XTO Energy EMSU-B Injection Line #2 Unit B, Section 14, Township 20S, Range36E Lea County, New Mexico Delineation Report and Work Plan

April 22, 2014



Prepared for:

XTO Energy P.O. BOX 700 Eunice, NM 88231-0700

By:

Safety & Environmental Solutions, Inc. 703 E. Clinton Hobbs, New Mexico 88240 (575) 397-0510

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I. Company Contacts

NAME	Company	Telephone	E-mail
John Robinson	XTO Energy	575-441-5199	John_robinson@xtoenergy.com
Bob Allen	SESI	575-390-7063	ballen@sesi-nm.com

II. Background

Safety and Environmental Solutions, Inc. (SESI) was engaged by XTO Energy to perform delineation services at the EMSU-B Injection Line #2 release site (Figures 1 and 2). This release occurred at a location in Unit Letter B, Section 14, T20S, R36E (32.577816N, 103.322627W). An estimated 10 barrels of produced water were released with zero barrels recovered. The affected area from the release is estimated at 4,270 square-feet.

III. Surface and Ground Water

There is no surface water in the vicinity of the spill location. The nearest surface drainage is Monument Draw located approximately 2,150 ft. south of the location. Physically, Monument Draw channel is poorly defined and best located using the contour lines on the topographic map.

Groundwater records were researched using State Engineer Office and US Geological Survey data bases. The nearest groundwater records are tabulated below and locations are shown on Figure 3. According to the land owner, Mr. Jimmy Cooper, the depth of groundwater in his well (likely located at L 10135) is 30 ft.

Well Location Township, Range, Section, Quarter	State or Federal ID Number	Depth Well (feet)	Depth Water (feet)	Month /Year	Source
T20S, R36E, Sec 14 SW	L 04506	70	50	8/60	NM SEO
T20S, R36E, Sec 14 NE	L 04507	82	53	8/59	NM SEO
T20S, R36E, Sec 14 SE	L 06667	130	55	4/70	NM SEO
T20S, R36E, Sec 14 NE	L 10135	55	20	6/90	NM SEO
T20S, R36E, Sec 11 SE	323452103185901	65	31.7	3/96	USGS

Note: NM SEO locations not field checked and actual locations may differ from those mapped.

A search of the NMOCD Database and the USGS groundwater database revealed historical chloride contamination in the groundwater within a close proximity to this release site. The results of the search are shown in the table below.

Well Location	State or Federal	Chloride	Month	Source
Township, Range,	ID Number	Concentration	/Year	
Section, Quarter		(mg/L)		
T20S, R36E, Sec 15 SE	323420103200901	1,080	3/54	USGS
T20S, R36E, Sec 15 SE	323420103200901	1,240	9/58	USGS
T20S, R36E, Sec 11 SE	323452103185901	1,440	1/14	SESI
T20S, R36E, Sec 14 NE	1RP-280	535 - 2,030	6/97	NM OCD
T20S, R36E, Sec 10 SW	N/A	120	1/14	SESI

The USGS Well 20.36.15.421 is located approximately 4,450' southwest of the release site. This well was sampled in 1954 and 1958. In 1954 the chloride level in this well was 1,080 mg/L and in 1958 the chloride was 1,240 mg/L. On January 4, 2014 a water quality sample was taken in the Klein stock well (located in the SE quarter of Sec 11 and shown in the table above). Chloride in this well was 1,440 mg/L and TDS was 3,380 mg/L.

The NMOCD file 1RP-280 includes Monitor Well sampling results submitted by Warren Petroleum Company, on behalf of Chevron USA reports chloride contamination in six monitor wells in June 1997. Chloride concentrations in these wells on this date range from 535 to 2,030 mg/L. This site is located approximately 1,000 feet south-southwest of the release site.

By way of comparison, a sample was obtained from a livestock well (identified as West Stock Well) also on January 4. The well location is in the NE/4,SW/4 Section 10, T20S, R36E at a distance approximately 1.5 miles northwest of the release site. Chloride concentration in the well was 120 mg/L. This location is in an area having historically less brine production than areas to the east in the vicinity of the release location.

Brine production impacting water quality south of the Monument area has been documented a 1961 report by the USGS and the New Mexico Bureau of Mines and Mineral Resources*. A figure from the report showing the volume and extent of brine discharged to surface pits in 1952 is provided with this report (Figure 4). In the area south of monument between 100 and 150 acre-feet of brine per square mile was discharged. This is the equivalent of between 776,000 and 1,164,000 barrels per square mile for just one year! Or to put it another way, this volume is enough to cover a square mile to a depth of 1.9 to 2.8 inches.

IV. Work Performed

On August 12, 2013 SESI was onsite to delineate the vertical extent of the release. The leak in the injection line was located by excavating the pipeline and soil samples were taken from the excavation using a trackhoe. Four samples were taken at 5 ft. intervals to a depth of 20 ft. below the spill area. The samples were properly preserved and transported under Chain-of-Custody to Cardinal Laboratories for analysis. The samples were analyzed for chlorides (EPA method 300.0), benzene, toluene, ethyl benzene, and xylenes (BTEX) (EPA method 8021B), and Total Petroleum Hydrocarbons (TPH) (EPA method 8015M). The results are shown in the table below.

Sample ID	Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl- benzene (mg/Kg)	Total Xylenes (mg/Kg)	TPH (mg/Kg)
SP-1 5 ft.	1,660	<0.050	<0.050	<0.050	<0.150	<10.0
SP-1 10 ft.'	1,540	<0.050	<0.050	<0.050	<0.150	<10.0
SP-1 15 ft.	1,520	<0.050	<0.050	<0.050	<0.150	<10.0
SP-1 20 ft.	1,650	<0.050	<0.050	<0.050	<0.150	<10.0

Because results remained elevated at 20 ft. an additional 15 ft. of samples were obtained on August 16 using the trackhoe. The results of this sampling are shown below.

^{*} A. Nicholson, Jr. and A. Clebsch, Jr. Geology and Ground-Water Conditions in Southern Lea County, New Mexico, Ground-Water Report 6, NM Bureau of Mines and Mineral Resources, 1961.

Sample ID	Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl- benzene (mg/Kg)	Total Xylenes (mg/Kg)	TPH (mg/Kg)
SP-1 25 ft.	1,470	<0.050	<0.050	<0.050	<0.150	<10.0
SP-1 30 ft.'	1,700	<0.050	<0.050	<0.050	<0.150	<10.0
SP-1 35 ft.	1,330	<0.050	<0.050	<0.050	<0.150	<10.0

The results continued to show chloride elevated at a depth of 35 ft. requiring additional investigation. A hollow stem auger drilling rig operated by EcoEnviro Drilling of Lovington was brought to the site on December 13, 2013 to further investigate the depth of elevated chlorides. Soil samples were collected at 40 and 45 ft. and submitted for laboratory analysis for chloride only. As indication of water saturation was observed at 45 feet, no further drilling occurred or samples taken so as to avoid drilling into the water table. The boring was backfilled with bentonite and the drilling log is attached.

Sample ID	Chloride (mg/Kg)
BH-1 40 ft.	1,570
BH-1 45 ft.'	1,880

Though with drilling the vertical extent of contamination had been determined, the horizontal or areal extent had not. To determine horizontal extent, on March 19, 2014 nine hand-augered boreholes were advanced to a depth of 3 ft. and one was augered to a depth of 5 ft. below the bottom of the small onsite excavation. Soil samples were taken from each borehole and submitted to Cardinal Laboratories for analysis. The results of the sampling are shown in the table below.

Sample ID	Chloride (mg/Kg)	Sample ID	Chloride (mg/Kg)
SP 1 @ 3' BGS	32.0	SP 6 @ 3' BGS	<16.0
SP 2 @ 3' BGS	64.0	SP 7 @ 3' BGS	1,410
SP 3 @ 3' BGS	1,680	SP 8 @ 3' BGS	992
SP 4 @ 3' BGS	1,330	SP 9 @ 3' BGS	32.0
		SP 10 @ 5' BGS	
SP 5 @ 3' BGS	1,070	Inside Hole	96.0

The location of these samples is shown in Figure 5. Some sample points are shown by location and by sample results to be outside the spill release footprint. These include SP 1, 2, and SP 6. SP-9 is located on the periphery of the release. Because the area has been disturbed, the spill footprint outline is not visible. Before excavation, it will need to be located using measurements from the site map (Figure 2).

V. Work Plan

The spill area will be excavated to a depth of 3 ft. and removed to an NOCD approved facility for disposal. In addition the soil pile from the existing small excavation will also be removed for disposal. Confirmation samples from the side and bottom of the excavation will be taken, these samples will confirm that the horizontal extent of contamination has been reached and document the level of chloride being left in place. A 20 mil

polyethylene liner will be installed in the bottom of the excavation. The excavation will be backfilled with clean soil, returned to natural grade, and reseeded.

Because sampling and a search of groundwater databases revealed historical chloride contamination in the groundwater within a close proximity to this release site and not a result of the current release, completion of the above proposed work will suffice for groundwater protection and no further remediation or other action is necessary at this location.

VI. Figures & Appendices

Figure 1 – Location Map Figure 2 – Site Plan Showing Extent of Release Figure 3 – Water Well Location Map Figure 4. – Monument Area Brine Production 1952 Figure 5. – March 19, 2014 Sample Point Locations Appendix A – Log of Boring Appendix B – Analytical Results Appendix C – Site Photos Appendix D – C-141 Figure 1 Location Map



Figure 2 Site Plan Showing Extent of Release



XTO-13-002 EMSU B Injection Line #2

Figure 3 Water Well Location Map



Figure 4 Monument Area Brine Production 1952



Showing locations of selected water wells that have been contaminated by brine. Upper figure adjacent to well symbol is sulfate concentration; lower figure is chloride concentration.

Figure 5 March 19, 2014 Sample Point Locations



XTO-13-002 EMSU B INJECTION LINE #002 Sample Points

Appendix A Log of Boring

		3010	tions, l	16				· (I	Page 1 of 1)	
	XTO EN Sec 14	XTO MSU-B , T20S	Energy Injection	ea County		Date, Time Started Date, Time Complete Hole Diameter Drilling Method Drilling Equipment	: 12/10/13, 1255 : 12/17/08, 1600 : 8 1/4 in. : Hollow Stem Auger : Foremost-Mobile B-57	Drilled By Sampling Method Logged By Company Rep.	: Eco/Enviro Drillir : 5 ft. core barrel : David Boyer, P.C : Guy Pearce, XTC	Э.
Depth in Feet	Sample Type	Recovery (ft.)	USCS	GRAPHIC	CB Core	s Spoon (18" or 24") Barrel (2.5' or 5') er Cuttings	DESCRIPTION		Lab No.	Lab Chlorides (ma/Ka)
0 - - 5	ст		TS/SM CA			op soil, silty sand,				
- - 10-	СТ		<u></u> м		SILTY 8	SAND, light brown,	fine grained, dry, no H/C	staining or odor	<	
15-	СВ	1.5	ML/CA		10-15 ft		SILT with CALICHE, sa	nd very fine grained,	·	
20	СВ	1.7	ML		15-20 ft		SILT, light brown to crer	ne color, slightly damp		
25	СВ	2.6			20-25 ft	. SILTY SAND, ligh	nt brown, very fine graine	d, some non-H/C odor		
30-	СВ	2.0	SM		25-30 ft non H/C	. SILTY SAND, ligi Codor	nt brown, very fine graine	d, slightly damp, no calici	he,	
35	СВ	2.0			30-35 ft	. SILTY SAND, ligi	nt brown, very fine to fine	grained, damp,		
35	СВ	3.2	SM/ML		35-40 ft		SAND/SILT, light brown,	damp with odor	H302998-01	1,5
-	СВ	2.3	м∟/ѕм		40-45 ft pebbles	t. CLAYEY SANDY s, wet starting 43-4	SILT or SILTY SAND, li 4 ft (capillary fringe), no f	ght brown, smail sandstor urther drilling.		1,6
45										
	l Boring ba	ckfilled v	vith 28 bag	s bentonite	e, hydrate	əd.				

Appendix B Analytical Results



August 19, 2013

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: INJECTION LINE 2-LEAK

Enclosed are the results of analyses for samples received by the laboratory on 08/12/13 14:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. 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.toxas.gov/field/ga/lab_accred_certif.html,

Cardinal Laboratories is accreditated 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,

Celez D. Keine

Celey D. Keene Lab Director/Quality Manager

Page 1 of 7



Analytical Results For:

Safety & Environmental Solutions Bob Allen 703 East Clinton Hobbs NM, 88240 Fax To: (575) 393-4388

Received:	08/12/2013	Sampling Date:	08/12/2013
Reported:	08/19/2013	Sampling Type:	Soil
Project Name:	INJECTION LINE 2-LEAK	Sampling Condition:	Cool & Intact
Project Number:	XTO-13-002	Sample Received By:	Jodi Henson
Project Location:	EMSU-B		

Sample ID: SP-1 5' (H301907-01) BTEX 8260B

BTEX 8260B	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Benzene*	<0.050	0.050	08/15/2013	ND	2.15	108	2.00	3.67	
Toluene*	<0.050	0.050	08/15/2013	ND	2.16	108	2.00	4.83	
Ethylbenzene*	<0.050	0.050	08/15/2013	ND	2.10	105	2.00	4.57	
Total Xylenes*	<0.150	0.150	08/15/2013	ND	6.24	104	6.00	4.81	
Total BTEX	<0.300	0.300	08/15/2013	ND					
Surrogate: Dibromofluoromethane	.95.0	% 61.3-14	2						
Surrogate: Toluene-d8	101	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	105	% 65.7-14	1						
Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Chloride	1660	16.0	08/13/2013	ND	432	108	400	3.64	
TPH 8015M	mg,	/kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
GRO C6-C10	<10.0	10.0	08/13/2013	ND	183	91.5	200	5.98	
DRO >C10-C28	<10.0	10.0	08/13/2013	ND	191	95.7	200	6.03	
Surrogate: 1-Chlorooctane	95.0	% 65.2-14	0						

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Safety & Environmental Solutions Bob Allen 703 East Clinton Hobbs NM, 88240 Fax To: (575) 393-4388

Received:	08/12/2013	Sampling Date:	08/12/2013
Reported:	08/19/2013	Sampling Type:	Soil
Project Name:	INJECTION LINE 2-LEAK	Sampling Condition:	Cool & Intact
Project Number: Project Location:	XTO-13-002 EMSU-B	Sample Received By:	Jodi Henson

Sample ID: SP-1 10' (H301907-02)

BTEX 8260B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/15/2013	ND	2.15	108	2.00	3.67	
Toluene*	<0.050	0.050	08/15/2013	ND	2.16	108	2.00	4.83	
Ethylbenzene*	<0.050	0.050	08/15/2013	ND	2.10	105	2.00	4.57	
Total Xylenes*	<0.150	0.150	08/15/2013	ND	6.24	104	6.00	4.81	
Total BTEX	<0.300	0.300	08/15/2013	ND					
Surrogate: Dibromofluoromethane	93.6	% 61.3-14	2						
Surrogate: Toluene-d8	103 9	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	105 9	65.7-14	1						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1540	16.0	08/13/2013	ND	432	108	400	3.64	
TPH 8015M	mg/	kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/14/2013	ND	183	91.5	200	5.98	
DRO >C10-C28	<10.0	10.0	08/14/2013	ND	191	95.7	200	6.03	
Surrogate: 1-Chlorooctane	95.7	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	110 9	63.6-15	4						

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

Safety & Environmental Solutions Bob Allen 703 East Clinton Hobbs NM, 88240 Fax To: (575) 393-4388

08/12/2013	Sampling Date:	08/12/2013
08/19/2013	Sampling Type:	Soil
INJECTION LINE 2-LEAK	Sampling Condition:	Cool & Intact
XTO-13-002	Sample Received By:	Jodi Henson
EMSU-B		
	08/19/2013 INJECTION LINE 2-LEAK XTO-13-002	08/19/2013 Sampling Type: INJECTION LINE 2-LEAK Sampling Condition: XTO-13-002 Sample Received By:

Sample ID: SP-1 15' (H301907-03)

BTEX 8260B ing/kg Analyzed By: MS Analyte Result Reporting Limit Analyzed Method Blank ÐS % Recovery True Value QC RPD Qualifier Benzene* < 0.050 0.050 08/15/2013 ND 2.15 108 2.00 3.67 Toluene* 08/15/2013 108 < 0.050 0.050 ND 2.16 2.00 4.83 Ethylbenzene* < 0.050 0.050 08/15/2013 ND 2.10 105 2.00 4.57 Total Xylenes* <0.150 0.150 08/15/2013 ND 104 6.00 4.81 6.24 Total BTEX < 0.300 0.300 08/15/2013 ND Surrogate: Dibromofluoromethane 94.296 61.3-142 71.3-129 Surrogate: Tohiene-d8 101 % Surrogate: 4-Bromofluorobenzene 104 % 65.7-141 Chiloride, SM4500Cl-8 mg/kg Analyzed By: AP Analyte Result Reporting Limit Analyzed Method Blank BS. % Recovery True Value QC RPD Qualifier Chloride 1520 16.0 08/13/2013 ND 432 108 400 3.64 TPH 8015M mg/kg Analyzed By: DW Analyte Result Analyzed Method Blank 85 % Recovery True Value OC RPD Oualifier Reporting Limit GRO C6-C10 <10.0 5.98 10.0 08/14/2013 ND 183 91.5 200 DR0 >C10-C28 <10.0 10.0 08/14/2013 ND 191 95.7 200 6.03 Surrogate: 1-Chlorooctane 93.6 % 65.2-140 Surrogate: 1-Chlorooctadecane 107 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Page 4 of 7



Analytical Results For:

Safety & Environmental Solutions Bob Allen 703 East Clinton Hobbs NM, 88240 Fax To: (575) 393-4388

Received:	08/12/2013	Sampling Date:	08/12/2013
Reported:	08/19/2013	Sampling Type:	Soil
Project Name:	INJECTION LINE 2-LEAK	Sampling Condition:	Cool & Intact
Project Number:	XTO-13-002	Sample Received By:	Jodi Henson
Project Location:	EMSU-B		

Sample ID: SP-1 20' (H301907-04)

BTEX 8260B	mg/	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Benzene*	<0.050	0.050	08/15/2013	ND	2.15	108	2.00	3.67	
Toluene*	<0.050	0.050	08/15/2013	ND	2.16	108	2.00	4.83	
Ethylbenzene*	<0.050	0.050	08/15/2013	ND	2.10	105	2.00	4.57	
Total Xylenes*	<0.150	0.150	08/15/2013	ND	6.24	104	6.00	4.81	
Total BTEX	<0.300	0.300	08/15/2013	ND					
Surrogate: Dibromofluoromethane	96.8	% 61.3-14	2						
Surrogate: Toluene-d8	100	6 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	101	65.7-14	1						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Chloride	1650	16.0	08/13/2013	ND	432	108	400	3.64	
TPH 8015M	mg/	kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
GRO C6-C10	<10.0	10.0	08/14/2013	ND	183	91.5	200	5.98	
DRO >C10-C28	<10.0	10.0	08/14/2013	ND	191	95.7	200	6.03	
Surrogate: 1-Chlorooctane	96.0	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	109	63.6-15	4						

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Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

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

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August 26, 2013

Bob Allen Safety & Environmental Solutions

703 East Clinton Hobbs, NM 88240

RE: INJECTION LINE 2-LEAK

Enclosed are the results of analyses for samples received by the laboratory on 08/19/13 8:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. 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/ga/lab_accred_certif.html.

Cardinal Laboratories is accreditated 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. Kune

Celey D. Keene Lab Director/Quality Manager

Page 1 of 6



Analytical Results For:

Safety & Environmental Solutions Bob Allen 703 East Clinton Hobbs №4, 88240 Fax To: (575) 393-4388

Received:	08/19/2013	Sampling Date:	08/16/2013
Reported:	08/26/2013	Sampling Type:	Soll
Project Name:	INJECTION LINE 2-LEAK	Sampling Condition:	Cool & Intact
Project Number:	XTO-13-002	Sample Received By:	Jodi Henson
Project Location:	EMSU-8		

Sample ID: SP-1 25' (H301971-01)

BTEX 8260B mg/kg Analyzed By: MS Analyte Reporting Limit Analyzed Method Blank % Recovery True Value QC Qualifier Result BS RPD Benzene* < 0.050 0,050 08/23/2013 ND 107 2.00 3.91 2.14 Toluene* <0.050 0.050 08/23/2013 ND 2.12 105 2.00 2.93 Ethylbenzene* <0.050 08/23/2013 ND 2.07 103 2,00 0,050 3.59 Total Xylenes* <0.150 0.15008/23/2013 ND 6.21 103 6.00 3.09 Total BTEX < 0.300 0.300 08/23/2013 ND Surrogate: Dibromofluoromethane 61.3-142 102.96 Surrogate: Toluene-d8 102 % 71.3-129 Surrogate: 4-Bromofluorobenzene 105 % 65.7-141 Chioride, SM4500CI-B mg/kg Analyzed By: AP Analyzed Analyte Result Reporting Limit Method Blank 85 % Recovery True Value QC RPD Qualifier Chloride 1470 08/21/2013 ND 100 16.0 400 400 0.00 **TPH 8015M** mg/kg Analyzed By: DW Analyzed Method Blank Qualifier Analyte Result Reporting Limit % Recovery True Value QC RPD BS GRO C6-C10 <10.0 08/21/2013 ND 171 85.7 200 10.0 5.17 DRO >C10-C28 08/21/2013 ND 90.9 <10.010.0 182 200 5.05 Surrogate: 1-Chlorooctane 108 % 65.2-140

Surrogate: 1-Chlarooctadecane

136 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager

Page 2 of 6



Analytical Results For:

Safety & Environmental Solutions Bob Allen 703 East Clinton Hobbs NM, 88240 Fax To: (575) 393-4388

Received:	08/19/2013	Sampling Date:	08/16/2013
Reported:	08/26/2013	Sampling Type:	Soll
Project Name:	INJECTION LINE 2-LEAK	Sampling Condition:	Cool & Intact
Project Number:	XTO-13-002	Sample Received By:	Jodi Henson
Project Location:	EMSU-B		

Sample ID: SP-1 30' (H301971-02)

BTEX 8260B mg/kg Analyzed By: MS Qualifier Analyte Result Reporting Limit Analyzed Method Slank 85 % Recovery True Value QC RPD <0.050 Benzene* 0.050 08/23/2013 ND 107 2.00 3.91 2.14 Toluene* <0.050 0.050 08/23/2013 ND 2.12 106 2,00 2,93 Ethylbenzene* <0.050 0.050 08/23/2013 ND 2.07 103 2.00 3.59 Total Xylenes* <0.150 08/23/2013 0.150 ND 6.21 103 6.00 3.09 Total BTEX 08/23/2013 <0.300 0.300 ND Surrogate: Dibromofluoromethane 103 % 61.3-142 Surrogate: Taluene-d8 102.96 71.3-129 Surrogate: 4-Bromofluorobenzene 104 % 65.7-141 Chloride, SM4500Cl-B mg/kg Analyzed By: AP Analyte Result Reporting Limit Analyzed Method Blank 85 % Recovery True Value QC RPD Qualifier Chloride 1700 16.0 08/21/2013 ND 400 100 400 0,00 TPH 8015M mg/kg Analyzed By: DW Analyte Result Reporting Limit Analyzed Method Blank 85 % Recovery True Value QC RPD Qualifier GRO C6-C10 <10,0 10.0 08/21/2013 ND 171 85.7 200 5.17 DR0 >C10-C28 <10.0 08/21/2013 ND 182 5.05 10.0 90.9 200 Surrogate: 1-Chlorooctane 108 % 65.2-140 Surrogate; I-Chiorooctadecane 131 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

RUGE NOTE tablety and Earnages. Cardwark halding and sheet's exclusion receipt for any states while lased in contrast or fort, shall be finded to the annual pail by clear for earlyings. All clears, including those for regispance and any other cleares and the deeman early the state and early the state while the includes of the applicable service. It is applicable service that cleares are applied to the state for includes of several the Cardwark and the state of the stat

Celecy D. Keine

Page 3 of 6

Celey D. Keene, Lab Director/Quality Manager



Analytical Results For:

Safety & Environmental Solutions Bob Allen 703 East Clinton Hobbs NM, 88240 Fax To: (575) 393-4388

Received:	08/19/2013	Sampling Date:	08/16/2013
Reported:	08/26/2013	Sampling Type:	Soll
Project Name:	INJECTION LINE 2-LEAK	Sampling Condition:	Cool & Intact
Project Number:	XTO-13-002	Sample Received By:	Jodi Herison
Project Location:	EMSU-B		
Project Location.	LHBC-D		

Sample ID: SP-1 35' (H301971-03)

BTEX 8260B	mg	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	85	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/23/2013	ND	2.14	107	2.00	3.91	
Toluene*	<0.050	0.050	08/23/2013	ND	2.12	105	2.00	2.93	
Ethylbenzene*	<0.050	0.050	08/23/2013	ND	2.07	103	2.00	3.59	
Total Xylenes*	<0.150	0.150	08/23/2013	ND	6.21	103	6.00	3.09	
Total BTEX	<0.300	0,300	08/23/2013	ND					
Surrogate: Dibromofluoromethane	103	61.3-14	2						
Surrogate: Toluene-d8	101	F 71.3-12	0						
Surrogate: 4-Bromofluorobenzene	104	65.7-14	1						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analytie	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1330	16.0	08/21/2013	ND	400	100	400	0,00	
TPH 8015M	mg/	kg	Analyze	d By: DW		10000			
Asabyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10,0	10,0	08/21/2013	ND	171	85.7	200	5.17	
DRO >C10-C28	<10,0	10,0	08/21/2013	ND	182	90.9	200	5.05	
Surrogate: 1-Chiorooctane	90.4	l€ 65.2-14	0						
Surrugate: 1-Chlorooctadecime	114	63.6-13	4						

Cardinal Laboratories

*=Accredited Analyte

ROSC NOTE LAMPs and Damages. Carbon's ballity and interior sections nameds for any solar antong, whether taxed in contract or test, shall be limited for the annote paid by cleet for antipers. And defines training water and by carbon and the section of the applicable annotes. In the annote paid carbon to integrate and any other section of the applicable annotes. In the annotes the format is interediated by Carbon and antipers and any other antipers and an antipers and and an antipers and an antipers and antipers. The antipers and antipers and an antipers and an antipers and an antipers and and an antipers and antipers and and an antipers and and antipers and and an antipers and and an antipers and and an antipers and and an antipers and antipers and antipers and and an antipers and antipers and and and an antipers and and an antipers and and an antipers and and and an antipersent and and a second and and and an antipersent and and an antipersent and and and an antipersent and and antipersent and and and antipersent and and antipersent antipersent and antipersent and antipersent antipersent and antipersent antipersent and antipersent antiper

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Page 4 of 6

Celey D. Keene, Lab Director/Quality Manager



Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Ofference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature,
(3 3)	Chioride by SM4500CI-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

Cardinal Laboratories

*=Accredited Analyte

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Page 5 of 6

Celey D. Keene, Lab Director/Quality Manager

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Integer (offs. Lage of the second failing by a same sector where the value of an off and the second second sector and the second sec	Same Star
	DIMAL LABORATORIES (1015) 393-2328 Fax (505) 393-2476 Safety & Environmental Solutions, Inc. Boh Allen 1005) Safety & Environmental Solutions, Inc. Boh Allen 103 East Clinton Hobbs State: NM Zip: 88240 575-397-0510 Fax#: 575-393-4388 -1/3 - 00 X Project Owner: John Robin 11. Line 4 X 11. Line Martin 11. Line Martin 11. Line 4 GORDINDWATER 11. Line GROUNDWATER 11. Line 4 GORDINDWATER 12. J. 30 X 13. J. 30 X
Received By: Term. Sample Condition Cool integration	ATORIES abbs, NM 80240 x (505) 393-2476 onmental Solutions, Inc. State: NM Zip: 88240 Fax#: 575-393-4388 Project Owner: John Robins # 2 MATER MATER MATER Solid GROUNDWATER MATER MATER MATER MATER MATER MATER
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N 1 1 1 1 1 1 1 1 1	ANALYSIS REQUEST
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December 18, 2013

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: EMSU B INJ LINE #2

Enclosed are the results of analyses for samples received by the laboratory on 12/11/13 16:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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/ga/lab_accred_certif.html.

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

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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. Kune

Celey D. Keene Lab Director/Quality Manager

Page 1 of 4



Analytical Results For:

Safety & Environmental Solutions Bob Allen 703 East Clinton Hobbs NM, 88240 Fax To: (575) 393-4388

Received:	12/11/2013	Sampling Date:	12/10/2013
Reported:	12/18/2013	Sampling Type:	Soil
Project Name:	EMSU 8 INJ LINE #2	Sampling Condition:	Cool & Intact
Project Number:	XT0-13-002	Sample Received By:	Jodi Henson
Project Location:	MONUMENT, NM		

Sample ID: BH-1, 40 FT (H302998-01)

Chloride, SM4500Cl-B	ing	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	85	% Recovery	True Value QC	RPD	Qualifier
Chloride	1570	16.0	12/18/2013	ND	416	104	400	3.92	

Sample ID: BH-1, 45 FT (H302998-02)

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1880	16.0	12/18/2013	ND	416	104	400	3.92	

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RCOET NOTE: Unably well Banages. Gerbish Adding well shart's exclusive senable for we dawn whole, in contract or tart, shall be lenked in the annual paid by deet for analyses. All shares, including threes for registerions and any date cause analyses shall be devend sound along made in whiting and methods be then bandle for all shares of the applicable service. In on event shall charated be for analyses, encloses and analyses, encloses thread to be avenued as and along on a profit to exceed by deet, to in unablence, all shares of all or analyses of the analyses of a share well and analyses, excluding, which is foreign to the analysis of analyses, the samples is bettered by deet, to in unablence, all the analyses of or analyses of the date well to be performance of the samples is analysis, share a sample and analyses, the samples is analysis of analysis of analysis. The samples is an analysis of all or all wells wells and unables share any any of the above share we of the samples is the samples is and the sample is analysis.

Celey D. Keine

Page 2 of 4

Celey D. Keene, Lab Director/Quality Manager



Notes and Definitions

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.
-	Chiloride by SM4500CI-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

Cardinal Laboratories

*=Accredited Analyte

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Page 3 of 4

Celey D. Keene, Lab Director/Quality Manager

1353-2476 Initial Solutions, Inc. P(0, ±) NM Zip: B8240 5715-393-4388 Address: Owner: XT City: NM Zip: B1/L/RTO State: XT Same Owner: XT City: NM Zip: Phone #: NUM: Else: Zip: NUM: Else: Zip: NUM: Else: Zip: Num: XT Same Num: Else: Zip: Num: Else: Else: Num: <	anger: Both Allen POLE T03 East Cliniton Biolitany: Same Hohha Black MM Zip: 88240 Biblion: ST5-397 D610 Fax: ST5-393 4388 Address Ama: E/MARA Same Chr: Biblion: TO-1-2-D2-Projectownia: XT D Chr: Biblion: Chr: Biblion: To-1-2-D2-Projectownia: YT D Biblion: Chr: Biblion: To-1-2-D2-Projectownia: YT D Biblion: Chr: Biblion: To-1-2-D2-Projectownia: YT D Biblion: Chr: Biblion: To-1-2-D2-Projectownia: Projectownia: Biblion: Chr: Projectownia: Projectownia: To-1-2-D2-Projectownia: Biblion: Chr: Projectownia: Projectownia: Projectownia: Biblion: Chr: Projectownia: Projectownia: Projectownia: Biblion: Chr: Projectownia: Projectownia: Projectownia: Biblion: Chr: Chr: Projectownia: Projectownia: Biblion: Chr: Chr: Projectownia: Projectownia: Biblion: Chr: Chr: Chr: Projectownia: Biblion
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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

March 26, 2014

Bob Allen Safety & Environmental Solutions 703 East Clinton Hobbs, NM 88240

RE: EMSU B INJ LINE #2

Enclosed are the results of analyses for samples received by the laboratory on 03/20/14 12:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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.tceg.texas.gov/field/ga/lab_accred_certif.html.

Cardinal Laboratories is accreditated 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. Kune

Celey D. Keene Lab Director/Quality Manager

Page 1 of 6



PHONE (575) 393-2326 * 101 E. MARLAND * HOBB5, NM 88240

Analytical Results For:

Safety & Environmental Solutions Bob Allen 703 East Clinton Hobbs NM, 88240 Fax To: (575) 393-4388

Received:	03/20/2014	Sampling Date:	03/19/2014
Reported:	03/26/2014	Sampling Type:	Soll
Project Name:	EMSU B INJ LINE #2	Sampling Condition:	Cool & Intact
Project Number:	XT0-13-002	Sample Received By:	Jodi Henson
Project Location:	MONUMENT, NM		

Sample ID: PT. 5 @ 3' BGS (H400845-05)

Chloride, SM4500CI-B	mg	/log	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	85	% Recovery	True Value QC	RPD	Qualifier
Chloride	1070	16.0	03/26/2014	ND	432	108	400	3.77	

Sample ID: PT. 6 @ 3' BGS (H400845-06)

Chloride, SM4500CI-8	mg.	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method illark	85	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	03/26/2014	ND	432	108	400	3.77	

Sample ID: PT. 7 @ 3' BGS (H400845-07)

Chloride, 5M4500Cl-B	- mg	ling	Analyze	d By: AP					
Analyter	Result	Reporting Limit	Analyzed	Method Blank	85	% Recovery	True Value QC	RPD	Qualifier
Chloride	1410	16.0	03/26/2014	ND	432	108	400	3.77	

Sample ID: PT. 8 @ 3' BGS (H400845-08)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By; AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	992	16.0	03/26/2014	ND	432	108	400	3.77	

Sample ID: PT. 9 @ 3' BGS (H400845-09)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16,0	03/26/2014	ND	432	108	400	3.77	

Cardinal Laboratories

*=Accredited Analyte

Colory & Keine

Celey D. Keene, Lab Director/Quality Manager

Page 3 of 6



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

Analytical Results For:

Safety & Environmental Solutions Bob Allen 703 East Clinton Hobbs NM, 88240 Fax To: (575) 393-4388

Received:	03/20/2014	Sampling Date:	03/19/2014
Reported:	03/26/2014	Sampling Type:	Soll
Project Name:	EMSU B INJ LINE #2	Sampling Condition:	Cool & Intact
Project Number:	XT0-13-002	Sample Received By:	Jodi Henson
Project Location:	MONUMENT, NM		

Sample ID: PT. 10 @ 5' BGS INSIDE HOLE (H400845-10)

Chioride, SM4500CI-8	mg/kg	Analyzed By: AP	
A company of the second se	the Part of the Pa		

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	03/26/2014	ND	432	108	400	3.77	

Cardinal Laboratories

*=Accredited Analyte

ADMIN NOTE: Lasting and Decayary. Excludes facility and diverts exclude reversity for any client active model in contract or test, shall be briefed in the annual pair by client for annyous. All teams, including frame for anyighness and any other classe elements and in diversity and client active client activ

Colory D. Keine

Celey D. Keene, Lab Director/Quality Manager

Page 4 of 6



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

Notes and Definitions

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.
<u>90</u>	Chloride by SM4500CI-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

Cardinal Laboratories

*=Accredited Analyte

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Page 5 of 6

Celey D. Keene, Lab Director/Quality Manager



Appendix C Site Photos



Photo #1 – Release Point



Photo #2 – South



Photo #3 – North



Photo #4 – North



Photo #5- North

Appendix D C-141

District I 1625 N. French Dr., Hobbs, NM 88240 District II	and the second sec	e of New Mer rals and Natur	The second se		R	Form C-14 levised August 8, 201
 S. First St., Artesia, NM 88210 <u>Sistrict III</u> <u>0000 Rin Brazos Road</u>, Aztec, NM 87410 <u>Natrice IV</u> <u>220 S. St. Francis Dr., Santa Fe</u>, NM 87505 	1220 S	nservation Di outh St. Fran ta Fe, NM 87.	cis Dr.	Submit 1 Copy	v to appropria coordance wi	ne District Office i th 19.15.29 NMAC
I	Release Notifica	the state of the s	and the second se	etion		
		OPERA			al Report	Final Repo
Name of Company X10		Contact	John Rol	inson	arrepar	C T THE TREPS
Address Facility Name EMSU & INJ		Telephone Facility Ty		441-5199		
	Mineral Own		po 4 n.J.+4	Tion Line		
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If a Watercourse was Impacted, Describe F	s 🖓 No					
Describe Cause of Problem and Remedial A Lack in Ing Ling - No	Action Taken.* Action Taken	yet		GW	CN 37	l
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