.8
Potassium	1.26
Phosphate	ND

Notes:
ND - Not Detectable
ppm - parts per million
Activated carbon, gypsum, and microbes are the primary constituents of BOS 200®
Concentrations listed above are estimated based on the following assumptions:
- The excavation area is approximately 4,800 square feet
- The open excavation contains approximately 1 foot of standing groundwater
- The default porosity value of the silty sand is 0.3
- Application of 1,000 pounds of BOS 200®

TABLE 4

COMPOSITION OF BOS 200® AMENDMENT COMPARED TO NMWQCC STANDARDS AND BACKGROUND WATER QUALITY FORMER J-VENT WILLIAMS FOUR CORNERS, LLC

Subsection A & B of 20.6.2.3103 Constituent	NMWQCC Standard (mg/l)	BOS 200® Application (ppm)	Background Sample (MW-1) September 17, 1997
Arsenic (As)	0.1	NA	NT
Barium (Ba)	1.0	NA	NT
Cadmium (Cd)	0.01	NA	NT
Chromium (Cr)	0.05	NA	NT
Cyanide (CN)	0.2	NA	NT
Fluoride (F)	1.6	NA	NT
Lead (Pb)	0.05	NA	NT
Total Mercury (Hg)	0.002	NA	NT
Nitrate (NO3 as N)	10	6.6	NT
Selenium (Se	0.05	NA	NT
Silver (Ag)	0.05	NA	NT
Uranium (U)	0.03	NA	NT
Benzene	0.01	NA	<0.0002
Polychlorinated biphenyls (PCB's)	0.001	NA	NT
Toluene	0.75	NA	<0.0002
Carbon Tetrachloride	0.01	NA	NT
1,2-dichloroethane (EDC)	0.01	NA	NT
1,1-dichloroethylene (1,1-DCE)	0.005	NA	NT
1,1,2,2-tetrachloroethylene (PCE)	0.02	NA	NT
1,1,2-trichloroethylene (TCE)	0.1	NA	NT
ethylbenzene	0.75	NA	<0.0002
total xylenes	0.62	NA	<0.0004
methylene chloride	0.1	NA	NT
chloroform	0.1	NA	NT
1,1-dichloroethane	0.025	NA	NT
ethylene dibromide (EDB)	0.0001	NA	NT
1,1,1-trichloroethane	0.06	NA	NT
1,1,2-tetrachloroethane	0.01	NA	NT
1,1,2,2-tetrachloroethane	0.01	NA	NT
vinyl chloride	0.001	NA	NT
PAHs: total naphthalene plus monomethylnaphthalenes	0.03	NA	NT
benzo-a-pyrene	0.0007	NA	NT
Chloride (Cl)	250	1.15	13.6
Copper (Cu)	1.0	NA	NT
Iron (Fe)	1.0	0.4	NT
Manganese (Mn)	0.2	NA	NT
Phenols	0.005	NA	NT
Sulfate (SO4)	600	210	**889**
Total Dissolved Solids (TDS)	1,000	<1,000	**1,983**
Zinc (Zn)	10	NA	NT
pH	between 6 and 9	NA	7.66

Notes:
NA - Not Applicable
NMWQCC - New Mexico Water Quality Control Commission
NT - Not Tested
mg/l - milligrams per liter
ppm - parts per million
< - indicates result is less than the stated laboratory method detection limit
Bold - indicates sample exceeds NMWQCC standard
Concentrations for BOS 200® listed above are estimated based on the following assumptions:
- The excavation area is approximately 4,800 square feet
- The open excavation contains approximately 1 foot of standing groundwater
- The default porosity value of the silty sand is 0.3
- Application of 1,000 pounds of BOS 200®

ATTACHMENT A

LABORATORY ANALYTICAL REPORTS

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 19, 2012

Ashley Ager

LTE
2243 Main Ave Suite 3
Durango, CO 81301
TEL: (970) 946-1093
FAX

RE: J Vent OrderNo.: 1209694

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 4 sample(s) on 9/18/2012 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1209694**
Date Reported: **9/19/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: North Walll
Project: J Vent
Collection Date: 9/17/2012 10:27:00 AM
Lab ID: 1209694-001
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/19/2012 7:30:09 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/19/2012 7:30:09 AM
Surr: DNOP	111	77.6-140		%REC	1	9/19/2012 7:30:09 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 2:01:25 PM
Surr: BFB	100	84-116		%REC	1	9/18/2012 2:01:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 2:01:25 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 2:01:25 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 2:01:25 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 2:01:25 PM
Surr: 4-Bromofluorobenzene	99.1	80-120		%REC	1	9/18/2012 2:01:25 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: South Wall
Project: J Vent
Collection Date: 9/17/2012 10:33:00 AM
Lab ID: 1209694-002
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/19/2012 7:51:37 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/19/2012 7:51:37 AM
Surr: DNOP	104	77.6-140		%REC	1	9/19/2012 7:51:37 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 2:30:11 PM
Surr: BFB	100	84-116		%REC	1	9/18/2012 2:30:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 2:30:11 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 2:30:11 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 2:30:11 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 2:30:11 PM
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	9/18/2012 2:30:11 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: East Wall
Project: J Vent
Collection Date: 9/17/2012 9:40:00 AM
Lab ID: 1209694-003
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/19/2012 8:13:18 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/19/2012 8:13:18 AM
Surr: DNOP	109	77.6-140		%REC	1	9/19/2012 8:13:18 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 2:59:02 PM
Surr: BFB	101	84-116		%REC	1	9/18/2012 2:59:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 2:59:02 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 2:59:02 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 2:59:02 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 2:59:02 PM
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	9/18/2012 2:59:02 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: West Wall
Project: J Vent
Collection Date: 9/17/2012 10:30:00 AM
Lab ID: 1209694-004
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/19/2012 8:34:50 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/19/2012 8:34:50 AM
Surr: DNOP	111	77.6-140		%REC	1	9/19/2012 8:34:50 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 3:27:52 PM
Surr: BFB	101	84-116		%REC	1	9/18/2012 3:27:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 3:27:52 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 3:27:52 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 3:27:52 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 3:27:52 PM
Surr: 4-Bromofluorobenzene	103	80-120		%REC	1	9/18/2012 3:27:52 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID	**MB-3802**	SampType:	**MBLK**		TestCode:	**EPA Method 8015B: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**3802**		RunNo:	**5617**				
Prep Date:	**9/18/2012**	Analysis Date:	**9/19/2012**		SeqNo:	**161020**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		103	77.6	140			

Sample ID	**LCS-3802**	SampType:	**LCS**		TestCode:	**EPA Method 8015B: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**3802**		RunNo:	**5617**				
Prep Date:	**9/18/2012**	Analysis Date:	**9/19/2012**		SeqNo:	**161021**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	29	10	50.00	0	58.5	52.6	130			
Surr: DNOP	4.2		5.000		84.2	77.6	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID	**MB-3765**	SampType:	**MBLK**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160814**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		99.3	84	116			

Sample ID	**LCS-3765**	SampType:	**LCS**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160815**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	74	117			
Surr: BFB	1000		1000		103	84	116			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID	**MB-3765**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160837**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Sample ID	**LCS-3765**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160838**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	100	76.3	117			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.0	0.050	1.000	0	103	77	116			
Xylenes, Total	3.1	0.10	3.000	0	104	76.7	117			
Surr: 4-Bromofluorobenzene	1.1		1.000		109	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID **mb-3765**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBS**	Batch ID: **3765**	RunNo: **5580**
Prep Date: **9/14/2012**	Analysis Date: **9/17/2012**	SeqNo: **160199** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.43		0.5000		85.0	70	130			
Surr: 4-Bromofluorobenzene	0.42		0.5000		83.7	70	130			
Surr: Dibromofluoromethane	0.43		0.5000		85.9	70	130			
Surr: Toluene-d8	0.38		0.5000		75.9	70	130			

Sample ID **lcs-3765**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSS**	Batch ID: **3765**	RunNo: **5580**
Prep Date: **9/14/2012**	Analysis Date: **9/17/2012**	SeqNo: **160219** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.42		0.5000		83.5	70	130			
Surr: 4-Bromofluorobenzene	0.42		0.5000		83.5	70	130			
Surr: Dibromofluoromethane	0.43		0.5000		86.8	70	130			
Surr: Toluene-d8	0.36		0.5000		72.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: LTE Work Order Number: 1209694

Received by/date: LM 09/18/12

Logged By: **Michelle Garcia** 9/18/2012 10:00:00 AM Michelle Garcia

Completed By: **Michelle Garcia** 9/18/2012 10:25:57 AM Michelle Garcia

Reviewed By: 09/18/12

Chain of Custody

1. Were seals intact? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☑ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☑ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
10. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
11. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
12. Were any sample containers received broken? Yes ☐ No ☑
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
15. Is it clear what analyses were requested? Yes ☑ No ☐
16. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

18. Additional remarks:

19. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

Chain-of-Custody Record

Client: LTE

Mailing Address: 2243 Main Ave #3
Durango, CO 81301

Phone #: 970 385 1096

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush 24 hrs

Project Name:
J Vent

Project #:

Project Manager:
Ashley Ager

Sampler: Ashley Ager
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No 1209094	BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel) + MRO	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
9-17-12	10:27	soil	North Wall	4oz/1	cool	-001	✓		✓													
9-17-12	10:33	soil	South Wall	4oz/1	cool	-002	✓		✓													
9-17-12	9:40	soil	East Wall	4oz/1	cool	-003	✓		✓													
9-17-12	10:30	soil	West Wall	4oz/1	cool	-004	✓		✓													
~~9-17-12~~		soil		4oz/1	cool	nd																

Date:	Time:	Relinquished by:	Received by:	Date	Time
9-17-12	13:50	Ashley L Ager	Christie Walker	9/17/12	1350
9/17/12	1740	Christie Walker		09/18/12	1000

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 21, 2012

Ashley Ager

LTE
2243 Main Ave Suite 3
Durango, CO 81301
TEL: (970) 946-1093
FAX

RE: J Vent OrderNo.: 1209693

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/18/2012 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1209693**
Date Reported: **9/21/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: GW-1
Project: J Vent
Collection Date: 9/17/2012 12:11:00 PM
Lab ID: 1209693-001
Matrix: AQUEOUS
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	630	50		µg/L	50	9/18/2012 12:38:57 PM
Toluene	2800	50		µg/L	50	9/18/2012 12:38:57 PM
Ethylbenzene	190	50		µg/L	50	9/18/2012 12:38:57 PM
Xylenes, Total	2000	100		µg/L	50	9/18/2012 12:38:57 PM
Surr: 4-Bromofluorobenzene	102	69.7-152		%REC	50	9/18/2012 12:38:57 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209693**

21-Sep-12

Client: LTE

Project: J Vent

Sample ID	**5ML RB**	SampType:	**MBLK**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**PBW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160860**	Units:	**%REC**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		19		20.00		93.2	69.8	119			

Sample ID	**2.5UG GRO LCS**	SampType:	**LCS**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**LCSW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160861**	Units:	**%REC**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		21		20.00		104	69.8	119			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209693**

21-Sep-12

Client: LTE

Project: J Vent

Sample ID	**5ML RB**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160875**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	19		20.00		94.2	69.7	152			

Sample ID	**100NG BTEX LCS**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160876**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.5	80	120			
Toluene	20	1.0	20.00	0	102	80	120			
Ethylbenzene	21	1.0	20.00	0	105	80	120			
Xylenes, Total	64	2.0	60.00	0	107	80	120			
Surr: 4-Bromofluorobenzene	19		20.00		92.6	69.7	152			

Sample ID	**1209693-001AMS**	SampType:	**MS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**GW-1**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160881**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1700	50	1000	626.5	104	74.1	124			
Toluene	4000	50	1000	2847	112	75.2	124			
Ethylbenzene	1200	50	1000	187.4	105	69	125			
Xylenes, Total	5300	100	3000	1997	109	73.1	126			
Surr: 4-Bromofluorobenzene	930		1000		93.3	69.7	152			

Sample ID	**1209693-001AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**GW-1**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160882**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1600	50	1000	626.5	100	74.1	124	2.08	11.2	
Toluene	3900	50	1000	2847	110	75.2	124	0.523	11.9	
Ethylbenzene	1200	50	1000	187.4	103	69	125	1.91	13.5	
Xylenes, Total	5200	100	3000	1997	106	73.1	126	1.63	13	
Surr: 4-Bromofluorobenzene	1000		1000		99.8	69.7	152	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: LTE | Work Order Number: 1209693

Received by/date: 09/18/12

Logged By: **Lindsay Mangin** | 9/18/2012 10:00:00 AM

Completed By: **Lindsay Mangin** | 9/18/2012 10:22:24 AM

Reviewed By: 09/18/12

Chain of Custody

1. Were seals intact?	Yes	No	Not Present ✔
2. Is Chain of Custody complete?	Yes ✔	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Coolers are present? (see 19. for cooler specific information)	Yes ✔	No	NA
5. Was an attempt made to cool the samples?	Yes ✔	No	NA
6. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
7. Sample(s) in proper container(s)?	Yes ✔	No	
8. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
9. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
10. Was preservative added to bottles?	Yes	No ✔	NA
11. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
12. Were any sample containers received broken?	Yes	No ✔	
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH:
14. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	(<2 or >12 unless noted)
15. Is it clear what analyses were requested?	Yes ✔	No	Adjusted?
16. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes | No | NA ✔

Person Notified: _____ Date: _____

By Whom: _____ Via: eMail | Phone | Fax | In Person

Regarding: _____

Client Instructions: _____

18. Additional remarks:

19. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

Chain-of-Custody Record

Client: LTE

Mailing Address: 2243 Main Ave #3
Durango, CO 81301

Phone #: 970 385 1096

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 24 hr

Project Name:
J Vint

Project #:

Project Manager:
Ashley Ager

Sampler: Ashley Ager

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1209693	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
9-17-12	12:11	GW	GW-1	40mL/3	HCl	-001	✓											

Date:	Time:	Relinquished by:	Received by:	Date	Time
9-17-12	1351	Ashley L Ager	Christine Walters	9/17/12	1351
9/17/12	1740	Christine Walters		09/18/12	1000

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

ATTACHMENT B

BOS 200® MATERIAL SAFETY DATA SHEET

Material Safety Data Sheet
Trap & Treat® BOS-200®

Section I

Manufacturer's Name *Remediation Products Inc.*	Emergency Telephone Number *303.487.1000*
Address *(Number, Street, City, State, and ZIP Code)* *6390 Joyce Drive, Suite 150 W, Golden, CO 80403*	Telephone Number for Information *303-487-1000*
Prepared by *B. Elliott*	Date Prepared *11/8/2012*
	Signature of Preparer *(optional)*

Section II - Hazard Ingredients/Identity Information

Non-hazardous components are listed at 3 percent (%) or greater. This is not intended to be a complete compositional disclosure.

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	%*(optional)*
Carbon	5mg/M^3 (respirable)	10mg/M^3 (Total)	N/A	77
Calcium Sulfate (Gypsum)	"	"	N/A	19
N/A = Not Applicable PELs and TLVs are 8-hour TWAs unless otherwise noted.				

Section III - Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H_2O = 1)	2.33 g/cc real density
Vapor Pressure (mm Hg.)	N/A	Melting Point	Decomposes at 1450°C
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water: Negligible			
Appearance and Odor: Black powder. No odor.			

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used) Not combustible	Flammable Limits	LEL N/A	UEL N/A
Extinguishing Media Flood with plenty of water			
Special Fire Fighting Procedures None			
Unusual Fire and Explosion Hazards			

Contact with strong oxidizer, such as ozone, liquid oxygen, chlorine, permanganate, etc., may result in fire.
NFPA Rating: Health=0; Reactivity=0; Flammability=1

Section V - Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	None
Incompatibility *(Materials to Avoid)*			
Strong oxidizers, such as ozone, liquid oxygen, chlorine, permanganate, etc., and acids.			
Hazardous Decomposition	May Occur	X	Conditions to Avoid Above 1450° - SO_2 & CaO
	Will Not Occur		

Section VI - Health Hazard Data

Route(s) of Entry:	Inhalation? Yes	Skin? Yes	Ingestion? Yes
Health Hazards *(Acute and Chronic)*			
The effects of long-term, low-level exposures to carbon have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures. Persons subjected to excessive dust will be forced to leave area because of nuisance; i.e., coughing, sneezing and nasal irritation. **CAUTION!!!** This material, when wet, removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, state, and federal regulations.			
Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	N/A	N/A	No
Signs and Symptoms of Exposure			
Effects and Hazards of Eye Contact: The physical nature of this product may produce eye irritation, if exposed to dusting conditions without protective eye equipment. **Effects and Hazards of Skin Contact:** The product is not a primary skin irritant. The primary skin irritation (Rabbit) is 0. **Effects and Hazards of Inhalation Breathing):** This product is practically non-toxic through inhalation. The acute inhalation LD_{50} (Rat) is >6.4 mg/l (nominal concentration). Could cause irritation to respiratory passages, if exposed to dusting conditions without protective respiratory equipment. **Effects and Hazards of Ingestion (Swallowing):** Material is non-toxic through ingestion. The acute oral LD_{50} (Rat) is >10g/kg.			
Medical Conditions Generally Aggravated by Exposure			
N/A			
Emergency and First Aid Procedures			
Eyes: Flush with plenty of water for at least 15 minutes. Call physician if irritation continues. Skin: Wash with soap and water. Inhalation: Move to fresh air.			

Ingestion: N/A

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled
Sweep or vacuum material from spillages into a waste container for disposal or repackage. Avoid dusting conditions.
Waste Disposal Method
Dispose of unused product in waste container. Dispose of in accordance with local, state, and federal or national regulations.
Precautions to Be Taken in Handling and Storing
CAUTION!!! This product, when wet, removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, state, and federal or national regulations. Be sure proper ventilation and respiratory and eye protection are used under dusting conditions.
Other Precautions
Wash thoroughly after handling. Exercise caution in the storage and handling of all chemical substances.

Section VIII - Control Measures

Respiratory Protection *(Specify Type)* Carbon-A NIOSH-approved particulate filter respirator is recommended, if excessive dust is generated.		
Ventilation	Local Exhaust Recommended, when used indoors or in confined spaces	Special Not Required
	Mechanical *(General)* Recommended, when used indoors or in confined spaces	Other Not required
Protective Gloves Recommended	Eye Protection Safety glasses or goggles recommended	
Other Protective Clothing or Equipment Not required		
Work/Hygienic Practices Use of Tyvek® or Nomex® suits is suggested to protect skin from becoming excessively dirty and clothing from being ruined by contact with product.		

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096 / F 970.385.1873

September 27, 2012

Mr. Matt Webre
Williams Four Corners, LLC
188 County Road 4900
Bloomfield, NM 87413

RE: Work Plan for BOS 200® Amendment
Williams Four Corners, LLC
Dogie Compressor Station
Rio Arriba County, New Mexico

Dear Mr. Webre:

LT Environmental, Inc. (LTE) presents the following scope of work to Williams Four Corners, LLC (Williams) to apply BOS 200® as a remedial alternative at the former J Vent at the Dogie Compressor Station (Site) to address historical petroleum hydrocarbon impacts to groundwater.

Site Description and Background

The Site is located in the northwest quarter of the northwest quarter of Section 4, Township 25N, and Range 6W in Rio Arriba County, New Mexico in Largo Canyon as depicted in Figure 1. Largo Wash is 900 feet to the north-northeast. Largo Wash drains into the San Juan River approximately 28 miles to the north. An-oilfield maintenance water well permitted by the New Mexico Office of the State Engineer is located at the Site, but no additional permitted water wells exist within a one-mile radius.

Williams excavated soil beneath the former J Vent to the extent shown on Figure 2. The excavation is approximately 80 feet long and 60 feet wide. The total depth of the excavation ranges from 5 feet to 7 feet below ground surface (bgs). Confirmation soil samples were collected above the smear zone along the sidewalls of the excavation by depositing five aliquots of soil into plastic bags, thoroughly mixing the contents and sampling into four ounce glass jars. Soil samples were stored on ice and delivered Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico following strict chain-of-custody procedures. The soil samples were analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX) by United States Environmental Protection Agency (USEPA) Method 8021B and total petroleum hydrocarbons (TPH) by USEPA Method 8015B. The laboratory report is included in Attachment A and indicates soil samples did not exceed New Mexico Oil Conservation Division (NMOCD) standards.

Groundwater was encountered at approximately 6 feet bgs. No sheen or odor was observed on the pooling groundwater. Groundwater was sampled by collecting a grab sample in a decontaminated glass jar and immediately filling three pre-cleaned and pre-preserved 40-

milliliter (ml) glass vials with zero headspace to prevent degradation of the sample. The groundwater sample was delivered on ice to HEAL and analyzed for BTEX according to USEPA Method 8021B. The complete laboratory analytical report is included in Appendix A and indicates benzene, toluene, and total xylenes concentrations exceed New Mexico Water Quality Control Commission (NMWQCC) standards.

To address the remaining impacted soil present on the bottom of the excavation, Williams would like to apply an amendment to the excavation floor to enhance bioremediation of the smear zone.

BOS 200® Technology

LTE recommends applying BOS 200® as a proven enhanced attenuation, biological remediation method that has been successful at obtaining closure at over one hundred LTE sites. The BOS 200® product is a mix of activated carbon, petroleum consuming microbes, calcium sulfate (gypsum), and nutrients. The product removes hydrocarbons from the water and saturated sediments through biological degradation of the hydrocarbon compounds. The product is applied directly to the smear zone during backfilling and the activated carbon attracts the hydrocarbons and adsorbs them where the hydrocarbons are co-located with microbes, nutrients, and electron acceptors. As the hydrocarbons are adsorbed into the activated carbon, the microbes will use the hydrocarbons as a food source for respiratory and metabolic processes. The microbes, in essence, eat the hydrocarbons that are adsorbed to the activated carbon. Gypsum at low concentrations is added to the mix to ensure proper mass of electron acceptors (the bacteria may use available oxygen or the supplemental sulfate) in order for the facultative bacteria to consume the hydrocarbons. The hydrocarbons are transformed via the microbial action to the innocuous products of carbon dioxide and water, which escape the activated carbon matrix, and allow for re-adsorption of additional hydrocarbons. The technology has thus been coined a “trap and treat” technology, as the activated carbon immediately removes hydrocarbons (trap) in preparation for bioremediation processes (treat).

Scope of Work

To reduce the potential for any further groundwater impact resulting from residual hydrocarbons, LTE will apply a total of 1,000 pounds of BOS 200® to the base of the excavation prior to backfilling. In evaluating the Site, LTE has designed the application to reduce benzene concentrations from 630 µg/l to less than 10 µg/l by applying approximately 20 pounds of BOS 200® to each 10-foot square area of the smear zone.

One week after the BOS 200® application and backfilling, LTE will install a temporary groundwater monitoring well to collect a groundwater sample. The well will be developed and allowed to recharge a minimum of 24 hours prior to collection of a groundwater sample. The groundwater sample will be analyzed for BTEX by USEPA Method 8021. If the

analytical results indicate the BTEX concentration in the groundwater is less than NMWQCC standards, the temporary groundwater monitoring well will be abandoned.

If you have any questions or comments regarding the scope of work or related cost estimates, please do not hesitate to contact me at (970) 385-1096 or via email at aager@ltenv.com.

Sincerely,

LT ENVIRONMENTAL, INC.

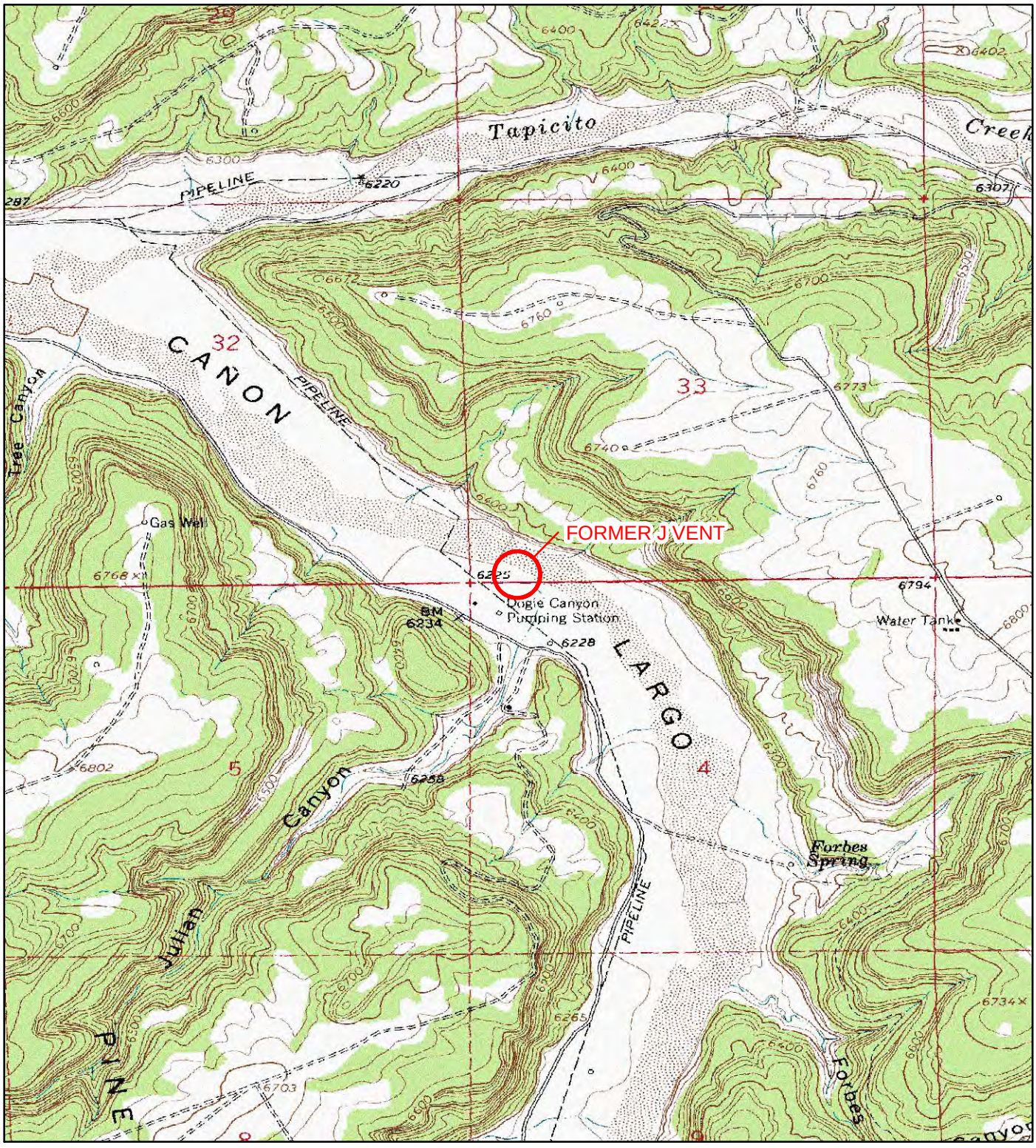
Ashley L. Ager, M.S.
Senior Geologist

Attachments (3)

Figure 1 – Site Location Map
Figure 2 – Site Map

Attachment A – Laboratory Reports

FIGURES



LEGEND

SITE LOCATION

IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

0 2,000 4,000

Feet

N

FIGURE 1
SITE LOCATION MAP
FORMER J VENT
DOGIE COMPRESSOR STATION
RIO ARRIBA COUNTY, NEW MEXICO
WILLIAMS FOUR CORNERS, LLC

P:\Williams Four Corners\GIS\MXD\034012001_DOGIE\034012002_DOGIE_FIG01_SL_MAP.mxd

IMAGE COURTESY OF USDA/NRCS, 2011

0 100 200

Feet

N

LEGEND

- EXISTING MONITORING WELL
- FENCE
- FORMER J VENT
- EXCAVATION EXTENT

FIGURE 2
EXCAVATION EXTENT
FORMER J VENT
DOGIE COMPRESSOR STATION
RIO ARRIBA COUNTY, NEW MEXICO

WILLIAMS FOUR CORNERS, LLC

P:\Williams Four Corners\GIS\MXD\034012001_DOGIE\034012002_DOGIE_FIG02_SITE_MAP.mxd

ATTACHMENT A
LABORATORY ANALYTICAL REPORTS

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 19, 2012

Ashley Ager

LTE
2243 Main Ave Suite 3
Durango, CO 81301
TEL: (970) 946-1093
FAX

RE: J Vent OrderNo.: 1209694

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 4 sample(s) on 9/18/2012 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1209694**
Date Reported: **9/19/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: North Walll
Project: J Vent
Collection Date: 9/17/2012 10:27:00 AM
Lab ID: 1209694-001
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/19/2012 7:30:09 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/19/2012 7:30:09 AM
Surr: DNOP	111	77.6-140		%REC	1	9/19/2012 7:30:09 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 2:01:25 PM
Surr: BFB	100	84-116		%REC	1	9/18/2012 2:01:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 2:01:25 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 2:01:25 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 2:01:25 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 2:01:25 PM
Surr: 4-Bromofluorobenzene	99.1	80-120		%REC	1	9/18/2012 2:01:25 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: South Wall
Project: J Vent
Collection Date: 9/17/2012 10:33:00 AM
Lab ID: 1209694-002
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/19/2012 7:51:37 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/19/2012 7:51:37 AM
Surr: DNOP	104	77.6-140		%REC	1	9/19/2012 7:51:37 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 2:30:11 PM
Surr: BFB	100	84-116		%REC	1	9/18/2012 2:30:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 2:30:11 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 2:30:11 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 2:30:11 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 2:30:11 PM
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	9/18/2012 2:30:11 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: East Wall
Project: J Vent
Collection Date: 9/17/2012 9:40:00 AM
Lab ID: 1209694-003
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/19/2012 8:13:18 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/19/2012 8:13:18 AM
Surr: DNOP	109	77.6-140		%REC	1	9/19/2012 8:13:18 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 2:59:02 PM
Surr: BFB	101	84-116		%REC	1	9/18/2012 2:59:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 2:59:02 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 2:59:02 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 2:59:02 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 2:59:02 PM
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	9/18/2012 2:59:02 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: West Wall
Project: J Vent
Collection Date: 9/17/2012 10:30:00 AM
Lab ID: 1209694-004
Matrix: MEOH (SOIL)
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/19/2012 8:34:50 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/19/2012 8:34:50 AM
Surr: DNOP	111	77.6-140		%REC	1	9/19/2012 8:34:50 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/18/2012 3:27:52 PM
Surr: BFB	101	84-116		%REC	1	9/18/2012 3:27:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	9/18/2012 3:27:52 PM
Toluene	ND	0.050		mg/Kg	1	9/18/2012 3:27:52 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/18/2012 3:27:52 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/18/2012 3:27:52 PM
Surr: 4-Bromofluorobenzene	103	80-120		%REC	1	9/18/2012 3:27:52 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID	**MB-3802**	SampType:	**MBLK**		TestCode:	**EPA Method 8015B: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**3802**		RunNo:	**5617**				
Prep Date:	**9/18/2012**	Analysis Date:	**9/19/2012**		SeqNo:	**161020**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		103	77.6	140			

Sample ID	**LCS-3802**	SampType:	**LCS**		TestCode:	**EPA Method 8015B: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**3802**		RunNo:	**5617**				
Prep Date:	**9/18/2012**	Analysis Date:	**9/19/2012**		SeqNo:	**161021**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	29	10	50.00	0	58.5	52.6	130			
Surr: DNOP	4.2		5.000		84.2	77.6	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID	**MB-3765**	SampType:	**MBLK**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160814**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		99.3	84	116			

Sample ID	**LCS-3765**	SampType:	**LCS**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160815**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	74	117			
Surr: BFB	1000		1000		103	84	116			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID	**MB-3765**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160837**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Sample ID	**LCS-3765**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**3765**	RunNo:	**5612**					
Prep Date:	**9/14/2012**	Analysis Date:	**9/18/2012**	SeqNo:	**160838**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	100	76.3	117			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.0	0.050	1.000	0	103	77	116			
Xylenes, Total	3.1	0.10	3.000	0	104	76.7	117			
Surr: 4-Bromofluorobenzene	1.1		1.000		109	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209694**

19-Sep-12

Client: LTE

Project: J Vent

Sample ID **mb-3765**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBS**	Batch ID: **3765**	RunNo: **5580**
Prep Date: **9/14/2012**	Analysis Date: **9/17/2012**	SeqNo: **160199** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.43		0.5000		85.0	70	130			
Surr: 4-Bromofluorobenzene	0.42		0.5000		83.7	70	130			
Surr: Dibromofluoromethane	0.43		0.5000		85.9	70	130			
Surr: Toluene-d8	0.38		0.5000		75.9	70	130			

Sample ID **lcs-3765**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSS**	Batch ID: **3765**	RunNo: **5580**
Prep Date: **9/14/2012**	Analysis Date: **9/17/2012**	SeqNo: **160219** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.42		0.5000		83.5	70	130			
Surr: 4-Bromofluorobenzene	0.42		0.5000		83.5	70	130			
Surr: Dibromofluoromethane	0.43		0.5000		86.8	70	130			
Surr: Toluene-d8	0.36		0.5000		72.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: LTE Work Order Number: 1209694

Received by/date: LM 09/18/12

Logged By: **Michelle Garcia** 9/18/2012 10:00:00 AM Michelle Garcia

Completed By: **Michelle Garcia** 9/18/2012 10:25:57 AM Michelle Garcia

Reviewed By: 09/18/12

Chain of Custody

1. Were seals intact? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☑ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☑ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
10. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
11. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
12. Were any sample containers received broken? Yes ☐ No ☑
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
15. Is it clear what analyses were requested? Yes ☑ No ☐
16. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

18. Additional remarks:

19. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

Chain-of-Custody Record

Client: LTE

Mailing Address: 2243 Main Ave #3
Durango, CO 81301

Phone #: 970 385 1096

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush 24 hrs

Project Name:
J Vent

Project #:

Project Manager:
Ashley Ager

Sampler: Ashley Ager
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No 1209094	BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel) + MRO	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
9-17-12	10:27	soil	North Wall	4oz/1	cool	-001	✓		✓													
9-17-12	10:33	soil	South Wall	4oz/1	cool	-002	✓		✓													
9-17-12	9:40	soil	East Wall	4oz/1	cool	-003	✓		✓													
9-17-12	10:30	soil	West Wall	4oz/1	cool	-004	✓		✓													
~~9-17-12~~		soil		4oz/1	cool	nd																

Date:	Time:	Relinquished by:	Received by:	Date	Time
9-17-12	13:50	Ashley L Ager	Christie Walker	9/17/12	1350
9/17/12	1740	Christie Walker		09/18/12	1000

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
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Website: www.hallenvironmental.com

September 21, 2012

Ashley Ager

LTE
2243 Main Ave Suite 3
Durango, CO 81301
TEL: (970) 946-1093
FAX

RE: J Vent OrderNo.: 1209693

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/18/2012 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1209693**
Date Reported: **9/21/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: LTE
Client Sample ID: GW-1
Project: J Vent
Collection Date: 9/17/2012 12:11:00 PM
Lab ID: 1209693-001
Matrix: AQUEOUS
Received Date: 9/18/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	630	50		µg/L	50	9/18/2012 12:38:57 PM
Toluene	2800	50		µg/L	50	9/18/2012 12:38:57 PM
Ethylbenzene	190	50		µg/L	50	9/18/2012 12:38:57 PM
Xylenes, Total	2000	100		µg/L	50	9/18/2012 12:38:57 PM
Surr: 4-Bromofluorobenzene	102	69.7-152		%REC	50	9/18/2012 12:38:57 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209693**

21-Sep-12

Client: LTE

Project: J Vent

Sample ID	**5ML RB**	SampType:	**MBLK**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**PBW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160860**	Units:	**%REC**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		19		20.00		93.2	69.8	119			

Sample ID	**2.5UG GRO LCS**	SampType:	**LCS**	TestCode:	**EPA Method 8015B: Gasoline Range**					
Client ID:	**LCSW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160861**	Units:	**%REC**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		21		20.00		104	69.8	119			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1209693**

21-Sep-12

Client: LTE

Project: J Vent

Sample ID	**5ML RB**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160875**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	19		20.00		94.2	69.7	152			

Sample ID	**100NG BTEX LCS**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSW**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160876**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.5	80	120			
Toluene	20	1.0	20.00	0	102	80	120			
Ethylbenzene	21	1.0	20.00	0	105	80	120			
Xylenes, Total	64	2.0	60.00	0	107	80	120			
Surr: 4-Bromofluorobenzene	19		20.00		92.6	69.7	152			

Sample ID	**1209693-001AMS**	SampType:	**MS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**GW-1**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160881**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1700	50	1000	626.5	104	74.1	124			
Toluene	4000	50	1000	2847	112	75.2	124			
Ethylbenzene	1200	50	1000	187.4	105	69	125			
Xylenes, Total	5300	100	3000	1997	109	73.1	126			
Surr: 4-Bromofluorobenzene	930		1000		93.3	69.7	152			

Sample ID	**1209693-001AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**GW-1**	Batch ID:	**R5614**	RunNo:	**5614**					
Prep Date:		Analysis Date:	**9/18/2012**	SeqNo:	**160882**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1600	50	1000	626.5	100	74.1	124	2.08	11.2	
Toluene	3900	50	1000	2847	110	75.2	124	0.523	11.9	
Ethylbenzene	1200	50	1000	187.4	103	69	125	1.91	13.5	
Xylenes, Total	5200	100	3000	1997	106	73.1	126	1.63	13	
Surr: 4-Bromofluorobenzene	1000		1000		99.8	69.7	152	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: LTE | Work Order Number: 1209693

Received by/date: 09/18/12

Logged By: **Lindsay Mangin** | 9/18/2012 10:00:00 AM

Completed By: **Lindsay Mangin** | 9/18/2012 10:22:24 AM

Reviewed By: 09/18/12

Chain of Custody

1. Were seals intact?	Yes	No	Not Present ✔
2. Is Chain of Custody complete?	Yes ✔	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Coolers are present? (see 19. for cooler specific information)	Yes ✔	No	NA
5. Was an attempt made to cool the samples?	Yes ✔	No	NA
6. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
7. Sample(s) in proper container(s)?	Yes ✔	No	
8. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
9. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
10. Was preservative added to bottles?	Yes	No ✔	NA
11. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
12. Were any sample containers received broken?	Yes	No ✔	
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH:
14. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	(<2 or >12 unless noted)
15. Is it clear what analyses were requested?	Yes ✔	No	Adjusted?
16. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes | No | NA ✔

Person Notified: _____ Date: _____

By Whom: _____ Via: eMail | Phone | Fax | In Person

Regarding: _____

Client Instructions: _____

18. Additional remarks:

19. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

Chain-of-Custody Record

Client: LTE

Mailing Address: 2243 Main Ave #3
Durango, CO 81301

Phone #: 970 385 1096

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 24 hr

Project Name:
J Vint

Project #:

Project Manager:
Ashley Ager

Sampler: Ashley Ager

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1209693	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
9-17-12	12:11	GW	GW-1	40mL/3	HCl	-001	✓											

Date:	Time:	Relinquished by:	Received by:	Date	Time
9-17-12	1351	Ashley L Ager	Christine Walters	9/17/12	1351
9/17/12	1740	Christine Walters		09/18/12	1000

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.