

INFORMATION ONLY

Release Characterization Workplan for Heisenberg #007H Spill

Prepared by: Ryan Millunzi, Microbiologist, R.E.X. LLC, ryan@oilandsaltremediation.com, (936)-648-7549



Nature of Release

On November 20, 2017 at 7:15 am CST, an unauthorized release of an estimated 80 barrels, consisting of a mixture of oil and water, occurred at the oil well 30-025-43754 Heisenberg State Com #007H. See *Table 1* below for information pertaining to the well.

Table1: 30-025-43754 Heisenberg State Com #007H¹

Operator:	[371682] Steward Energy II, LLC
Well Type:	Oil
Work Type:	New
Surface Location:	J-04-14S-38E 2040 FSL 1450FEL
Lat/Long:	33.1317966, -103.0981685

¹Information obtained from the NM OCD Oil and Gas Map available at the OCD GIS website.

Upon discovery of the unauthorized release immediate notice was given to Olivia Yu, of the New Mexico Oil Conservation District 1. The cause of the release was the failure of a 3/8-inch stainless steel nipple on the wellhead. The well was shut down and shut in, the location closed off and the appropriate calls were made as required to report the release and begin cleanup. Immediate cleanup efforts consisted of the use of a backhoe in order to build berms and further contain the spill. A vacuum truck was brought in to recover any fluids spilled. The total area affected by the release is 16.75 acres. Refer to *Table 2*, on page 3, for the spatial data pertaining to the spill boundary perimeter.

Table 2: GPS Coordinates¹

<i>Perimeter Points</i>	<i>Latitude</i>	<i>Longitude</i>
<i>H1P</i>	33.132556	-103.097639
<i>H2P</i>	33.13287	-103.097503
<i>H3P</i>	33.132884	-103.097065
<i>H4P</i>	33.133255	-103.096665
<i>H5P</i>	33.133336	-103.095904
<i>H6P</i>	33.133319	-103.094156
<i>H7P</i>	33.132409	-103.094872
<i>H8P</i>	33.131966	-103.095646
<i>H9P</i>	33.131632	-103.096631
<i>H10P</i>	33.131466	-103.097436
<i>H11P</i>	33.131987	-103.098439
<i>Soil Sample Points</i>	<i>Latitude</i>	<i>Longitude</i>
<i>HS1</i>	33.13263	-103.097325
<i>HS2</i>	33.132839	-103.096548
<i>HS3</i>	33.133061	-103.095763
<i>HS4</i>	33.132995	-103.094975
<i>HS5</i>	33.132527	-103.096126
<i>HS6</i>	33.131996	-103.096818
<i>HS7</i>	33.132058	-103.097322
<i>HS8</i>	33.133956	-103.096669
<i>HS9</i>	33.133798	-103.093852
<i>HS10</i>	33.132045	-103.094352
<i>HS11</i>	33.131215	-103.098293
<i>HS12</i>	33.131855	-103.098992
<i>Well Location</i>	33.131987	-103.098439

¹All spatial data taken on location with GPS device.

Horizontal Delineation of Soil Impacts

Horizontal delineation of soil impacts occurred in each of the four cardinal compass directions and occurred within the impacted area and beyond, this can be confirmed by the spatial data within *Table 2*. Adsorbed soil contamination was characterized for the following constituents using the specified method: benzene, toluene, ethylbenzene, and total xylenes by method EPA 8021B, total petroleum hydrocarbons by method TPH Texas1005, and for chlorides by method EPA 300. The results of the adsorbed soil contamination are characterized within *Table 3*.

Table 2: Analytical Data for Heisenberg 7H¹

<u>Sample</u>	<u>TPH²</u>	<u>Chloride</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethylbenzene</u>	<u>Total Xylenes</u>
Spot 1 Surface	54.9	123.0	<0.00199	<0.00199	<0.00199	<0.00199
Spot 1 12"	<24.9	22.4	<0.00200	<0.00200	<0.00200	<0.00200
Spot 2 Surface	31.6	129.0	<0.00201	<0.00201	<0.00201	<0.00201
Spot 2 12"	<25.0	22.6	<0.00202	<0.00202	<0.00202	<0.00202
Spot 3 Surface	<24.9	71.8	<0.00200	<0.00200	<0.00200	<0.00200
Spot 3 12"	<25.0	9.4	<0.00199	<0.00199	<0.00199	<0.00199
Spot 4 Surface	<24.9	13.4	<0.00200	<0.00200	<0.00200	<0.00200
Spot 4 12"	<25.0	<4.98	<0.00202	<0.00202	<0.00202	<0.00202
Spot 5 Surface	33.5	32.0	<0.00200	<0.00200	<0.00200	<0.00200
Spot 5 12"	<25.0	5.9	<0.01000	<0.01000	<0.01000	<0.01000
Spot 6 Surface	37.6	76.7	<0.01000	<0.01000	<0.01000	<0.01000
Spot 6 12"	<25.0	<4.97	<0.01000	<0.01000	<0.01000	<0.01000
Spot 7 Surface	86.1	112.0	<0.01000	<0.01000	<0.01000	<0.01000
Spot 7 12"	<24.9	<4.99	<0.01000	<0.01000	<0.01000	<0.01000
Spot 8 Surface	<25.0	21.8	<0.01000	<0.01000	<0.01000	<0.01000
Spot 8 12"	<25.0	<4.94	<0.01000	<0.01000	<0.01000	<0.01000
Spot 9 Surface	<4.99	<25.0	<0.01000	<0.01000	<0.01000	<0.01000
Spot 9 12"	<24.9	<4.97	<0.01000	<0.01000	<0.01000	<0.01000
Spot 10 Surface	<25.0	6.45	<0.01000	<0.01000	<0.01000	<0.01000
Spot 10 12"	<25.0	<4.97	<0.01000	<0.01000	<0.01000	<0.01000
Spot 11 Surface	<24.9	93.3	<0.01000	<0.01000	<0.01000	<0.01000
Spot 11 12"	<25.0	321.0	<0.01000	<0.01000	<0.01000	<0.01000
Spot 12 Surface	<25.0	<4.94	<0.01000	<0.01000	<0.01000	<0.01000
Spot 12 12"	<24.9	<4.92	<0.01000	<0.01000	<0.01000	<0.01000

¹The above table displays all values provided to REX, LLC by Xenco Laboratories. See attached *Analytical Report 569997*.

² All data is in units of ppm.

Vertical Delineation of Soil Impacts

Vertical delineation of soil impacts occurred in each of the four cardinal compass directions and occurred within the impacted area and beyond, this can be confirmed by the spatial data within *Table 2*. Vertical delineation of soil impacts took place to a depth of 12 inches from the surface. Adsorbed soil contamination was characterized for the following constituents using the specified method: benzene, toluene, ethylbenzene, and total xylenes by method EPA 8021B, total petroleum hydrocarbons by method TPH Texas1005, and for chlorides by method EPA 300. The results of the adsorbed soil contamination are characterized above, within *Table 3*.

Delineation of Ground Water Impacts

According to the USGS Caprock CRN well, the groundwater depth, as of November 30, 2017, is 60.05 feet. This information was obtained from the USGS National Water Information System: Web interface. The lateral distance to the nearest surface water was measured as 1,785 feet. The nearest surface water is a small (3,227 square feet) pond. There are two water sources in the vicinity of the affected area, both are a pivot irrigation system, one is located to the north in the affected wheat field and one is located to the east in the affected cotton field. The pivot in the wheat field is measured to have a lateral distance of 1,084 feet, and the cotton field pivot is 993 feet. No tests were conducted to determine groundwater contamination as the depth of the groundwater is greater than the specified 50 feet.

Other Adverse Impacts

As a result of this unauthorized release two agricultural fields and one CRP field were affected within the spill zone. Please refer to *Map 1* for a visual representation of the release area. All three fields were exposed to a very light mist of oil and water from the release. This exposure is documented via the images taken at the release site on December 1, 2017.

Release Site Images



Above left and right: affected cotton field, facing east from oil well.



Above left: close up of affected cotton. Above right: affected cotton, facing west towards oil well.



Above left: affected wheat, facing southwest towards oil well. Above right: close up of affected wheat



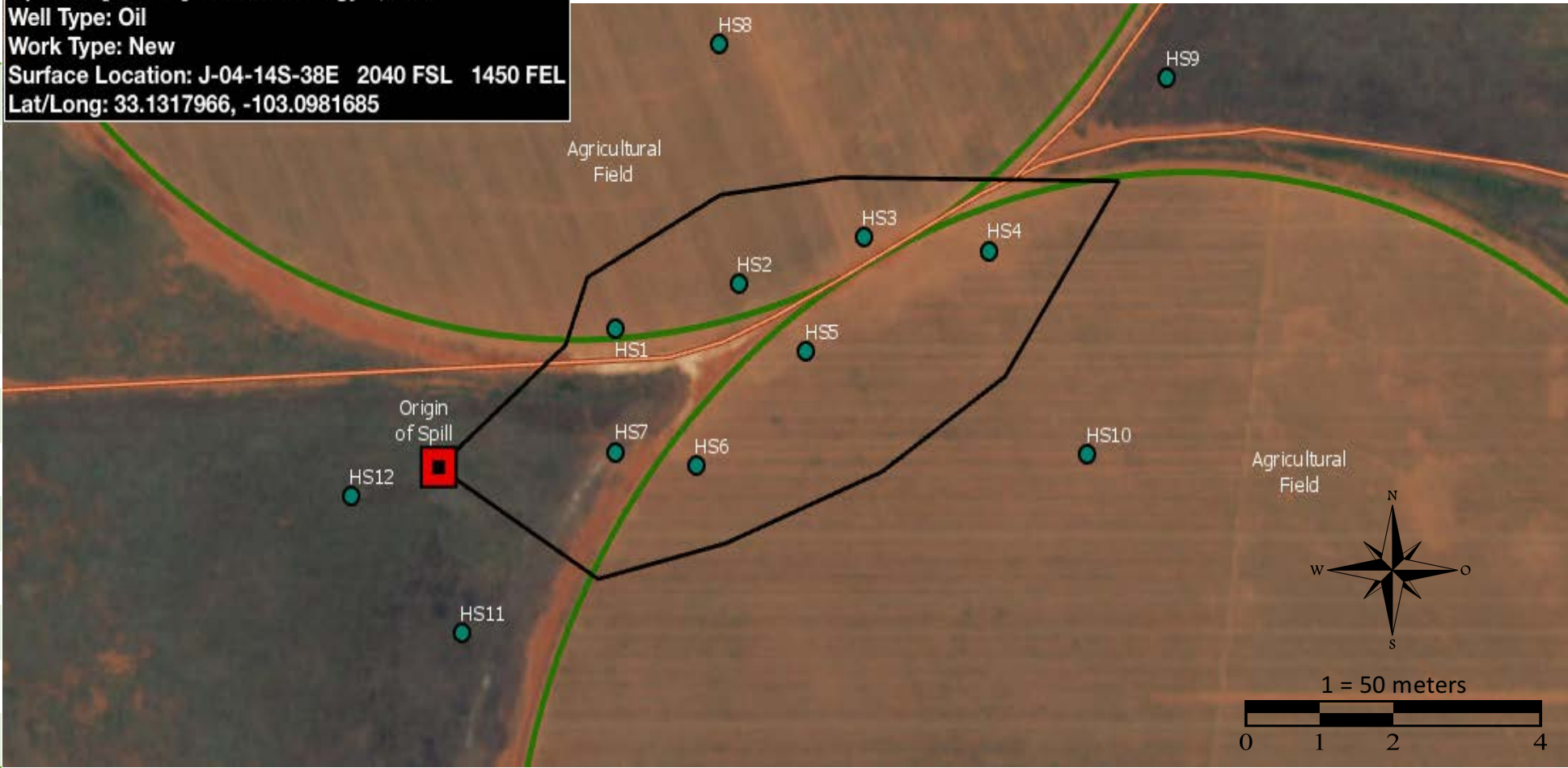
Above: close up of affected wheat.

GPS Data for Soil Samples

Soil Sample Points	Latitude	Longitude
HS1	33.13263	-103.097325
HS2	33.132839	-103.096548
HS3	33.133061	-103.095763
HS4	33.132995	-103.094975
HS5	33.132527	-103.096126
HS6	33.131996	-103.096818
HS7	33.132058	-103.097322
HS8	33.133956	-103.096669
HS9	33.133798	-103.093852
HS10	33.132045	-103.094352
HS11	33.131215	-103.098293
HS12	33.131855	-103.098992

30-025-43754 Heisenberg State Com #007H [317665]
Opertor: [371682] Steward Energy II, LLC
Well Type: Oil
Work Type: New
Surface Location: J-04-14S-38E 2040 FSL 1450 FEL
Lat/Long: 33.1317966, -103.0981685

Map 1: Heisenberg State Com #007H



This map is intended to aid in the characterization of the release that occurred on 11/20/2017, at the oil well, Heisenberg State Com #007H.

Legend

Symbol	Description
	Agricultural Field
	Spill Boundary
	Road
	Soil Sample Point
	Origin of Spill

Note: All spatial data taken in field with GPS device. See GIS file for more information.

Analytical Report 569997

for

Remediation and Environmental Xperts, LLC

Project Manager: Rex Rainey

Steward

05-DEC-17

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)



05-DEC-17

Project Manager: **Rex Rainey**

Remediation and Environmental Xperts, LLC

P.O. Box 2699

Big Spring, TX 79720

Reference: XENCO Report No(s): **569997**

Steward

Project Address: Heisenberg State Com 7H

Rex Rainey:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 569997. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 569997 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Holly Taylor

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

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Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Spot 1	S	12-01-17 09:30	Surface	569997-001
Spot 1	S	12-01-17 10:00	12 In	569997-002
Spot 2	S	12-01-17 10:30	Surface	569997-003
Spot 2	S	12-01-17 11:00	12 In	569997-004
Spot 3	S	12-01-17 11:30	Surface	569997-005
Spot 3	S	12-01-17 12:00	12 In	569997-006
Spot 4	S	12-01-17 12:30	Surface	569997-007
Spot 4	S	12-01-17 13:00	12 In	569997-008
Spot 5	S	12-01-17 13:30	Surface	569997-009
Spot 5	S	12-01-17 14:00	12 In	569997-010
Spot 6	S	12-01-17 09:00	Surf	569997-011
Spot 6	S	12-01-17 09:30	12 In	569997-012
Spot 7	S	12-01-17 10:00	Surf	569997-013
Spot 7	S	12-01-17 10:30	12 In	569997-014
Spot 8	S	12-01-17 11:00	Surf	569997-015
Spot 8	S	12-01-17 11:30	12 In	569997-016
Spot 9	S	12-01-17 12:00	Surf	569997-017
Spot 9	S	12-01-17 12:30	12 In	569997-018
Spot 10	S	12-01-17 13:00	Surf	569997-019
Spot 10	S	12-01-17 13:30	12 In	569997-020
Spot 12	S	12-01-17 14:30	Surf	569997-021
Spot 12	S	12-01-17 15:00	12 In	569997-022
Spot 11	S	12-01-17 15:30	Surf	569997-023
Spot 11	S	12-01-17 16:00	12 In	569997-024



CASE NARRATIVE

Client Name: Remediation and Environmental Xperts, LLC

Project Name: Steward

Project ID:
Work Order Number(s): 569997

Report Date: 05-DEC-17
Date Received: 12/04/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3034895 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3034937 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Lab Sample ID 569997-011 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). o-Xylene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 569997-010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020, -021, -022, -023, -024.

The Laboratory Control Sample for o-Xylene is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 1** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-001 Date Collected: 12.01.17 09.30 Sample Depth: Surface
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.04.17 17.00 Basis: Wet Weight
Seq Number: 3034981

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	123	4.94	mg/kg	12.04.17 22.58		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 14.19	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	54.9	25.0	mg/kg	12.04.17 14.19		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 14.19	U	1
Total TPH 1005	PHC635	54.9	25.0	mg/kg	12.04.17 14.19		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	12.04.17 14.19	
o-Terphenyl	84-15-1	88	%	70-130	12.04.17 14.19	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 1** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-001 Date Collected: 12.01.17 09.30 Sample Depth: Surface
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.15 Basis: Wet Weight
Seq Number: 3034895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.04.17 14.04	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.04.17 14.04	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.04.17 14.04	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.04.17 14.04	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.04.17 14.04	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.04.17 14.04	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.04.17 14.04	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	89	%	80-120	12.04.17 14.04		
1,4-Difluorobenzene	540-36-3	94	%	80-120	12.04.17 14.04		



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 1** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-002 Date Collected: 12.01.17 10.00 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.04.17 17.00 Basis: Wet Weight
Seq Number: 3034981

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	22.4	4.97	mg/kg	12.05.17 10.01		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<24.9	24.9	mg/kg	12.04.17 15.20	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<24.9	24.9	mg/kg	12.04.17 15.20	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<24.9	24.9	mg/kg	12.04.17 15.20	U	1
Total TPH 1005	PHC635	<24.9	24.9	mg/kg	12.04.17 15.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	12.04.17 15.20	
o-Terphenyl	84-15-1	98	%	70-130	12.04.17 15.20	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 1** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-002 Date Collected: 12.01.17 10.00 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.15 Basis: Wet Weight
Seq Number: 3034895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.04.17 14.23	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.04.17 14.23	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.04.17 14.23	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	12.04.17 14.23	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.04.17 14.23	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.04.17 14.23	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.04.17 14.23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	89	%	80-120	12.04.17 14.23		
1,4-Difluorobenzene	540-36-3	95	%	80-120	12.04.17 14.23		



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 2** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-003 Date Collected: 12.01.17 10.30 Sample Depth: Surface
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.04.17 17.00 Basis: Wet Weight
Seq Number: 3034981

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	129	4.96	mg/kg	12.05.17 10.10		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<24.9	24.9	mg/kg	12.04.17 15.40	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	31.6	24.9	mg/kg	12.04.17 15.40		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<24.9	24.9	mg/kg	12.04.17 15.40	U	1
Total TPH 1005	PHC635	31.6	24.9	mg/kg	12.04.17 15.40		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	12.04.17 15.40	
o-Terphenyl	84-15-1	85	%	70-130	12.04.17 15.40	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 2** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-003 Date Collected: 12.01.17 10.30 Sample Depth: Surface
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.15 Basis: Wet Weight
Seq Number: 3034895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	12.04.17 14.42	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	12.04.17 14.42	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	12.04.17 14.42	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	12.04.17 14.42	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	12.04.17 14.42	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	12.04.17 14.42	U	1
Total BTEX		<0.00201	0.00201	mg/kg	12.04.17 14.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	91	%	80-120	12.04.17 14.42		
1,4-Difluorobenzene	540-36-3	95	%	80-120	12.04.17 14.42		



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 2** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-004 Date Collected: 12.01.17 11.00 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.04.17 17.00 Basis: Wet Weight
Seq Number: 3034981

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	22.6	4.92	mg/kg	12.05.17 10.18		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 16.01	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 16.01	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 16.01	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 16.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	12.04.17 16.01	
o-Terphenyl	84-15-1	92	%	70-130	12.04.17 16.01	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 2** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-004 Date Collected: 12.01.17 11.00 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.15 Basis: Wet Weight
Seq Number: 3034895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.04.17 15.00	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.04.17 15.00	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.04.17 15.00	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	12.04.17 15.00	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.04.17 15.00	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.04.17 15.00	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.04.17 15.00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	80-120	12.04.17 15.00		
4-Bromofluorobenzene	460-00-4	89	%	80-120	12.04.17 15.00		



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX

Steward

Sample Id: **Spot 3** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-005 Date Collected: 12.01.17 11.30 Sample Depth: Surface
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	71.8	4.95	mg/kg	12.05.17 10.47		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<24.9	24.9	mg/kg	12.04.17 16.21	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<24.9	24.9	mg/kg	12.04.17 16.21	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<24.9	24.9	mg/kg	12.04.17 16.21	U	1
Total TPH 1005	PHC635	<24.9	24.9	mg/kg	12.04.17 16.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	12.04.17 16.21	
o-Terphenyl	84-15-1	97	%	70-130	12.04.17 16.21	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 3** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-005 Date Collected: 12.01.17 11.30 Sample Depth: Surface
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.15 Basis: Wet Weight
Seq Number: 3034895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.04.17 15.19	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.04.17 15.19	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.04.17 15.19	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.04.17 15.19	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.04.17 15.19	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.04.17 15.19	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.04.17 15.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	80-120	12.04.17 15.19		
4-Bromofluorobenzene	460-00-4	93	%	80-120	12.04.17 15.19		



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 3** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-006 Date Collected: 12.01.17 12.00 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.37	4.97	mg/kg	12.05.17 11.05		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 16.41	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 16.41	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 16.41	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 16.41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	12.04.17 16.41	
o-Terphenyl	84-15-1	97	%	70-130	12.04.17 16.41	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 3** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-006 Date Collected: 12.01.17 12.00 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.15 Basis: Wet Weight
Seq Number: 3034895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.04.17 15.39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.04.17 15.39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.04.17 15.39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.04.17 15.39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.04.17 15.39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.04.17 15.39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.04.17 15.39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	91	%	80-120	12.04.17 15.39		
1,4-Difluorobenzene	540-36-3	96	%	80-120	12.04.17 15.39		



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Remediation and Environmental Xperts, LLC, Big Spring, TX

Steward

Sample Id: **Spot 4** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-007 Date Collected: 12.01.17 12.30 Sample Depth: Surface
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.4	4.95	mg/kg	12.05.17 11.11		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<24.9	24.9	mg/kg	12.04.17 17.01	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<24.9	24.9	mg/kg	12.04.17 17.01	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<24.9	24.9	mg/kg	12.04.17 17.01	U	1
Total TPH 1005	PHC635	<24.9	24.9	mg/kg	12.04.17 17.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	12.04.17 17.01	
o-Terphenyl	84-15-1	88	%	70-130	12.04.17 17.01	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 4** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-007 Date Collected: 12.01.17 12.30 Sample Depth: Surface
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.15 Basis: Wet Weight
Seq Number: 3034895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.04.17 15.58	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.04.17 15.58	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.04.17 15.58	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.04.17 15.58	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.04.17 15.58	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.04.17 15.58	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.04.17 15.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	93	%	80-120	12.04.17 15.58		
4-Bromofluorobenzene	460-00-4	91	%	80-120	12.04.17 15.58		



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 4** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-008 Date Collected: 12.01.17 13.00 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	12.05.17 11.16	U	1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 17.21	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 17.21	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 17.21	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 17.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	12.04.17 17.21	
o-Terphenyl	84-15-1	86	%	70-130	12.04.17 17.21	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 4** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-008 Date Collected: 12.01.17 13.00 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.15 Basis: Wet Weight
Seq Number: 3034895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.04.17 16.17	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.04.17 16.17	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.04.17 16.17	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.04.17 16.17	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.04.17 16.17	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.04.17 16.17	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.04.17 16.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	88	%	80-120	12.04.17 16.17		
1,4-Difluorobenzene	540-36-3	95	%	80-120	12.04.17 16.17		



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 5** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-009 Date Collected: 12.01.17 13.30 Sample Depth: Surface
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	32.0	4.99	mg/kg	12.05.17 11.22		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 17.41	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	33.5	25.0	mg/kg	12.04.17 17.41		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 17.41	U	1
Total TPH 1005	PHC635	33.5	25.0	mg/kg	12.04.17 17.41		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	83	%	70-135	12.04.17 17.41	
o-Terphenyl	84-15-1	81	%	70-130	12.04.17 17.41	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 5** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-009 Date Collected: 12.01.17 13.30 Sample Depth: Surface
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.15 Basis: Wet Weight
Seq Number: 3034895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.04.17 16.37	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.04.17 16.37	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.04.17 16.37	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.04.17 16.37	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.04.17 16.37	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.04.17 16.37	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.04.17 16.37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	90	%	80-120	12.04.17 16.37		
1,4-Difluorobenzene	540-36-3	95	%	80-120	12.04.17 16.37		



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 5** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-010 Date Collected: 12.01.17 14.00 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.87	4.99	mg/kg	12.05.17 11.40		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 18.01	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 18.01	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 18.01	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 18.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	12.04.17 18.01	
o-Terphenyl	84-15-1	98	%	70-130	12.04.17 18.01	



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 5** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-010 Date Collected: 12.01.17 14.00 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 19.45	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 19.45	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 19.45	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 19.45	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 19.45	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 19.45	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 19.45	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	85	%	80-120	12.04.17 19.45		
1,4-Difluorobenzene	540-36-3	91	%	80-120	12.04.17 19.45		



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 6** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-011 Date Collected: 12.01.17 09.00 Sample Depth: Surf
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	76.7	4.98	mg/kg	12.05.17 11.46		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 19.06	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	37.6	25.0	mg/kg	12.04.17 19.06		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 19.06	U	1
Total TPH 1005	PHC635	37.6	25.0	mg/kg	12.04.17 19.06		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	12.04.17 19.06	
o-Terphenyl	84-15-1	85	%	70-130	12.04.17 19.06	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 6** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-011 Date Collected: 12.01.17 09.00 Sample Depth: Surf
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 19.26	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 19.26	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 19.26	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 19.26	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 19.26	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 19.26	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 19.26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	92	%	80-120	12.04.17 19.26		
4-Bromofluorobenzene	460-00-4	93	%	80-120	12.04.17 19.26		



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 6** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-012 Date Collected: 12.01.17 09.30 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	12.05.17 11.52	U	1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 19.27	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 19.27	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 19.27	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 19.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	12.04.17 19.27	
o-Terphenyl	84-15-1	110	%	70-130	12.04.17 19.27	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 6** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-012 Date Collected: 12.01.17 09.30 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 20.02	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 20.02	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 20.02	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 20.02	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 20.02	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 20.02	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 20.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	87	%	80-120	12.04.17 20.02		
1,4-Difluorobenzene	540-36-3	94	%	80-120	12.04.17 20.02		



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Remediation and Environmental Xperts, LLC, Big Spring, TX

Steward

Sample Id: **Spot 7** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-013 Date Collected: 12.01.17 10.00 Sample Depth: Surf
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	112	4.98	mg/kg	12.05.17 11.58		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<24.9	24.9	mg/kg	12.04.17 19.48	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	86.1	24.9	mg/kg	12.04.17 19.48		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<24.9	24.9	mg/kg	12.04.17 19.48	U	1
Total TPH 1005	PHC635	86.1	24.9	mg/kg	12.04.17 19.48		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	12.04.17 19.48	
o-Terphenyl	84-15-1	91	%	70-130	12.04.17 19.48	



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 7** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-013 Date Collected: 12.01.17 10.00 Sample Depth: Surf
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 20.21	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 20.21	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 20.21	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 20.21	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 20.21	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 20.21	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 20.21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	91	%	80-120	12.04.17 20.21		
1,4-Difluorobenzene	540-36-3	100	%	80-120	12.04.17 20.21		



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 7** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-014 Date Collected: 12.01.17 10.30 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	12.05.17 12.04	U	1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<24.9	24.9	mg/kg	12.04.17 20.08	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<24.9	24.9	mg/kg	12.04.17 20.08	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<24.9	24.9	mg/kg	12.04.17 20.08	U	1
Total TPH 1005	PHC635	<24.9	24.9	mg/kg	12.04.17 20.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	12.04.17 20.08	
o-Terphenyl	84-15-1	95	%	70-130	12.04.17 20.08	



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 7** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-014 Date Collected: 12.01.17 10.30 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 20.40	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 20.40	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 20.40	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 20.40	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 20.40	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 20.40	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 20.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	84	%	80-120	12.04.17 20.40		
1,4-Difluorobenzene	540-36-3	91	%	80-120	12.04.17 20.40		



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Remediation and Environmental Xperts, LLC, Big Spring, TX

Steward

Sample Id: **Spot 8**
Lab Sample Id: 569997-015

Matrix: Soil
Date Collected: 12.01.17 11.00

Date Received: 12.04.17 10.50
Sample Depth: Surf

Analytical Method: Chloride by EPA 300
Tech: MNV
Analyst: MNV
Seq Number: 3034991

Date Prep: 12.05.17 09.00

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21.8	4.95	mg/kg	12.05.17 12.10		1

Analytical Method: TPH by Texas1005
Tech: ARM
Analyst: ARM
Seq Number: 3034997

Date Prep: 12.04.17 11.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 20.30	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 20.30	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 20.30	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 20.30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	88	%	70-135	12.04.17 20.30		
o-Terphenyl	84-15-1	84	%	70-130	12.04.17 20.30		



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Remediation and Environmental Xperts, LLC, Big Spring, TX

Steward

Sample Id: **Spot 8**
Lab Sample Id: 569997-015

Matrix: Soil
Date Collected: 12.01.17 11.00

Date Received: 12.04.17 10.50
Sample Depth: Surf

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 12.04.17 11.20

Basis: Wet Weight

Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 20.59	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 20.59	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 20.59	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 20.59	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 20.59	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 20.59	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 20.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	80-120	12.04.17 20.59		
4-Bromofluorobenzene	460-00-4	89	%	80-120	12.04.17 20.59		



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 8** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-016 Date Collected: 12.01.17 11.30 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.94	4.94	mg/kg	12.05.17 12.28	U	1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 20.51	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 20.51	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 20.51	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 20.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-135	12.04.17 20.51	
o-Terphenyl	84-15-1	84	%	70-130	12.04.17 20.51	



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 8** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-016 Date Collected: 12.01.17 11.30 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 21.17	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 21.17	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 21.17	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 21.17	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 21.17	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 21.17	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 21.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	81	%	80-120	12.04.17 21.17		
4-Bromofluorobenzene	460-00-4	89	%	80-120	12.04.17 21.17		



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 9** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-017 Date Collected: 12.01.17 12.00 Sample Depth: Surf
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	12.05.17 12.34	U	1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 21.12	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 21.12	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 21.12	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 21.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	12.04.17 21.12	
o-Terphenyl	84-15-1	93	%	70-130	12.04.17 21.12	



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 9** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-017 Date Collected: 12.01.17 12.00 Sample Depth: Surf
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 21.36	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 21.36	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 21.36	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 21.36	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 21.36	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 21.36	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 21.36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	80-120	12.04.17 21.36		
4-Bromofluorobenzene	460-00-4	84	%	80-120	12.04.17 21.36		



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 9** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-018 Date Collected: 12.01.17 12.30 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	12.05.17 12.51	U	1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<24.9	24.9	mg/kg	12.04.17 21.34	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<24.9	24.9	mg/kg	12.04.17 21.34	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<24.9	24.9	mg/kg	12.04.17 21.34	U	1
Total TPH 1005	PHC635	<24.9	24.9	mg/kg	12.04.17 21.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	77	%	70-135	12.04.17 21.34	
o-Terphenyl	84-15-1	78	%	70-130	12.04.17 21.34	



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 9** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-018 Date Collected: 12.01.17 12.30 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 21.55	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 21.55	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 21.55	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 21.55	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 21.55	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 21.55	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 21.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	92	%	80-120	12.04.17 21.55		
4-Bromofluorobenzene	460-00-4	85	%	80-120	12.04.17 21.55		



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Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 10** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-019 Date Collected: 12.01.17 13.00 Sample Depth: Surf
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6.45	4.94	mg/kg	12.05.17 12.57		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 21.55	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 21.55	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 21.55	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 21.55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	12.04.17 21.55	
o-Terphenyl	84-15-1	94	%	70-130	12.04.17 21.55	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 10** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-019 Date Collected: 12.01.17 13.00 Sample Depth: Surf
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 22.14	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 22.14	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 22.14	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 22.14	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 22.14	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 22.14	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 22.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	91	%	80-120	12.04.17 22.14		
4-Bromofluorobenzene	460-00-4	82	%	80-120	12.04.17 22.14		



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 10** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-020 Date Collected: 12.01.17 13.30 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	12.05.17 13.03	U	1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034997

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 22.14	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 22.14	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 22.14	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 22.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	12.04.17 22.14	
o-Terphenyl	84-15-1	91	%	70-130	12.04.17 22.14	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX

Steward

Sample Id: **Spot 10** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-020 Date Collected: 12.01.17 13.30 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 23.10	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 23.10	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 23.10	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 23.10	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 23.10	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 23.10	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 23.10	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	89	%	80-120	12.04.17 23.10		
1,4-Difluorobenzene	540-36-3	96	%	80-120	12.04.17 23.10		



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 12** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-021 Date Collected: 12.01.17 14.30 Sample Depth: Surf
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.94	4.94	mg/kg	12.05.17 13.09	U	1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034916

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 17.50	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 17.50	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 17.50	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 17.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	12.04.17 17.50	
o-Terphenyl	84-15-1	82	%	70-130	12.04.17 17.50	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 12** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-021 Date Collected: 12.01.17 14.30 Sample Depth: Surf
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 23.29	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 23.29	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 23.29	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 23.29	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 23.29	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 23.29	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 23.29	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	89	%	80-120	12.04.17 23.29		
1,4-Difluorobenzene	540-36-3	91	%	80-120	12.04.17 23.29		



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 12** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-022 Date Collected: 12.01.17 15.00 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.92	4.92	mg/kg	12.05.17 13.15	U	1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034916

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<24.9	24.9	mg/kg	12.04.17 18.10	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<24.9	24.9	mg/kg	12.04.17 18.10	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<24.9	24.9	mg/kg	12.04.17 18.10	U	1
Total TPH 1005	PHC635	<24.9	24.9	mg/kg	12.04.17 18.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	12.04.17 18.10	
o-Terphenyl	84-15-1	88	%	70-130	12.04.17 18.10	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 12** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-022 Date Collected: 12.01.17 15.00 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.04.17 23.48	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.04.17 23.48	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.04.17 23.48	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.04.17 23.48	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.04.17 23.48	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.04.17 23.48	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.04.17 23.48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	93	%	80-120	12.04.17 23.48		
4-Bromofluorobenzene	460-00-4	87	%	80-120	12.04.17 23.48		



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 11** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-023 Date Collected: 12.01.17 15.30 Sample Depth: Surf
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	93.3	4.92	mg/kg	12.05.17 13.21		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034916

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<24.9	24.9	mg/kg	12.04.17 18.31	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<24.9	24.9	mg/kg	12.04.17 18.31	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<24.9	24.9	mg/kg	12.04.17 18.31	U	1
Total TPH 1005	PHC635	<24.9	24.9	mg/kg	12.04.17 18.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	12.04.17 18.31	
o-Terphenyl	84-15-1	84	%	70-130	12.04.17 18.31	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 11** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-023 Date Collected: 12.01.17 15.30 Sample Depth: Surf
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.05.17 00.06	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.05.17 00.06	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.05.17 00.06	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.05.17 00.06	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.05.17 00.06	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.05.17 00.06	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.05.17 00.06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	86	%	80-120	12.05.17 00.06		
1,4-Difluorobenzene	540-36-3	92	%	80-120	12.05.17 00.06		



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 11** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-024 Date Collected: 12.01.17 16.00 Sample Depth: 12 In
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: MNV % Moisture:
Analyst: MNV Date Prep: 12.05.17 09.00 Basis: Wet Weight
Seq Number: 3034991

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	321	4.95	mg/kg	12.05.17 13.27		1

Analytical Method: TPH by Texas1005 Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 12.04.17 11.00 Basis: Wet Weight
Seq Number: 3034916

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	<25.0	25.0	mg/kg	12.04.17 18.52	U	1
C12-C28 Diesel Range Hydrocarbons	PHCG1228	<25.0	25.0	mg/kg	12.04.17 18.52	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<25.0	25.0	mg/kg	12.04.17 18.52	U	1
Total TPH 1005	PHC635	<25.0	25.0	mg/kg	12.04.17 18.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	12.04.17 18.52	
o-Terphenyl	84-15-1	88	%	70-130	12.04.17 18.52	



Certificate of Analytical Results 569997



Remediation and Environmental Xperts, LLC, Big Spring, TX Steward

Sample Id: **Spot 11** Matrix: Soil Date Received: 12.04.17 10.50
Lab Sample Id: 569997-024 Date Collected: 12.01.17 16.00 Sample Depth: 12 In
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 12.04.17 11.20 Basis: Wet Weight
Seq Number: 3034937

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0100	0.0100	mg/kg	12.05.17 00.24	U	1
Toluene	108-88-3	<0.0100	0.0100	mg/kg	12.05.17 00.24	U	1
Ethylbenzene	100-41-4	<0.0100	0.0100	mg/kg	12.05.17 00.24	U	1
m,p-Xylenes	179601-23-1	<0.0200	0.0200	mg/kg	12.05.17 00.24	U	1
o-Xylene	95-47-6	<0.0100	0.0100	mg/kg	12.05.17 00.24	U	1
Total Xylenes	1330-20-7	<0.0100	0.0100	mg/kg	12.05.17 00.24	U	1
Total BTEX		<0.0100	0.0100	mg/kg	12.05.17 00.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	86	%	80-120	12.05.17 00.24		
1,4-Difluorobenzene	540-36-3	91	%	80-120	12.05.17 00.24		

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **SQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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Remediation and Environmental Xperts, LLC

Steward

Analytical Method: Chloride by EPA 300

Seq Number: 3034981

MB Sample Id: 7635398-1-BLK

Matrix: Solid

LCS Sample Id: 7635398-1-BKS

Prep Method: E300P

Date Prep: 12.04.17

LCSD Sample Id: 7635398-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	248	99	249	100	90-110	0	20	mg/kg	12.04.17 19:08	

Analytical Method: Chloride by EPA 300

Seq Number: 3034991

MB Sample Id: 7635431-1-BLK

Matrix: Solid

LCS Sample Id: 7635431-1-BKS

Prep Method: E300P

Date Prep: 12.05.17

LCSD Sample Id: 7635431-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	247	99	246	98	90-110	0	20	mg/kg	12.05.17 10:35	

Analytical Method: Chloride by EPA 300

Seq Number: 3034981

Parent Sample Id: 569113-013

Matrix: Soil

MS Sample Id: 569113-013 S

Prep Method: E300P

Date Prep: 12.04.17

MSD Sample Id: 569113-013 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	710	249	964	102	965	102	90-110	0	20	mg/kg	12.04.17 21:38	

Analytical Method: Chloride by EPA 300

Seq Number: 3034991

Parent Sample Id: 569997-005

Matrix: Soil

MS Sample Id: 569997-005 S

Prep Method: E300P

Date Prep: 12.05.17

MSD Sample Id: 569997-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	71.8	248	322	101	316	98	90-110	2	20	mg/kg	12.05.17 10:53	

Analytical Method: Chloride by EPA 300

Seq Number: 3034991

Parent Sample Id: 569997-015

Matrix: Soil

MS Sample Id: 569997-015 S

Prep Method: E300P

Date Prep: 12.05.17

MSD Sample Id: 569997-015 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	21.8	248	282	105	286	107	90-110	1	20	mg/kg	12.05.17 12:16	



Remediation and Environmental Xperts, LLC

Steward

Analytical Method: TPH by Texas1005

Seq Number: 3034916

MB Sample Id: 7635383-1-BLK

Matrix: Solid

LCS Sample Id: 7635383-1-BKS

Prep Method: TX1005P

Date Prep: 12.04.17

LCSD Sample Id: 7635383-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C12 Gasoline Range Hydrocarbons	<25.0	1000	1010	101	944	94	70-135	7	35	mg/kg	12.04.17 12:40	
C12-C28 Diesel Range Hydrocarbons	<25.0	1000	1010	101	967	97	70-135	4	35	mg/kg	12.04.17 12:40	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	98		116		109		70-135	%	12.04.17 12:40
o-Terphenyl	95		113		102		70-130	%	12.04.17 12:40

Analytical Method: TPH by Texas1005

Seq Number: 3034997

MB Sample Id: 7635408-1-BLK

Matrix: Solid

LCS Sample Id: 7635408-1-BKS

Prep Method: TX1005P

Date Prep: 12.04.17

LCSD Sample Id: 7635408-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C12 Gasoline Range Hydrocarbons	<25.0	1000	850	85	933	93	70-135	9	35	mg/kg	12.04.17 13:23	
C12-C28 Diesel Range Hydrocarbons	<25.0	1000	802	80	980	98	70-135	20	35	mg/kg	12.04.17 13:23	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	96		72		99		70-135	%	12.04.17 13:23
o-Terphenyl	101		77		97		70-130	%	12.04.17 13:23

Analytical Method: TPH by Texas1005

Seq Number: 3034916

Parent Sample Id: 569990-016

Matrix: Soil

MS Sample Id: 569990-016 S

Prep Method: TX1005P

Date Prep: 12.04.17

MSD Sample Id: 569990-016 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C12 Gasoline Range Hydrocarbons	<25.0	999	928	93	967	97	70-135	4	35	mg/kg	12.04.17 17:07	
C12-C28 Diesel Range Hydrocarbons	54.7	999	1020	97	1030	98	70-135	1	35	mg/kg	12.04.17 17:07	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		107		70-135	%	12.04.17 17:07
o-Terphenyl	97		99		70-130	%	12.04.17 17:07



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Analytical Method: TPH by Texas1005

Seq Number: 3034997

Parent Sample Id: 569997-001

Matrix: Soil

MS Sample Id: 569997-001 S

Prep Method: TX1005P

Date Prep: 12.04.17

MSD Sample Id: 569997-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C12 Gasoline Range Hydrocarbons	<25.0	998	930	93	847	85	70-135	9	35	mg/kg	12.04.17 14:39	
C12-C28 Diesel Range Hydrocarbons	54.9	998	1030	98	948	89	70-135	8	35	mg/kg	12.04.17 14:39	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	99		80		70-135	%	12.04.17 14:39
o-Terphenyl	93		90		70-130	%	12.04.17 14:39

Analytical Method: BTEX by EPA 8021B

Seq Number: 3034895

MB Sample Id: 7635368-1-BLK

Matrix: Solid

LCS Sample Id: 7635368-1-BKS

Prep Method: SW5030B

Date Prep: 12.04.17

LCSD Sample Id: 7635368-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.113	113	0.116	115	70-130	3	35	mg/kg	12.04.17 07:42	
Toluene	<0.00200	0.100	0.108	108	0.109	108	70-130	1	35	mg/kg	12.04.17 07:42	
Ethylbenzene	<0.00200	0.100	0.104	104	0.106	105	71-129	2	35	mg/kg	12.04.17 07:42	
m,p-Xylenes	<0.00401	0.200	0.200	100	0.204	101	70-135	2	35	mg/kg	12.04.17 07:42	
o-Xylene	<0.00200	0.100	0.0971	97	0.0988	98	71-133	2	35	mg/kg	12.04.17 07:42	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	92		98		98		80-120	%	12.04.17 07:42
4-Bromofluorobenzene	80		93		97		80-120	%	12.04.17 07:42

Analytical Method: BTEX by EPA 8021B

Seq Number: 3034937

MB Sample Id: 7635396-1-BLK

Matrix: Solid

LCS Sample Id: 7635396-1-BKS

Prep Method: SW5030B

Date Prep: 12.04.17

LCSD Sample Id: 7635396-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.0100	0.500	0.566	113	0.558	112	70-130	1	35	mg/kg	12.04.17 17:15	
Toluene	<0.0100	0.500	0.526	105	0.527	105	70-130	0	35	mg/kg	12.04.17 17:15	
Ethylbenzene	<0.0100	0.500	0.506	101	0.503	101	71-129	1	35	mg/kg	12.04.17 17:15	
m,p-Xylenes	<0.0200	1.00	0.976	98	0.966	97	70-135	1	35	mg/kg	12.04.17 17:15	
o-Xylene	<0.0100	0.500	0.475	95	0.474	95	71-133	0	35	mg/kg	12.04.17 17:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	89		95		95		80-120	%	12.04.17 17:15
4-Bromofluorobenzene	81		89		95		80-120	%	12.04.17 17:15

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Analytical Method: BTEX by EPA 8021B

Seq Number: 3034895

Parent Sample Id: 569948-001

Matrix: Soil

MS Sample Id: 569948-001 S

Prep Method: SW5030B

Date Prep: 12.04.17

MSD Sample Id: 569948-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0883	89	0.0926	93	70-130	5	35	mg/kg	12.04.17 08:20	
Toluene	0.00636	0.0996	0.0833	77	0.0891	83	70-130	7	35	mg/kg	12.04.17 08:20	
Ethylbenzene	<0.00199	0.0996	0.0691	69	0.0743	74	71-129	7	35	mg/kg	12.04.17 08:20	X
m,p-Xylenes	<0.00398	0.199	0.135	68	0.142	71	70-135	5	35	mg/kg	12.04.17 08:20	X
o-Xylene	<0.00199	0.0996	0.0629	63	0.0707	71	71-133	12	35	mg/kg	12.04.17 08:20	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		97		80-120	%	12.04.17 08:20
4-Bromofluorobenzene	104		98		80-120	%	12.04.17 08:20

Analytical Method: BTEX by EPA 8021B

Seq Number: 3034937

Parent Sample Id: 569997-011

Matrix: Soil

MS Sample Id: 569997-011 S

Prep Method: SW5030B

Date Prep: 12.04.17

MSD Sample Id: 569997-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.0100	0.500	0.474	95	0.487	97	70-130	3	35	mg/kg	12.04.17 17:53	
Toluene	<0.0100	0.500	0.422	84	0.421	84	70-130	0	35	mg/kg	12.04.17 17:53	
Ethylbenzene	<0.0100	0.500	0.379	76	0.368	74	71-129	3	35	mg/kg	12.04.17 17:53	
m,p-Xylenes	<0.0200	1.00	0.719	72	0.712	71	70-135	1	35	mg/kg	12.04.17 17:53	
o-Xylene	<0.0100	0.500	0.356	71	0.351	70	71-133	1	35	mg/kg	12.04.17 17:53	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	96		96		80-120	%	12.04.17 17:53
4-Bromofluorobenzene	95		95		80-120	%	12.04.17 17:53

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Client / Reporting Information Company Name / Branch: REX, LLC Company Address: P.O. BOX 2898 BIG SPRING, TX 79721 Email: admin@colandreasmediation.com Project Contact: Rex Rainey and/or Roylyn Welch Project Name/Number: Steward Project Location: Hilsenberg State CORN. 7H Invoice To: REX LLC PO Number:		Project Information Project Name/Number: Steward Project Location: Hilsenberg State CORN. 7H Invoice To: REX LLC PO Number:	
Field ID / Point of Collection No. Sample Depth Date Time Matrix # of bottles HCl NaOH/Zn Acetate HNO3 H2SO4 NaOH NaHSO4 MEQH NONE Chlorides TPH BTEX 8021		Analytical Information Matrix Codes W = Water S = Soil/Sed/Solid GW = Ground Water DW = Drinking Water P = Product SW = Surface water SL = Sludge OW = Ocean/Sea Water WI = Wipe O = Oil WW = Waste Water A = Air	
1. SPOT 1 2. SPOT 1 3. SPOT 2 4. SPOT 2 5. SPOT 3 6. SPOT 3 7. SPOT 4 8. SPOT 4 9. SPOT 5 10. SPOT 5		12" 12" 12" 12" 12" 12" 12" 12" 12" 12" 12/1 12/1 12/1 12/1 12/1 12/1 12/1 12/1 12/1 12/1 9:30 10:00 10:30 11:00 11:30 12:00 12:30 1:00 1:30 2:00	
Turnaround Time (Business days) Data Deliverable Information		Notes:	
☐ Same Day TAT ☐ 5 Day TAT ☒ Next Day EMERGENCY ☐ 7 Day TAT ☐ 2 Day EMERGENCY ☐ Contract TAT ☐ 3 Day EMERGENCY ☐ TRRP Checklist		☐ Level II Std QC ☐ Level IV (Full Data Pkg raw data) ☐ Level III Std QC+ Forms ☐ TRRP Level IV ☐ Level 3 (CLP Forms) ☐ UST / RG 411	
TAT Starts Day received by Lab, if received by 5:00 pm		Temp: 3.9 IR ID: R-8 CF: (0-6: -0.2°C) (6-23: +0.2°C) Corrected Temp: 4.1	
Relinquished by Sampler: Patricia Miluna Relinquished By: Patricia Miluna Date Time: 12/1 6:00 Date Time: 12/1 6:00		Relinquished By: Patricia Miluna Relinquished By: Patricia Miluna Date Time: 12/1 6:00 Date Time: 12/1 6:00	
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losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenoco. A minimum charge of \$75 will be applied to each project. Xencoc's liability will be limited to the cost of samples. Any samples received by Xencoc but not analyzed will be invoiced at \$5 per sample. These terms will be incorporated unless positively negotiated under a fully executed client contract.

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Matrix Codes

Client / Reporting Information Company Name / Branch: REX, LLC Company Address: P.O. BOX 2899 BIG SPRING, TX 79721 Email: admin@colandreasremediation.com 432-213-3105 info@colandreasremediation.com Project Contact: Rex Ralney and/or Roylyn Welch Samplers Name		Project Information Project Name/Number: <u>Steward</u> Project Location: <u>Heisenberg State COM 007H</u> Invoice To: <u>PER PAINES</u> PO Number:																																																																																																																																																		
No. Field ID / Point of Collection		Collection <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Sample Depth</th> <th>Date</th> <th>Time</th> <th>Matrix</th> <th># of bottles</th> <th>HCl</th> <th>NaOH/Zn Acetate</th> <th>HNO3</th> <th>H2SO4</th> <th>NaOH</th> <th>NaHSO4</th> <th>MeOH</th> <th>NONE</th> </tr> </thead> <tbody> <tr> <td>1 SPOT b</td> <td>SUR</td> <td>12/1</td> <td>9:00</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2 SPOT w</td> <td>12"</td> <td>12/1</td> <td>9:30</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3 SPOT 7</td> <td>SUR</td> <td>12/1</td> <td>10:00</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4 SPOT 7</td> <td>12"</td> <td></td> <td>10:30</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5 SPOT 8</td> <td>SUR</td> <td></td> <td>11:00</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6 SPOT 8</td> <td>12"</td> <td></td> <td>11:30</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>7 SPOT 9</td> <td>SUR</td> <td></td> <td>12:00</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>8 SPOT 9</td> <td>12"</td> <td></td> <td>12:30</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>9 SPOT 10</td> <td>SUR</td> <td></td> <td>1:00</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>10 SPOT 10</td> <td>12"</td> <td></td> <td>1:30</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MeOH	NONE	1 SPOT b	SUR	12/1	9:00										2 SPOT w	12"	12/1	9:30										3 SPOT 7	SUR	12/1	10:00										4 SPOT 7	12"		10:30										5 SPOT 8	SUR		11:00										6 SPOT 8	12"		11:30										7 SPOT 9	SUR		12:00										8 SPOT 9	12"		12:30										9 SPOT 10	SUR		1:00										10 SPOT 10	12"		1:30										Number of preserved bottles Chlorides TPH BTEX	
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569997

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes						
Company Name / Branch: REX, LLC				Project Name/Number: Steward														
Company Address: P.O. BOX 2699 BIG SPRING, TX 79721				Project Location: Hilsenberg State.com.														
Email: admin@collandsonremediation.com 432-213-3105				Invoice To: P&T LLC														
Project Contact: Rex Rainey and/or Roylyn Welch				PO Number:														
Sampler's Name																		
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	Cl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MeOH	NONE	Chlorides	TPH	Notes	Field Comments
1	SP04 12	SVR	12/1	2:30														
2	SP04 12	SVR	12/1	3:00														
3	SP04 11	SVR	12/1	3:30														
4	SP04 11	SVR	12/1	4:00														
5																		
6																		
7																		
8																		
9																		
10																		
Turnaround Time (Business days)																		
Same Day TAT		☐ 5 Day TAT		☐ Level II Std QC		☐ Level IV (Full Data Pkg raw data)												
Next Day EMERGENCY		☐ 7 Day TAT		☐ Level III Std QC+ Forms		☐ TRRP Level IV												
2 Day EMERGENCY		☐ Contract TAT		☐ Level 3 (CLP Forms)		☐ UST / RG -411												
3 Day EMERGENCY		☐ TRRP Checklist																
TAT Starts Day received by Lab, if received by 5:00 pm																		
Relinquished by Sampler:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		
1 Ryan Milunzi		12/1 0:00		1 Ryan Milunzi		2 Ryan Milunzi		12/1 10:50		2 Ryan Milunzi		3 Ryan Milunzi		12/1 10:50		4 Ryan Milunzi		
Relinquished by:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		
3 Ryan Milunzi		12/1 0:00		1 Ryan Milunzi		2 Ryan Milunzi		12/1 10:50		2 Ryan Milunzi		3 Ryan Milunzi		12/1 10:50		4 Ryan Milunzi		
Relinquished by:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		
5 Ryan Milunzi		12/1 0:00		1 Ryan Milunzi		2 Ryan Milunzi		12/1 10:50		2 Ryan Milunzi		3 Ryan Milunzi		12/1 10:50		4 Ryan Milunzi		
Relinquished by:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		
5 Ryan Milunzi		12/1 0:00		1 Ryan Milunzi		2 Ryan Milunzi		12/1 10:50		2 Ryan Milunzi		3 Ryan Milunzi		12/1 10:50		4 Ryan Milunzi		

Temp: 3.9 IR ID: R-8

CF: (0-6: -0.2°C)

(6-23: +0.2°C)

Corrected Temp: 4.1

FED-EX / UPS: Tracking #

On Ice ☒ Cooler Temp. Thermo. Corr. Factor

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenoco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenoco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenoco. A minimum charge of \$75 will be applied to each project. Xenoco's liability will be limited to the cost of samples. Any samples received by Xenoco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.



XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: Remediation and Environmental Xperts,

Date/ Time Received: 12/04/2017 10:50:00 AM

Work Order #: 569997

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:

Connie Hernandez

Date: 12/04/2017

Checklist reviewed by:

Holly Taylor

Date: 12/04/2017