

# R. T. HICKS CONSULTANTS, LTD.

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901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996  
Artesia ▲ Carlsbad ▲ Durango ▲ Midland

January 2, 2017

Mr. Bradford Billings and Mr. Mike Bratcher  
New Mexico Oil Conservation Division  
811 S. 1st Street  
Artesia, NM 88210  
Via E-Mail

RE: Lime Rock – ASAU 150 Trunk Line Release Remediation Plan  
**#2RP-3893**

Mr. Billings and Mr. Bratcher:

On behalf of Lime Rock Resources, R.T. Hicks Consultants, Ltd. is pleased to submit the remediation plan for the above-referenced release. Plate 1 is a Google Earth image showing the location of the release relative to the junction of Fanning Road (CR 44) and Thistle Road (CR 24).

## Initial Response Actions

The initial excavation and disposal response was an effort to create a “clean closure” for this release. Soil sampling, summarized in the next section, shows that this effort effectively defined the horizontal extent of subsurface impact. The reach of the excavation equipment was not sufficient to delineate the vertical extent of petroleum hydrocarbons. The data demonstrate that chloride concentrations are not a material concern at this release site.

Following excavation and removal of 223 cubic yards of impacted material, Lime Rock installed a 20-mil LLDPE six feet below grade within the footprint of the 6-15 foot deep excavation:

North	32.74325-104.34811
South	32.74313, -104.34815
West	32.74319,-104.34818
East	32.74321 ,-104.34807

Lime Rock imported clean fill to restore grade. As the release is adjacent to an Eddy County Road, restoration of grade in a short time frame was necessary to maintain safety.

The purpose of the liner was twofold:

1. Minimization of water infiltration over residual impacted earth material, thereby reducing any moisture flux that could mobilize the hydrocarbons downward to groundwater.
2. Creation of a vapor barrier between the residual impacted earth below the liner and the clean fill (and atmosphere) that lay above the liner. Soil Vapor Extraction (SVE) is often a successful hydrocarbon remedial measure and planning for potentially employing SVE was prudent.

Because the vertical impact of the release was not sufficiently delineated by excavation, Lime Rock installed a boring near the center of the excavated area and collected samples at regular intervals from below the liner to the capillary fringe of the shallow water table.

Figure 1 is a scale sketch map showing the general extent of the excavation the location of the soil boring and general location of samples. Figures 2-4 at the end of this submission are photographs of the extent of excavation and the placement of the liner.

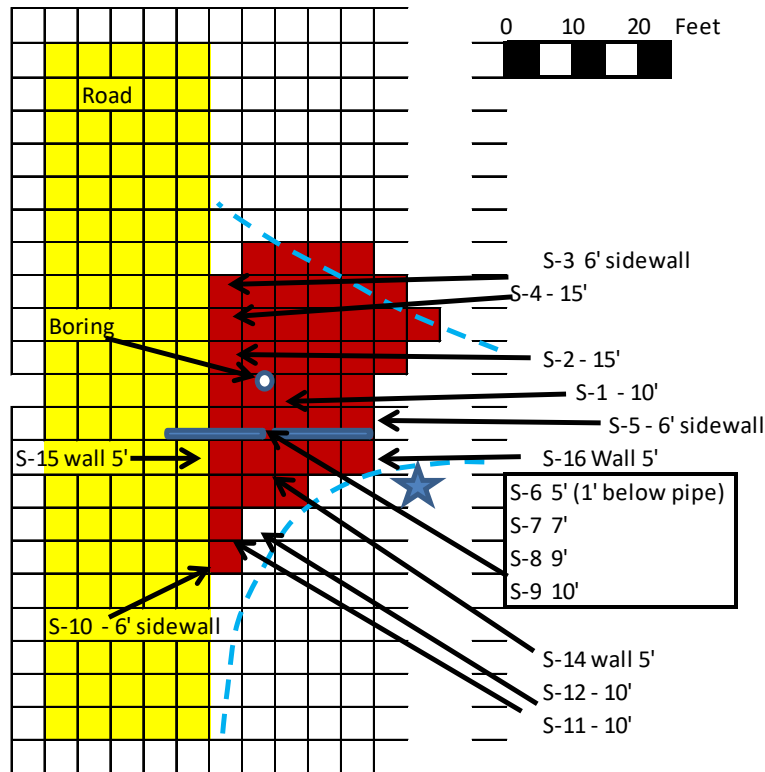


Figure 1: Scaled drawing of release excavation (red), location of pipeline (dark blue), Eddy County Road (yellow) and edge of lease road (dashed light blue). General location of samples and boring are shown. The blue star is the proposed location of a groundwater monitoring well discussed later in this submission.

## Sampling and Results

All the data are summarized in Table 1. Table 1 consists of samples from the bottom of the excavation after removal of obvious hydrocarbon impact. Sidewall samples S-3, S-14, S15 and S-16 were taken after the horizontal extent of obvious hydrocarbon impairment was removed to a landfill. The yellow highlighted data comes from below the active pipeline and was not excavated and removed due to safety concerns. The data demonstrate that:

- The horizontal extent of impacts to earth material from the line release is well-defined by the four sidewall samples described above, all of which show BTEX concentrations below laboratory detection limits.
- The residual chloride concentration from the sidewalls and base of the final excavation is less than 600 mg/kg.
- The average BTEX concentration at the base of the excavation is 329 mg/kg, demonstrating that the vast majority of earth material impacted by the release was removed to the landfill

**Table 1 - Soil Sampling Results (mg/kg)**

Sample Name	Depth	BTEX	Benzene	GRO	DRO	MRO	TPH	Chloride
S-1 12' deep	12'	<0.300	<0.50	<10.0	14.7	10.2	14.7	160
S-2 15' deep	15'	503	25.3	2750	8130	1020	10880	144
S-3 N. sidewall 6' bgs	6'	<0.300	<0.050	<10.0	<10.0	<10.0	<10.0	160
S-4 15' deep	15'	812	75.7	5310	11000	1440	16300	48
S-5 East wall 6' bgs	6'	0.346	0.104	<10.0	<10.0	<10.0	<10.0	576
S-6 below P.L. 5'	5'	1550	192	14400	21600	2900	36000	2520
S-7 below P.L. 7'	7'	542	43.2	3900	8460	1260	12360	13200
S-8 below PL 9' bgs	9'	824	82.7	4290	9520	1350	13810	11200
S-9 below P.L. 10'	10'	1380	151	9470	15000	2040	24470	3120
S-10 W.wall 6' bgs	6'	703	44.6	6300	12800	1860	19100	640
S-11 S. wall 6' bgs	6'	0.676	0.133	<0.10	<0.10	<0.10	<0.10	576
S-12 Trench 10' bgs	10'	0.728	0.094	<10.0	85.4	13.3	85.4	32
S-13 6' deep	6'	<0.300	<0.50	<10.0	<10.0	<10.0	<10.0	896
S-14 S. Wall 5' bgs	5'	<0.300	<0.50	<10.0	<10.0	<10.0	<10.0	416
S-15 W. Wall 5' bgs	5'	<0.300	<0.50	<10.0	19.9	<10.0	19.9	224
S-16 E. Wall 5' bgs	5'	<0.300	<0.50	<10.0	<10.0	<10.0	<10.0	608
Average impact below pipeline		1074						7510
Average Final Sidewall		<0.300						352
Average excavation base		329						256

Expanded excavation removed these sample locations

The data from the boring is summarized in the log attached at the end of this submission. These data show that BTEX concentration in the boring decreases from 995 mg/kg at the 15-foot depth interval to average concentration of 150 mg/kg for the interval from 20 feet to 45 feet. The boring data also show that BTEX concentrations do not decrease with depth.

## Discussion of Data

The data from the boring and the excavation show that chloride is not a material threat to groundwater quality at this release site. A narrow zone of high chloride impact does exist below the pipeline. This soil could not be removed for obvious reasons associated with the support of the active line. Moreover, the area beneath the pipeline represents a small mass of salt.

Excavation and removal of impacted earth material removed a significant mass of hydrocarbons to a landfill. However, a relatively small residual hydrocarbon mass exists between 15 feet below grade to the capillary fringe. As presented in the boring log BTEX is 995 mg/kg at the 15-foot sample and average BTEX concentrations below this depth are:

142 mg/kg	20-30 feet below grade (3 samples)
159 mg/kg	35-45 feet below grade (3 samples)

Although the BTEX concentrations are relatively low from 20-45 feet below grade, the proximity of groundwater to obvious hydrocarbon impact requires an evaluation of groundwater quality down gradient from the release. Additionally, the BTEX concentrations and the lithology of the

boring log suggests that SVE may be an effective remedy to further minimize the potential of vertical migration of hydrocarbons from the unsaturated zone to ground water.

## **Proposed Actions**

### *Monitor Well Installation*

Plate 2 is a topographic and geologic map of the general area showing the locations of shallow wells (less than 150 feet deep) from the Office of the State Engineer database. Also plotted is the water table elevation based upon

- selected driller's data from the OSE database,
- Four wells that were measured by Hicks Consultants in December of 2016,
- one well measured in 1959 from a published report, and
- two USGS wells gauged by a professional.

From this potentiometric surface map, we estimated the groundwater flow direction in the area of the release is to the southeast. The data suggest a groundwater mound west and north of the release site and south of the release site is a groundwater trough. The reason for the mound may be irrigation recharge. The groundwater trough corresponds to an area without irrigation, which permits a speculation that valley fill topsoil derived from the ancestral Pecos River is not present and groundwater in this area comes principally from the underlying Artesia Group bedrock.

Based upon the presumed groundwater flow path, we propose to install a groundwater monitoring well within 5 feet of the down gradient edge of the area subject to the excavation and removal initial response. The construction of the well will follow New Mexico Guidance (attached).

In order to make full use of the mobilized drilling rig during installation of the monitoring well, Lime Rock will use the existing open soil boring near the center of the excavated area as the conduit to install two Soil Vapor Extraction wells.

### *Soil Vapor Extraction Well #1d*

The proposed completion design is

- Total depth is 49 feet, which the original depth of the soil boring
- Two-inch PVC pipe with screened interval between 46-49 feet
- Two-inch threaded PVC casing from 46 feet to ground surface
- Clean sand filter pack in annular space from total depth to 40 feet
- Neat cement grout from 40 feet to 20 feet below grade
- Sub grade well vault for surface completion

### *Vapor Extraction Well #1s*

In the same boring as SVE Well 1d, the completion design is

- Total depth of 19-20 feet
- Two-inch pipe with screened interval between 16-19 feet
- Two-inch threaded PVC casing from 16 feet to ground surface
- Clean sand filter pack in annular space from total depth to 15 feet
- Neat cement grout from 15 feet to grade
- Sub grade well vault for surface completion

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One week after development of the well, Hicks Consultants will collect a groundwater sample using EPA/ASTM methods that require appropriate purging of standing water in the casing. Sixty days after the initial groundwater sampling event, the well will be re-sampled and the results compared to the initial sampling. Within 5 days after receipt of the laboratory report for the second sampling event, we will submit the results to OCD. Within 120 days from the submission of this document, we will submit a plan for further action.

Please contact me if you have any questions. Please accept this letter as our notification per the approved CAP. Lime Rock has alerted the surface owner of regarding this proposed action.

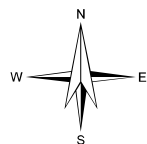
Sincerely,  
R.T. Hicks Consultants

A handwritten signature in black ink, appearing to read "Randall Hicks", written in a cursive style.

Randall Hicks

Copy: Lime Rock





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Feet

R.T. Hicks Consultants, Ltd  
901 Rio Grande Blvd NW Suite F-142  
Albuquerque, NM 87104  
Ph: 505.266.5004

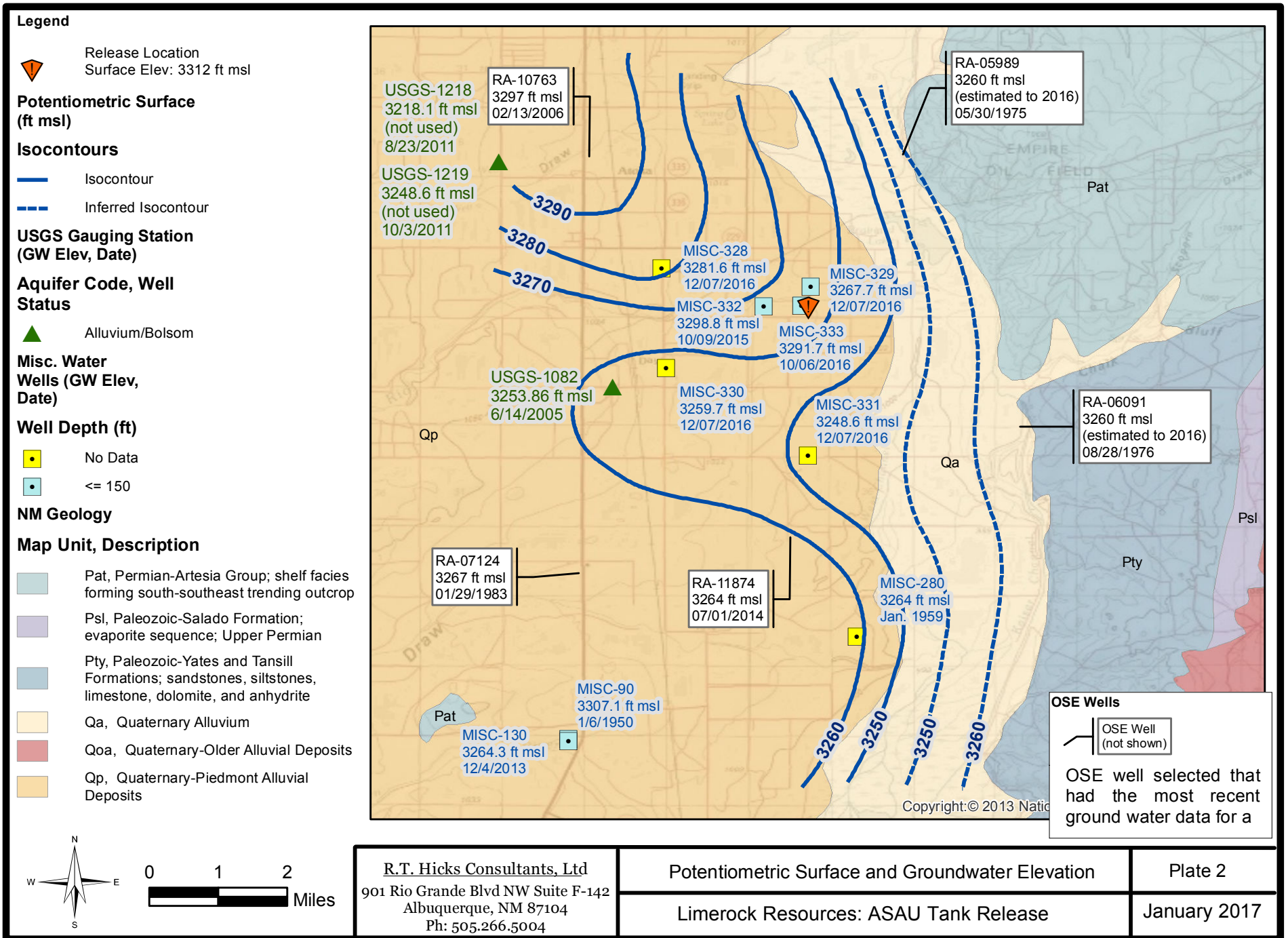
Release Location and Nearby Roads

ASAU Trunk Line Release

Plate 1

Sept 2016







Excavated area before placing liner looking to north



Excavated area before placing liner looking to south





Excavated area after placing  
liner looking to north



Excavated area after placing  
liner looking to south

September 22, 2016

RANDALL HICKS

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: ASAU TRUNK LINE RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 09/21/16 12:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S 1 - 12' DEEP (H602118-01)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/21/2016	ND	2.24	112	2.00	0.900	
Toluene*	<0.050	0.050	09/21/2016	ND	2.28	114	2.00	1.29	
Ethylbenzene*	<0.050	0.050	09/21/2016	ND	2.20	110	2.00	1.49	
Total Xylenes*	<0.150	0.150	09/21/2016	ND	6.68	111	6.00	1.74	
Total BTX	<0.300	0.300	09/21/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.7 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	09/22/2016	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/21/2016	ND	196	98.2	200	2.00	
DRO >C10-C28	14.7	10.0	09/21/2016	ND	204	102	200	0.832	
EXT DRO >C28-C35	10.2	10.0	09/21/2016	ND					

Surrogate: 1-Chlorooctane 78.7 % 35-147

Surrogate: 1-Chlorooctadecane 90.1 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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R T HICKS CONSULTANTS  
RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S 2 - 15' DEEP (H602118-02)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	25.3	2.00	09/22/2016	ND	2.24	112	2.00	0.900	
Toluene*	133	2.00	09/22/2016	ND	2.28	114	2.00	1.29	
Ethylbenzene*	103	2.00	09/22/2016	ND	2.20	110	2.00	1.49	
Total Xylenes*	242	6.00	09/22/2016	ND	6.68	111	6.00	1.74	
Total BTEX	503	12.0	09/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>144</b>	16.0	09/22/2016	ND	432	108	400	0.00		
<b>TPH 8015M</b>									<b>S-06</b>	

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	2750	100	09/21/2016	ND	196	98.2	200	2.00	
DRO >C10-C28	8130	100	09/21/2016	ND	204	102	200	0.832	
EXT DRO >C28-C35	1020	100	09/21/2016	ND					

Surrogate: 1-Chlorooctane 179 % 35-147

Surrogate: 1-Chlorooctadecane 210 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

R T HICKS CONSULTANTS  
RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S 3 - N SIDEWALL 6' BGS (H602118-03)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/21/2016	ND	2.24	112	2.00	0.900	
Toluene*	0.060	0.050	09/21/2016	ND	2.28	114	2.00	1.29	
Ethylbenzene*	0.067	0.050	09/21/2016	ND	2.20	110	2.00	1.49	
Total Xylenes*	0.163	0.150	09/21/2016	ND	6.68	111	6.00	1.74	
Total BTX	<0.300	0.300	09/21/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	09/22/2016	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/21/2016	ND	196	98.2	200	2.00	
DRO >C10-C28	<10.0	10.0	09/21/2016	ND	204	102	200	0.832	
EXT DRO >C28-C35	<10.0	10.0	09/21/2016	ND					

Surrogate: 1-Chlorooctane 72.7 % 35-147

Surrogate: 1-Chlorooctadecane 82.0 % 28-171

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S 4 - 15' (H602118-04)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	75.7	2.00	09/22/2016	ND	2.24	112	2.00	0.900	
Toluene*	247	2.00	09/22/2016	ND	2.28	114	2.00	1.29	
Ethylbenzene*	149	2.00	09/22/2016	ND	2.20	110	2.00	1.49	
Total Xylenes*	341	6.00	09/22/2016	ND	6.68	111	6.00	1.74	
Total BTEX	812	12.0	09/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	09/22/2016	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	5310	100	09/21/2016	ND	196	98.2	200	2.00	
DRO >C10-C28	11000	100	09/21/2016	ND	204	102	200	0.832	
EXT DRO >C28-C35	1440	100	09/21/2016	ND					

Surrogate: 1-Chlorooctane 200 % 35-147

Surrogate: 1-Chlorooctadecane 286 % 28-171

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RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S 5 - E SIDEWALL 6' (H602118-05)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>0.104</b>	0.050	09/22/2016	ND	2.24	112	2.00	0.900	
<b>Toluene*</b>	<b>0.170</b>	0.050	09/22/2016	ND	2.28	114	2.00	1.29	
<b>Ethylbenzene*</b>	<b>0.072</b>	0.050	09/22/2016	ND	2.20	110	2.00	1.49	
Total Xylenes*	<0.150	0.150	09/22/2016	ND	6.68	111	6.00	1.74	
<b>Total BTX</b>	<b>0.346</b>	0.300	09/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.3 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>576</b>	16.0	09/22/2016	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/21/2016	ND	196	98.2	200	2.00	
DRO >C10-C28	<10.0	10.0	09/21/2016	ND	204	102	200	0.832	
EXT DRO >C28-C35	<10.0	10.0	09/21/2016	ND					

Surrogate: 1-Chlorooctane 75.5 % 35-147

Surrogate: 1-Chlorooctadecane 88.0 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S 6 - 5' BGS @ LEAK (H602118-06)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	192	2.00	09/22/2016	ND	2.24	112	2.00	0.900	
Toluene*	493	2.00	09/22/2016	ND	2.28	114	2.00	1.29	
Ethylbenzene*	268	2.00	09/22/2016	ND	2.20	110	2.00	1.49	
Total Xylenes*	601	6.00	09/22/2016	ND	6.68	111	6.00	1.74	
Total BTEX	1550	12.0	09/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 116 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>2520</b>	16.0	09/22/2016	ND	432	108	400	0.00		

TPH 8015M	mg/kg		Analyzed By: MS					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	14400	100	09/21/2016	ND	196	98.2	200	2.00	
DRO >C10-C28	21600	100	09/21/2016	ND	204	102	200	0.832	
EXT DRO >C28-C35	2900	100	09/21/2016	ND					

Surrogate: 1-Chlorooctane 364 % 35-147

Surrogate: 1-Chlorooctadecane 571 % 28-171

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

R T HICKS CONSULTANTS  
RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S 7 - 7' BGS @ LEAK (H602118-07)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	43.2	2.00	09/22/2016	ND	2.24	112	2.00	0.900	
Toluene*	153	2.00	09/22/2016	ND	2.28	114	2.00	1.29	
Ethylbenzene*	104	2.00	09/22/2016	ND	2.20	110	2.00	1.49	
Total Xylenes*	242	6.00	09/22/2016	ND	6.68	111	6.00	1.74	
Total BTEX	542	12.0	09/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	13200	16.0	09/22/2016	ND	432	108	400	0.00		

TPH 8015M	mg/kg		Analyzed By: MS					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	3900	100	09/21/2016	ND	196	98.2	200	2.00	
DRO >C10-C28	8460	100	09/21/2016	ND	204	102	200	0.832	
EXT DRO >C28-C35	1260	100	09/21/2016	ND					

Surrogate: 1-Chlorooctane 180 % 35-147

Surrogate: 1-Chlorooctadecane 220 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S 8 - 9' BGS @ LEAK (H602118-08)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	82.7	2.00	09/22/2016	ND	2.24	112	2.00	0.900		
Toluene*	247	2.00	09/22/2016	ND	2.28	114	2.00	1.29		
Ethylbenzene*	152	2.00	09/22/2016	ND	2.20	110	2.00	1.49		
Total Xylenes*	342	6.00	09/22/2016	ND	6.68	111	6.00	1.74		
Total BTEX	824	12.0	09/22/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>11200</b>	16.0	09/22/2016	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	4290	100	09/21/2016	ND	196	98.2	200	2.00	
DRO >C10-C28	9520	100	09/21/2016	ND	204	102	200	0.832	
EXT DRO >C28-C35	1350	100	09/21/2016	ND					

Surrogate: 1-Chlorooctane 185 % 35-147

Surrogate: 1-Chlorooctadecane 243 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S 9 - 10' BGS @ LEAK (H602118-09)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	151	2.00	09/22/2016	ND	2.24	112	2.00	0.900	
Toluene*	435	2.00	09/22/2016	ND	2.28	114	2.00	1.29	
Ethylbenzene*	245	2.00	09/22/2016	ND	2.20	110	2.00	1.49	
Total Xylenes*	548	6.00	09/22/2016	ND	6.68	111	6.00	1.74	
Total BTX	1380	12.0	09/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3120	16.0	09/22/2016	ND	432	108	400	0.00		
TPH 8015M		mg/kg		Analyzed By: MS						S-06

TPH 8015M	mg/kg		Analyzed By: MS					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	9470	100	09/21/2016	ND	196	98.2	200	2.00	
DRO >C10-C28	15000	100	09/21/2016	ND	204	102	200	0.832	
EXT DRO >C28-C35	2040	100	09/21/2016	ND					

Surrogate: 1-Chlorooctane 250 % 35-147

Surrogate: 1-Chlorooctadecane 372 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S 10 - W SIDEWALL 6' (H602118-10)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>44.6</b>	2.00	09/22/2016	ND	2.24	112	2.00	0.900	
<b>Toluene*</b>	<b>198</b>	2.00	09/22/2016	ND	2.28	114	2.00	1.29	
<b>Ethylbenzene*</b>	<b>136</b>	2.00	09/22/2016	ND	2.20	110	2.00	1.49	
<b>Total Xylenes*</b>	<b>324</b>	6.00	09/22/2016	ND	6.68	111	6.00	1.74	
<b>Total BTEX</b>	<b>703</b>	12.0	09/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>640</b>	16.0	09/22/2016	ND	432	108	400	0.00	
<b>TPH 8015M</b>									<b>S-06</b>

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>6300</b>	100	09/21/2016	ND	196	98.2	200	2.00	
<b>DRO &gt;C10-C28</b>	<b>12800</b>	100	09/21/2016	ND	204	102	200	0.832	
<b>EXT DRO &gt;C28-C35</b>	<b>1860</b>	100	09/21/2016	ND					

Surrogate: 1-Chlorooctane 216 % 35-147

Surrogate: 1-Chlorooctadecane 330 % 28-171

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Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

R T HICKS CONSULTANTS  
RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

### Sample ID: S 11 - S SIDEWALL 6' (H602118-11)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>0.113</b>	0.050	09/22/2016	ND	2.24	112	2.00	0.900	
<b>Toluene*</b>	<b>0.219</b>	0.050	09/22/2016	ND	2.28	114	2.00	1.29	
<b>Ethylbenzene*</b>	<b>0.120</b>	0.050	09/22/2016	ND	2.20	110	2.00	1.49	
<b>Total Xylenes*</b>	<b>0.225</b>	0.150	09/22/2016	ND	6.68	111	6.00	1.74	
<b>Total BTX</b>	<b>0.676</b>	0.300	09/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.0 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>576</b>	16.0	09/22/2016	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/21/2016	ND	196	98.2	200	2.00	
DRO >C10-C28	<10.0	10.0	09/21/2016	ND	204	102	200	0.832	
EXT DRO >C28-C35	<10.0	10.0	09/21/2016	ND					

Surrogate: 1-Chlorooctane 77.3 % 35-147

Surrogate: 1-Chlorooctadecane 91.0 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
RANDALL HICKS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/21/2016	Sampling Date:	09/20/2016
Reported:	09/22/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S 12- S TRENCH 10' (H602118-12)**

BTX 8021B			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>0.094</b>	0.050	09/22/2016	ND	2.24	112	2.00	0.900	
<b>Toluene*</b>	<b>0.211</b>	0.050	09/22/2016	ND	2.28	114	2.00	1.29	
<b>Ethylbenzene*</b>	<b>0.118</b>	0.050	09/22/2016	ND	2.20	110	2.00	1.49	
<b>Total Xylenes*</b>	<b>0.304</b>	0.150	09/22/2016	ND	6.68	111	6.00	1.74	
<b>Total BTX</b>	<b>0.728</b>	0.300	09/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 73.6-140

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AC				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>32.0</b>	16.0	09/22/2016	ND	432	108	400	0.00	

TPH 8015M			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/21/2016	ND	196	98.2	200	2.00	
<b>DRO &gt;C10-C28</b>	<b>85.4</b>	10.0	09/21/2016	ND	204	102	200	0.832	
<b>EXT DRO &gt;C28-C35</b>	<b>13.3</b>	10.0	09/21/2016	ND					

Surrogate: 1-Chlorooctane 71.2 % 35-147

Surrogate: 1-Chlorooctadecane 81.8 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside if QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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---

Celey D. Keene, Lab Director/Quality Manager



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Bill To hine Rock Arrest

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

Company Name: K.T. Hicks		P.O. #:		BILL TO										ANALYSIS REQUEST									
Project Manager: RTH		Company: Lime Rock																					
Address: R & Thicksconsult.com		Attn:																					
City:		Address:																					
Phone #: 505-238-9515		City:																					
Fax #: 505-238-9515		State:																					
Project #:		Zip:																					
Project Name: AMT ASAU TRUNK LINE Release		Phone #:																					
Project Location: ARTHUR		Fax #:																					
Sample Name: RTHicks		DATE																					
FOR LAB USE ONLY		TIME																					
Lab I.D.		TPH = GRO + DRO + MRO																					
Sample I.D.		BTX																					
H0218-		Chloride																					
01		X																					
02		X																					
03		X																					
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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240

(575) 393-2326 FAX (575) 393-2476

[illegible]

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

Page 16 of 16



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

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September 26, 2016

R T HICKS CONSULTANTS

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: ASAU TRUNK LINE RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 09/23/16 11:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager



**Analytical Results For:**

R T HICKS CONSULTANTS  
R T HICKS CONSULTANTS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received:	09/23/2016	Sampling Date:	09/21/2016
Reported:	09/26/2016	Sampling Type:	Soil
Project Name:	ASAU TRUNK LINE RELEASE	Sampling Condition:	** (See Notes)
Project Number:	30.015.0028N	Sample Received By:	Jodi Henson
Project Location:	ARTESIA		

**Sample ID: S-13 6' DEEP BOTTOM (H602140-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/25/2016	ND	2.26	113	2.00	1.18	
Toluene*	<0.050	0.050	09/25/2016	ND	2.30	115	2.00	1.47	
Ethylbenzene*	<0.050	0.050	09/25/2016	ND	2.20	110	2.00	1.07	
Total Xylenes*	<0.150	0.150	09/25/2016	ND	6.63	110	6.00	1.11	
Total BTEX	<0.300	0.300	09/25/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.4 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	896	16.0	09/23/2016	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/24/2016	ND	199	99.4	200	2.82	
DRO >C10-C28	<10.0	10.0	09/24/2016	ND	212	106	200	5.31	
EXT DRO >C28-C35	<10.0	10.0	09/24/2016	ND					

Surrogate: 1-Chlorooctane 81.5 % 35-147

Surrogate: 1-Chlorooctadecane 96.5 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 R T HICKS CONSULTANTS  
 R T HICKS CONSULTANTS  
 901 RIO GRANDE BLVD SUITE F-142  
 ALBUQUERQUE NM, 87104  
 Fax To: NONE

 Received: 09/23/2016  
 Reported: 09/26/2016  
 Project Name: ASAU TRUNK LINE RELEASE  
 Project Number: 30.015.0028N  
 Project Location: ARTESIA

 Sampling Date: 09/21/2016  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Jodi Henson

**Sample ID: S-14 S. SIDEWALL 5' BGS (H602140-02)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/25/2016	ND	2.26	113	2.00	1.18	
Toluene*	<0.050	0.050	09/25/2016	ND	2.30	115	2.00	1.47	
Ethylbenzene*	0.069	0.050	09/25/2016	ND	2.20	110	2.00	1.07	
Total Xylenes*	0.190	0.150	09/25/2016	ND	6.63	110	6.00	1.11	
Total BTEx	<0.300	0.300	09/25/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	09/23/2016	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/24/2016	ND	199	99.4	200	2.82	
DRO >C10-C28	<10.0	10.0	09/24/2016	ND	212	106	200	5.31	
EXT DRO >C28-C35	<10.0	10.0	09/24/2016	ND					

Surrogate: 1-Chlorooctane 82.4 % 35-147

Surrogate: 1-Chlorooctadecane 95.9 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 R T HICKS CONSULTANTS  
 R T HICKS CONSULTANTS  
 901 RIO GRANDE BLVD SUITE F-142  
 ALBUQUERQUE NM, 87104  
 Fax To: NONE

 Received: 09/23/2016  
 Reported: 09/26/2016  
 Project Name: ASAU TRUNK LINE RELEASE  
 Project Number: 30.015.0028N  
 Project Location: ARTESIA

 Sampling Date: 09/21/2016  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Jodi Henson

**Sample ID: S-15 W. SIDEWALL 5' BGS (H602140-03)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/25/2016	ND	2.26	113	2.00	1.18	
Toluene*	<0.050	0.050	09/25/2016	ND	2.30	115	2.00	1.47	
Ethylbenzene*	<0.050	0.050	09/25/2016	ND	2.20	110	2.00	1.07	
Total Xylenes*	<0.150	0.150	09/25/2016	ND	6.63	110	6.00	1.11	
Total BTX	<0.300	0.300	09/25/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.2 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	09/23/2016	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/24/2016	ND	199	99.4	200	2.82	
DRO >C10-C28	19.9	10.0	09/24/2016	ND	212	106	200	5.31	
EXT DRO >C28-C35	<10.0	10.0	09/24/2016	ND					

Surrogate: 1-Chlorooctane 86.8 % 35-147

Surrogate: 1-Chlorooctadecane 101 % 28-171

Cardinal Laboratories

\* = Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
R T HICKS CONSULTANTS  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received: 09/23/2016  
Reported: 09/26/2016  
Project Name: ASAU TRUNK LINE RELEASE  
Project Number: 30.015.0028N  
Project Location: ARTESIA

Sampling Date: 09/21/2016  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Jodi Henson

**Sample ID: S-16 E. SIDEWALL 5' BGS (H602140-04)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/25/2016	ND	2.26	113	2.00	1.18	
Toluene*	<0.050	0.050	09/25/2016	ND	2.30	115	2.00	1.47	
Ethylbenzene*	<0.050	0.050	09/25/2016	ND	2.20	110	2.00	1.07	
Total Xylenes*	<0.150	0.150	09/25/2016	ND	6.63	110	6.00	1.11	
Total BTX	<0.300	0.300	09/25/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.7 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	608	16.0	09/23/2016	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/24/2016	ND	199	99.4	200	2.82	
DRO >C10-C28	<10.0	10.0	09/24/2016	ND	212	106	200	5.31	
EXT DRO >C28-C35	<10.0	10.0	09/24/2016	ND					

Surrogate: 1-Chlorooctane 79.3 % 35-147

Surrogate: 1-Chlorooctadecane 94.2 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

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\*=Accredited Analyte

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---

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



RUSH!!

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

Company Name: R.T. HICK CONSULTANTS		P.O. #:		BILL TO		ANALYSIS REQUEST																													
Project Manager: Mike Strublefield		Company: Lime Rock																																	
Address: 2411 S. 13TH STREET		Attn: Mike Barnett																																	
City: Artesia		Address:																																	
Phone #: 505-365-5084 Fax #:		City:																																	
Project #:		State:																																	
Project Name: AS AWD Trunk Line release		Zip:																																	
Project Location: W. 8 SEC 14 - T18S - R21E		Phone #:																																	
Sampler Name: Mike Strublefield		Fax #:																																	
FOR LAB USE ONLY																																			
Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER :		ACID/BASE:		ICE / COOL		OTHER :		DATE		TIME		TPH - GRO + DRO + MRO		BTEX		Chloride	
H602140		1		S-13		6' deep bottom		G		G		G		G		G		G		G		G		G		9/21/16		12:30 PM		G		G			
		2		S-14		5' side wall		G		G		G		G		G		G		G		G		G		9/21/16		2:18 PM		G		G			
		3		S-15		W side wall		G		G		G		G		G		G		G		G		G		9/21/16		2:20 PM		G		G			
		4		S-16		E side wall		G		G		G		G		G		G		G		G		G		9/21/16		2:25 PM		G		G			
PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.														Relinquished By: Mike Strublefield		Received By: Mike Barnett		Sample Condition		CHECKED BY: Initials		REMARKS: Mike Barnett @ Lime Rock (CS) . com													
Relinquished By:		Time: 11:05 AM		Date:		Time:		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>		Add'l Phone #:		Add'l Fax #:															
Delivered By: (Circle One)		3.80		Sample Condition		CHECKED BY: Initials		REMARKS: Mike Barnett @ Lime Rock (CS) . com		Rush																									
Sampler - UPS - Bus - Other:		3.80		Sample Condition		CHECKED BY: Initials		REMARKS: Mike Barnett @ Lime Rock (CS) . com		Rush																									

\* Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326



October 21, 2016

MIKE STUBBLEFIELD

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: ASAU TRUNK LINE RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 10/20/16 12:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 R T HICKS CONSULTANTS  
 MIKE STUBBLEFIELD  
 901 RIO GRANDE BLVD SUITE F-142  
 ALBUQUERQUE NM, 87104  
 Fax To: NONE

 Received: 10/20/2016  
 Reported: 10/21/2016  
 Project Name: ASAU TRUNK LINE RELEASE  
 Project Number: 30.015.0028N  
 Project Location: UT P SEC 14-T18S-R26E

 Sampling Date: 10/19/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Celey D. Keene

**Sample ID: BH - 1 15' (H602353-01)**

BTX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	132	2.00	10/21/2016	ND	1.99	99.4	2.00	1.67	
Toluene*	319	2.00	10/21/2016	ND	2.24	112	2.00	1.57	
Ethylbenzene*	169	2.00	10/21/2016	ND	2.24	112	2.00	1.80	
Total Xylenes*	375	6.00	10/21/2016	ND	6.76	113	6.00	1.70	
Total BTX	995	12.0	10/21/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	10/20/2016	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	7990	50.0	10/21/2016	ND	192	95.9	200	3.20	
DRO >C10-C28	9410	50.0	10/21/2016	ND	210	105	200	12.0	
EXT DRO >C28-C35	1430	50.0	10/21/2016	ND					

Surrogate: 1-Chlorooctane 197 % 35-147

Surrogate: 1-Chlorooctadecane 211 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
MIKE STUBBLEFIELD  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received: 10/20/2016  
Reported: 10/21/2016  
Project Name: ASAU TRUNK LINE RELEASE  
Project Number: 30.015.0028N  
Project Location: UT P SEC 14-T18S-R26E

Sampling Date: 10/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Celey D. Keene

**Sample ID: BH - 1 20' (H602353-02)**

BTEx 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	2.30	0.500	10/21/2016	ND	1.99	99.4	2.00	1.67	
Toluene*	11.0	0.500	10/21/2016	ND	2.24	112	2.00	1.57	
Ethylbenzene*	14.3	0.500	10/21/2016	ND	2.24	112	2.00	1.80	
Total Xylenes*	38.1	1.50	10/21/2016	ND	6.76	113	6.00	1.70	
Total BTEX	65.7	3.00	10/21/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	10/20/2016	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	544	50.0	10/21/2016	ND	192	95.9	200	3.20	
DRO >C10-C28	1670	50.0	10/21/2016	ND	210	105	200	12.0	
EXT DRO >C28-C35	243	50.0	10/21/2016	ND					

Surrogate: 1-Chlorooctane 144 % 35-147

Surrogate: 1-Chlorooctadecane 127 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
MIKE STUBBLEFIELD  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received: 10/20/2016  
Reported: 10/21/2016  
Project Name: ASAU TRUNK LINE RELEASE  
Project Number: 30.015.0028N  
Project Location: UT P SEC 14-T18S-R26E

Sampling Date: 10/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Celey D. Keene

**Sample ID: BH - 1 25' (H602353-03)**

BTEx 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	14.7	0.500	10/21/2016	ND	1.99	99.4	2.00	1.67	
Toluene*	54.9	0.500	10/21/2016	ND	2.24	112	2.00	1.57	
Ethylbenzene*	42.5	0.500	10/21/2016	ND	2.24	112	2.00	1.80	
Total Xylenes*	104	1.50	10/21/2016	ND	6.76	113	6.00	1.70	
Total BTEX	216	3.00	10/21/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 121 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	10/20/2016	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	1310	50.0	10/21/2016	ND	192	95.9	200	3.20	
DRO >C10-C28	2220	50.0	10/21/2016	ND	210	105	200	12.0	
EXT DRO >C28-C35	378	50.0	10/21/2016	ND					

Surrogate: 1-Chlorooctane 156 % 35-147

Surrogate: 1-Chlorooctadecane 98.3 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
MIKE STUBBLEFIELD  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received: 10/20/2016  
Reported: 10/21/2016  
Project Name: ASAU TRUNK LINE RELEASE  
Project Number: 30.015.0028N  
Project Location: UT P SEC 14-T18S-R26E

Sampling Date: 10/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Celey D. Keene

**Sample ID: BH - 1 30' (H602353-04)**

BTX 8021B			mg/kg		Analyzed By: CK				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>14.6</b>	0.500	10/21/2016	ND	1.99	99.4	2.00	1.67	
<b>Toluene*</b>	<b>41.8</b>	0.500	10/21/2016	ND	2.24	112	2.00	1.57	
<b>Ethylbenzene*</b>	<b>26.9</b>	0.500	10/21/2016	ND	2.24	112	2.00	1.80	
<b>Total Xylenes*</b>	<b>63.7</b>	1.50	10/21/2016	ND	6.76	113	6.00	1.70	
<b>Total BTX</b>	<b>147</b>	3.00	10/21/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 73.6-140

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AC				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>176</b>	16.0	10/20/2016	ND	432	108	400	0.00	

TPH 8015M			mg/kg		Analyzed By: CK				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>565</b>	50.0	10/21/2016	ND	192	95.9	200	3.20	
<b>DRO &gt;C10-C28</b>	<b>1030</b>	50.0	10/21/2016	ND	210	105	200	12.0	
<b>EXT DRO &gt;C28-C35</b>	<b>162</b>	50.0	10/21/2016	ND					

Surrogate: 1-Chlorooctane 134 % 35-147

Surrogate: 1-Chlorooctadecane 123 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
MIKE STUBBLEFIELD  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received: 10/20/2016  
Reported: 10/21/2016  
Project Name: ASAU TRUNK LINE RELEASE  
Project Number: 30.015.0028N  
Project Location: UT P SEC 14-T18S-R26E

Sampling Date: 10/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Celey D. Keene

**Sample ID: BH - 1 35' (H602353-05)**

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	32.9	0.500	10/21/2016	ND	1.99	99.4	2.00	1.67	
Toluene*	81.8	0.500	10/21/2016	ND	2.24	112	2.00	1.57	
Ethylbenzene*	46.9	0.500	10/21/2016	ND	2.24	112	2.00	1.80	
Total Xylenes*	108	1.50	10/21/2016	ND	6.76	113	6.00	1.70	
Total BTEX	270	3.00	10/21/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 117 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	10/20/2016	ND	432	108	400	0.00	
TPH 8015M	mg/kg		Analyzed By: CK						S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>1730</b>	50.0	10/21/2016	ND	192	95.9	200	3.20	
<b>DRO &gt;C10-C28</b>	<b>2340</b>	50.0	10/21/2016	ND	210	105	200	12.0	
<b>EXT DRO &gt;C28-C35</b>	<b>393</b>	50.0	10/21/2016	ND					

Surrogate: 1-Chlorooctane 165 % 35-147

Surrogate: 1-Chlorooctadecane 110 % 28-171

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

R T HICKS CONSULTANTS  
MIKE STUBBLEFIELD  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received: 10/20/2016  
Reported: 10/21/2016  
Project Name: ASAU TRUNK LINE RELEASE  
Project Number: 30.015.0028N  
Project Location: UT P SEC 14-T18S-R26E

Sampling Date: 10/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Celey D. Keene

**Sample ID: BH - 1 40' (H602353-06)**

BTX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	1.98	0.200	10/21/2016	ND	1.99	99.4	2.00	1.67	
Toluene*	5.32	0.200	10/21/2016	ND	2.24	112	2.00	1.57	
Ethylbenzene*	3.32	0.200	10/21/2016	ND	2.24	112	2.00	1.80	
Total Xylenes*	7.65	0.600	10/21/2016	ND	6.76	113	6.00	1.70	
Total BTX	18.3	1.20	10/21/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	10/20/2016	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	56.0	10.0	10/21/2016	ND	192	95.9	200	3.20	
DRO >C10-C28	83.2	10.0	10/21/2016	ND	210	105	200	12.0	
EXT DRO >C28-C35	18.3	10.0	10/21/2016	ND					

Surrogate: 1-Chlorooctane 73.3 % 35-147

Surrogate: 1-Chlorooctadecane 71.3 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

R T HICKS CONSULTANTS  
MIKE STUBBLEFIELD  
901 RIO GRANDE BLVD SUITE F-142  
ALBUQUERQUE NM, 87104  
Fax To: NONE

Received: 10/20/2016  
Reported: 10/21/2016  
Project Name: ASAU TRUNK LINE RELEASE  
Project Number: 30.015.0028N  
Project Location: UT P SEC 14-T18S-R26E

Sampling Date: 10/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Celey D. Keene

**Sample ID: BH - 1 45' (H602353-07)**

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	20.8	0.500	10/21/2016	ND	1.99	99.4	2.00	1.67	
Toluene*	60.2	0.500	10/21/2016	ND	2.24	112	2.00	1.57	
Ethylbenzene*	32.8	0.500	10/21/2016	ND	2.24	112	2.00	1.80	
Total Xylenes*	76.6	1.50	10/21/2016	ND	6.76	113	6.00	1.70	
Total BTEX	190	3.00	10/21/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 117 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	10/20/2016	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	626	50.0	10/21/2016	ND	192	95.9	200	3.20	
DRO >C10-C28	1140	50.0	10/21/2016	ND	210	105	200	12.0	
EXT DRO >C28-C35	192	50.0	10/21/2016	ND					

Surrogate: 1-Chlorooctane 113 % 35-147

Surrogate: 1-Chlorooctadecane 93.7 % 28-171

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



# CARDINAL Laboratories

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

Company Name: R.T. HICK CONSULTANTS  
Project Manager: Mike Stubblefield

Address: 2411 South 13th

City: Alto State: NM Zip: 88210

Phone #: 505-365-5034 Fax #:

Project #: Project Owner: Lime Rock Rec.

Project Name: ASA U Trunk Line Release

Project Location: UT. P sec 14-T185-R 26E

Sampler Name: Mike Stubblefield

P.O. #:

Company: Lime Rock Rec.

Attn: Mike Barnett

Address:

City:

State:

Zip:

Phone #:

Fax #:

### ANALYSIS REQUEST

8015M GRO DRO MRO  
8020B-BTEX  
Total Chloride

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

H008353-

01 BH-1 15'

02 BH-1 20'

03 BH-1 25'

04 BH-1 30'

05 BH-1 35'

06 BH-1 40'

07 BH-1 45'

(G)RAB OR (C)OMP.

# CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

8015M GRO DRO MRO

8020B-BTEX

Total Chloride

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Relinquished By:

Mike Stubblefield

Date: 10/20/16

Time: 12:05

Date:

Time:

Received By:

Mike Barnett

Date:

Time:

Delivered By: (Circle One)

Sampler - UPS - Bus - Other: Other

4.49

Sample Condition  
Cool ☒ Intact ☒  
Yes ☒ No ☐

CHECKED BY: (Initials)

008#75

Phone Result: ☐ Yes ☐ No

Fax Result: ☐ Yes ☐ No

REMARKS:

Add'l Phone #:

Add'l Fax #:

Rush