District I 1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410

State of New Mexico

Energy Minerals and Natural Resources T 0 9 2015

Form C-141 Revised August 8, 2011

Oil Conservation Division

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

HOBBS OCD

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HOBBS RECLAMATION PLANT LETTER REPORT

HOBBS OCD 0CT 0 9 2015

RECEIVED

C&J ENERGY SERVICES, INC. RECLAMATION PLANT FACILITY HOBBS, NEW MEXICO

PREPARED FOR

C & J ENERGY SERVICES, INC. 3990 ROGERDALE HOUSTON, TEXAS 77042

PREPARED BY

ENTECH CONSULTING CORPORATION 21 WATERWAY AVE., SUITE 300 THE WOODLANDS, TEXAS 77380 281.362.2714

OCTOBER 2015



October 7, 2015

Kellie Jones Environmental Specialist, District 1 Oil Conservation Division, EMNRD 1625 N. French Drive Hobbs, New Mexico 88240 HOBBSOCD OCT 0 9 2015 RECEIVED

INTRODUCTION

EnTech Consulting Corp. (EnTech) on behalf of Nabors Completion and Production Services (NCPS) delineated soil contamination at Nabors Reclamation Plant Facility (facility) located west of Hobbs, NM (**Figure 1**). The Reclamation Plant is located adjacent to their Salt Water Disposal (SWD) facility (**Figure 2**). NCPS has merged with C&J Energy Services, Inc. (C&JES) in 2014 and C&JES serves as the managing company. The Reclamation plant was comprised of four tanks in the southwest corner of the facility, when removed stained soil was observed adjacent to one of the tanks. A sampling plan (**Attachment A**) was proposed and submitted to New Mexico Oil Conservation Division (NMOCD) to delineate affected soils adjacent to the former tanks. The sampling plan utilized NMOCD site ranking matrix, proposed excavation of affected soil and collection of confirmation samples. The plan was approved by the NMOCD.

OBJECTIVE

The objective of this letter report is to summarize the excavation and sampling activities completed at the site since June 1, 2012 that has resulted in the removal of affected soil to meet NMOCD cleanup standards.

PAST WORK

On June 1, 2012, hydrocarbon affected soils at the Hobbs Reclamation Plant were excavated under EnTech's supervision. Approximately 220 cubic yards of contaminated top soil and gravel were removed from area under the former reclamation tanks. An Organic Vapor Monitor (OVM) was used to screen for contaminants. Any contamination with OVM readings above the NMOCD limit of 100 parts per million (ppm) was excavated. Confirmation samples were collected at sidewalls (SW) and in the base of the excavation as bottom hole (BH) samples, and were collected and submitted to TRACEAnalysis, Inc. laboratory. The Total Petroleum Hydrocarbon (TPH)-Diesel Range Organics (DRO) (heavy fractions) concentrations were detected above the NMOCD stated limit of 100 milligrams per kilogram (mg/kg) for 7 out of 11 samples (SW-2 to SW-6, BH-1 and BH-2 presented in **Table 1**).

On July 25, 2012, Straub Corporation applied a drilling rig to advance two borings beneath the base of the C&JES Reclamation Plant excavation area to 20 feet below ground surface (bgs) under EnTech's supervision to vertically delineate affected soil. Samples were collected at 5 foot intervals (5', 10', 15' and 20'), and a total of four samples were collected per boring (Boring #1 and #2). Readings were taken using a photoionization detector (PID). All PID readings were below 2 ppm, and the analytical results were below the lab detection limits for TPH-DRO, TPH-Gasoline Range Organics (GRO) and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX), except the Boring #1 10' sample which reported a toluene concentration of 0.0235 mg/kg (**Table 1**).

After many conversations with the NMOCD concerning the above work and sample data, it was agreed that five 10-feet-long trenches would be dug in areas of highest contamination associated with SW-3 to SW-5, BH-1 and BH-2 sample locations to determine vertical and horizontal delineation. On June 30, 2013, Lighthouse Environmental (Lighthouse) excavated these five trenches under EnTech's supervision (**Figure 3**). All PID readings were below 2 ppm for the soil confirmation samples collected at the end of each trench. The lab analysis reported all soil

samples (Nabors Trench #1 to #5) below the NMOCD's stated limit of 100 mg/kg (Table 1), indicating that the delineation of affected soil was completed.

RECENT WORK

On May 9, 2014, Lighthouse excavated and removed contaminated soils out to the limit of the delineation trenches. A total of 48 cubic yards of contaminated soils were disposed off-site at a NMOCD permitted facility (R360 Permain basin, LLC). Confirmation samples (SW-9 to SW-13, B-1, B-2 and B-4 Post Excavation) were collected and submitted to the laboratory. The results indicated that one sidewall sample (SW-10) exhibited a TPH-DRO concentration above the NMOCD stated limit of 100 mg/kg (Table 1). The area associated with this sample was further excavated and resampled on May 29, 2014 (Figure 3). The confirmation sample collected at this excavated area (SW-14) reported TPH-DRO concentration below the NMOCD limit (Table 1).

The results also showed that TPH-DRO concentrations were detected above the NMOCD limit of 100 mg/kg at two bottom hole samples collected in the southeast and central of the excavated area (B-2 and B-4 Post Excavation presented in **Figure 3** and **Table 1**). Dense-hard well cemented caliche rock is encountered directly underlying the excavated areas associated with these two samples, which limited the remedial approach to excavate the affected areas.

Due to this rock type of the areas, on Oct 24, 2014, EnTech applied hydrocarbon degrading microbial solution to the affected areas that would allow bacteria to degrade hydrocarbons in the hard rock zone. Confirmation samples (BH-2 and BH-4 Post Treatment) indicated that the BTEX, TPH-GRO and TPH-DRO were all below the NMOCD stated limits at BH-2 sample location. However, a TPH-DRO concentration of 1300 mg/kg was detected at BH-4 sample location (**Table 1**). On March 23, 2015, another bio-treatment was implemented at BH-4 sample location, and confirmation sample collected on July 29, 2015 reported TPH-DRO concentration below laboratory detection limit (**Table 1**). The analytical results for areas with bio-treatment are shown in the following table.

Sample ID	Date			BTEX		T	PH
	sampled	Benzene	Toluene	Ethylbenzene	Xylene	TPH- GRO	TPH- DRO
BH-2 Post Treatment	10/24/14	<0.00104	<0.00209	<0.00104	<0.00104	16.6	66.8
BH-4 Post Treatment	10/24/14	<0.00102	<0.00204	<0.00102	<0.00102	19.1	1300
BH-4 Post Microb Treat	7/29/15	<0.00158	<0.00158	<0.00158	<0.00158	<47	<47

Unit: mg/kg

The analytical results including historical data are presented in **Table 1**. A chronology of events is presented in **Table 2**. Analytical reports are presented in **Attachment B**, and a C-141 form is presented in **Attachment C**.

PROJECT CONCLUSIONS

The analytical results for the soil samples collected from the excavated and/or biotreated areas show that there are no affected soils above the NMOCD limits within the area of investigation and remediation. Based on these results, EnTech is requesting "closure" or a "no further action required" letter from the NMOCD.

Upon your review of this letter report, should you have any questions or concerns please do not hesitate to contact us.

Yours very truly,

Child?

Chan Patel Sr. Project Manager

Attachments:

Figure 1. Site Location Map Figure 2. Site Layout Map Figure 3. Analytical Map Table 1. Analytical Results Table 2. Chronology of Events Attachment A. Sampling Plan Attachment B. Analytical Reports Attachment C. Form C-141

FIGURES

Figure 1. Site Location Map

Figure 2. Site Layout Map

Figure 3. Analytical Map



TABLES

Table 1. Analytical Results

Table 2. Chronology of Events

Table 1. Analytical Results

Samp	le Information				BTEX		Total Petroleur	n Hydrocarbons	FIELD
Sample ID	Date Sampled	Lab ID	Benzene mg/Kg	Toluene mg/Kg	Ethylbenzene mg/Kg	Xylene mg/Kg	TPH-GRO mg/Kg	TPH-DRO mg/Kg	OVN ppm
BH-4 Post Microb Treat	7/29/2015	512607-001	<0.00158	<0.00158	<0.00158	<0.00158	<47	<47	0
BH-2 Post Treatment	10/24/2014	495885-001	< 0.00104	< 0.00209	< 0.00104	< 0.00104	16.6	66.8	0
BH-4 Post Treatment	10/24/2014	495885-002	<0.00102	< 0.00204	< 0.00102	< 0.00102	19.1	1300	0
SW-14	5/29/2014	486347-001	<0.00101	<0.00202	<0.00101	<0.00101	<15.2	38.2	0
BH-5	5/23/2014	486084-001	<0.00101	< 0.00203	< 0.00101	< 0.00101	<15.3	76.1	0
B-4 Post Excavation	5/9/2014	485137-001	< 0.00108	<0.00217	<0.00108	<0.00108	<16.3	130	0
B-1 Post Excavation	5/9/2014	485137-002	<0.00102	< 0.00204	< 0.00102	< 0.00102	<15.4	21.6	0
SW-9	5/9/2014	485137-003	<0.00104	<0.00208	<0.00104	< 0.00104	<15.7	34.3	0
SW-10	5/9/2014	485137-004	<0.00102	< 0.00204	<0.00102	< 0.00102	<15.4	406	0
SW-10	5/9/2014	485137-005	<0.00101	<0.00202	< 0.00101	< 0.00101	<15.3	90.1	0
SW-12	5/9/2014	485137-006	<0.00104	<0.00208	< 0.00104	< 0.00104	<15.7	<15.7	0
SW-12	5/9/2014	485137-007	<0.00101	< 0.00203	<0.00101	<0.00101	<15.3	<15.3	0
B-2 Post Excavation	5/9/2014	485137-008	<0.00102	<0.00205	<0.00102	< 0.00102	<15.4	176	0
Nabors Trench #1	7/4/2013	TC33398-1	NA	NA	NA	NA	NA	12.5	1.3
Nabors Trench #2	7/4/2013	TC33398-2	NA	NA	NA	NA	NA	27.3	0.5
Nabors Trench #4	7/4/2013	TC33398-4	NA	NA	NA	NA	NA	27.5	0.8
Nabors Trench #5	7/4/2013	TC33398-5	NA	NA	NA	NA	NA	67.2	1.9
Nabors Trench #3	7/4/2013	TC33398-3	NA	NA	NA	NA	NA	38.8	0.6
BH15'	7/27/2012	304750	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50	0.0
BH1 10'	7/27/2012	304750	<0.0200	0.0235	<0.0200	<0.0200	<2.00	<50	0
BH1 15'	7/27/2012	304752	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50	0
BH1 15 BH1 20'	7/27/2012	304752	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50	0
BH2 5'	7/27/2012	304754	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50	0
BH2 10'	7/27/2012	304755	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50	0
BH2 15'	7/27/2012	304756	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50	0
BH2 20'	7/27/2012	304757	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50	0
BH2 20 BH1 5'	7/25/2012	12072601	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50.0	0
BH1 10'		12072601	<0.0200	0.0235	<0.0200	<0.0200	<2.00	<50.0	0
BH1 10 BH1 15'	7/25/2012	12072601	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50.0	0
	7/25/2012		<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50.0	0
BH1 20'	7/25/2012 7/25/2012	12072601 12072601	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50.0	0
BH2 5'		12072601	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50.0	0
BH2 10'	7/25/2012			<0.0200	<0.0200	<0.0200	<2.00	<50.0	0
BH3 15' BH4 20'	7/25/2012	12072601 12072601	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50.0	0
and the second se	7/25/2012	300156	<0.0200	<0.0200	<0.0200	<0.0200	2.1	885	20.
BH-4	6/5/2012 6/1/2012	299756	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	<50.0	2.1
SW-1 SW-2	6/1/2012	299757	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	189	9.5
		299758	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	527	12
SW-3 SW-4	6/1/2012 6/1/2012	299758	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	270	8.1
	6/1/2012	299760	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	440	8.9
SW-5		and an and the second sec			<0.0200		the statement of the second st	139	7.6
SW-6	6/1/2012 6/1/2012	299761 299762	<0.0200	<0.0200	<0.0200	<0.0200	<2.00 <2.00	84.3	40.
SW-7	6/1/2012	299762	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	91.4	5.6
SW-8 BH-1		299763	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	752	25.
and when the property of the state of the st	6/1/2012	299765	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	416	10.
BH-2 BH-3	6/1/2012 6/1/2012	299765	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	54.9	10.
Stockpiled Dirt #1	6/1/2012	299766	<0.0200	<0.0200	0.0200	0.0200	<2.00	1110*	NA
and the second sec	The second	299767	<0.0200	<0.0200	<0.0200	<0.0200	<2.00	540*	NA
Stockpiled Dirt #2 Pea Gravel	6/1/2012 6/1/2012	299768	<0.0200	<0.0200	<0.0200	<0.0200	12.00	465*	NA

Note:

NMOCD Clean up goals, Benzene 10 mg/kg, BTEX 50 mg/kg and TPH 100 mg/kg

Concentrations in bold considered above NMOCD acceptable level for the site

* Affected soil excavated and transported to a disposal facility (Sundance Disposal)

NA - Not analyzed for

Table 2. Chronology of Events

Date	Events	Analytical results
6/1/12	Approximately 220 cubic yards of hydrocarbon-affected soils at the Hobbs Reclamation Plant were excavated.	7 out of 11 confirmation samples (SW-2 to SW-6, BH-1 and BH-2) reported TPH-DRO above the NMOCD limit of 100 mg/kg.
7/25/12	Straub Corporation advanced two borings beneath the base of the C&JES Reclamation Plant excavation area to 20 feet below ground surface.	Confirmation samples (Boring #1 and #2) reported no hydrocarbons above the laboratory detection limit from 5' to 20' below the ground surface.
6/30/13	Lighthouse Environmental (Lighthouse) excavated five trenches.	
7/4/13		Confirmation samples (Nabors Trench #1 to #5) collected from the delineation trenches reported no affected soils above the NMOCD limits.
5/9/14	Lighthouse excavated and removed contaminated soils out to the limit of the delineation trenches.	Confirmation samples (SW-9 to SW-13, B-2 B-2 and B-4 Post Excavation) reported the TPH-DRO concentrations above 100 mg/k at SW-10, B-2 and B-4 sample locations.
5/29/14	A small part of additional area associated with sample SW-10 was further excavated.	Confirmation sample (SW-14) reported both BTEX and TPH below NMOCD limits.
10/24/14	BH-2 and BH-4 sample locations were treated with hydrocarbon degrading microbial solution.	Confirmation samples reported both BTEX and TPH below NMOCD limits at BH-2 sample location, while the TPH-DRO at BH-4 sample location was above 100 mg/kg
3/23/15	Bio-treatment was implemented at BH-4 sample location.	
7/29/15		Confirmation sample collected at BH-4 sample location (BH-4 Post Microb Treat) reported both BTEX and TPH below laboratory detection limits.



SAMPLING PLAN NABORS RECLAMATION PLANT HOBBS, NM

INTRODUCTION

This field sampling plan is being developed by EnTech Consulting Corp. (EnTech) to delineate soil contamination at Nabors Well Services Co. Reclamation Plant Facility (facility) west of Hobbs, NM. The facility is a Salt Water Disposal facility with numerous tanks and truck unloading. Four tanks in the southwest corner of the facility have been removed and this sampling plan will be used to delineate affected soils to New Mexico Oil Conservation Division (OCD) standards for the soil under and adjacent to the former tanks.

In New Mexico, the OCD oversees and regulates oil, gas and geothermal activities, including enforcement and compliance with environmental regulations. Guidance for cleanup of crude oil releases is provided in the OCD Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993) document. Primary contaminants, or chemicals of concern (COCs), associated with releases from this facility include TPH and BTEX. Guidelines for these COCs in soil are evaluated based on a Site ranking system. The ranking system estimates the likelihood of exposures to the COCs and is based on the following three parameters to protect groundwater and surface water resources:

- Depth to groundwater.
- Wellhead protection area.
- Distance to surface water body.

OCD SITE RANKING

Based on the proximity of the Site to area water wells, surface water bodies, and depth to groundwater, the Site has an OCD ranking score of 20 points, with the soil remedial goals specified below in the Site Ranking Matrix.

SAMPLING PLAN NABORS RECLAMATION PLANT

Site Ranking Matrix

1. Ground	water	2. Wellhead Protection Area	3. Distance to Surface Water Body
If Depth to GW 20 poin		If <1000' from water source, or, <200' from private domestic water source:	<200 horizontal feet: 20 points
If Depth to GV		20 points	200-100 horizontal feet:
feet: 10	points	If >1000' from water source, or, >200'	10 points
If Depth to GW 0 poin		from private domestic water source: 0 points	0 points 200-100 horizontal fee 10 points 0' >1000 horizontal feet: points 0 0 Surface Water Score:
Groundwater	Score:20	Wellhead Protection Area Score: 0	Surface Water Score: 0
Site Rank (1+2+	-3) =20+0+0)=20	L
Total Site Ranki	ng Score an	d Initial Guidance Cleanup Concentration	ons
Parameter	20 or >	10	0
Benzene	10 ppm	10 ppm	10 ppm
BTEX	50 ppm	50 ppm	50 ppm
TPH	100 ppm	1000 ppm	5000 ppm

Based on typical OCD remediation standards, the analytical goals of the May 2012 excavation for sidewall and excavation bottom confirmation samples are: TPH target concentration of 100 mg/kg, benzene target concentration of 10 mg/kg and total BTEX target concentration of 50 mg/kg. A field soil vapor headspace measurement of 100 ppm may be substituted for a laboratory analysis of the Benzene and BTEX concentration limits as per OCD Guidelines.

EXCAVATION AND SAMPLING

During the excavation process, EnTech personnel will use an Organic Vapor Meter (OVM) to assist in verifying removal of affected soil. Soil screening will be completed by placing soil samples in a zip-lock bag and after 10 minutes collect a headspace reading using the OVM. Readings below 100 ppm can be used for field screening residual soil to determine if they are below cleanup level. Once field screening has determined that affected contaminated soil has been removed, confirmation samples will be collected from the base and sidewalls of the excavation using the following protocol:

- Sidewall samples one sample approximately every 50 linear feet.
- Bottom samples one sample approximately every 2500 square feet.
- Confirmation samples will be analyzed for TPH C6-C12, TPH C12-C28 and TPH C28-C35 by method SW 846 8015M and BTEX by EPA Method SW 846 8021B.
- Confirmation sidewall and excavation bottom samples analytical results will be compared to OCD remediation cleanup standards.

EnTech's confirmation soil sampling program will consist of the following:

During the course of the excavation activities it is estimated that up to fourteen (14) discrete soil samples could be collected from the excavation sidewalls and floors based on the results of field screening the excavation utilizing a photo-ionization detector (PID) capable of detecting volatile organic compounds (VOCs). Sidewall samples will be collected at an approximate rate of one per 50 linear feet of sidewall. Samples collected from the base of the excavation will be collected at a rate of one per 2,500 square feet. Based on the estimated size of the excavation the estimated number for the complete excavation is seventeen (14) samples. If delineation is occurring during excavation, the estimated number can increase. Additionally, as sample results will be required to prevent the unnecessary stand-by time or demobilization of equipment, the sample results will be requested at an expedited turnaround time of twenty-four hours.

The soil samples will be collected in laboratory prepared glassware and placed in a cooler on ice, following chain of custody protocols. The samples will be transported to a selected analytical laboratory along with a completed chain-of-custody form and submitted for analysis for the parameters specified above.

BACKFILL

Once confirmation sampling has determined that residual concentrations of the COC are below regulatory limits, the excavation can be backfilled with clean surface soil and/or caliche.

PROJECT ASSUMPTIONS

Based on preliminary discussions with Nabors and a lack of specific data from on-site soil borings, the following assumptions are presented regarding the excavation process:

- 1. The excavation is estimated at 90 feet long and 65 feet wide.
- 2. The excavation is estimated to have a minimum depth of 5 feet.
- 3. If initial soil screening samples show COC concentrations are above regulatory limits at 10 feet below ground surface, a risk based approach will be evaluated to control the depth of the excavation.
- 4. Excavation contractor will make the one call 48 hours in advance of excavation activities.
- 5. Excavation will be completed by RWI under their health and safety plan.

- 6. Samples will be collected at the end of the first day to evaluate the maximum depth of the excavation. These samples will be submitted for immediate turnaround (24 hours).
- Excavation activities can continue under RWI supervision until samples analysis data is reviewed. Final confirmation samples will be collected once field sample screening levels are below 100 ppm.
- 8. Once analytical results from the Laboratory confirm COC are below regulatory levels the excavation will be back filled by RWI.
- 9. A letter report will be prepared to document the excavation activities and the analytical results.

Attachment B: Analytical Reports

Analytical Report No. 495885

Sample ID	Date	Lab ID
	Collected	
BH-2 Post Treatment	10/24/2014	495885-001
BH-4 Post Treatment	10/24/2014	495885-002

Analytical Report No. 512607

Sample ID	Date	Lab ID
	Collected	
BH-4 MICROB TREAT	7/29/2015	512607-001

Analytical Report 495885

for Entech Consulting

Project Manager: Chan Patel

Hobbs Reclamation Plant

12032

28-OCT-14

Collected By: Client





12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-14-18), Arizona (AZ0765), Florida (E871002), Louisiana (03054) New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135) Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

> Xenco-Lakeland: Florida (E84098) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX) Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX) Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)





28-OCT-14

Project Manager: Chan Patel Entech Consulting 21 Waterway Ave, Suite 300 The Woodlands, TX 77380

Reference: XENCO Report No(s): 495885 Hobbs Reclamation Plant Project Address: Hobbs,NM

Chan Patel:

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) 495885. 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. 495885 will be filed for 60 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.

Ams Boah

Kelsey Brooks Project Manager Recipient of the Prestigious Small Business Administration Award of Excellence in 1994. Certified and approved by numerous States and Agencies. A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America



Sample Cross Reference 495885



Entech Consulting, The Woodlands, TX

Hobbs Reclamation Plant

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH2-POST TREATMENT	S	10-24-14 13:10		495885-001
BH4-POST TREATMENT	S	10-24-14 13:00		495885-002



CASE NARRATIVE

Client Name: Entech Consulting Project Name: Hobbs Reclamation Plant Thursday

Project ID: 12032 Work Order Number(s): 495885
 Report Date:
 28-OCT-14

 Date Received:
 10/24/2014

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analysi ummary 495885 Entech Consulting, The Woodlands, TX



Project Id: 12032 Contact: Chan Patel Project Location: Hobbs,NM

Intech Consulting, The Woodlands, IX Project Name: Hobbs Reclamation Plant Date Received in Lab:

Date Received in Lab: Fri Oct-24-14 03:25 pm Report Date: 28-OCT-14

	Lab Id:	495885-001	495885-002	
	E'slara.	DOGT TDE A TAKENIT	ELALATA. DUS DOST TOEA TAKENT BHA DOST TREATMENT	
Analysis Requested	I nem In			
4	Depth:			
	Matrix:	SOIL	SOIL	
	Sampled:	Oct-24-14 13:10	Oct-24-14 13:00	
BTEX by EPA 8021B	Extracted:	Oct-24-14 16:00	Oct-24-14 16:00	
	Analyzed:	Oct-25-14 03:35	Oct-25-14 03:52	
	Units/RL:	mg/kg RL	mg/kg RL	
Benzene		ND 0.00104	ND 0.00102	
Toluene		ND 0.00209	ND 0.00204	
Ethylbenzene		NID 0.00104	ND 0.00102	
m_p-Xylenes		NID 0.00209	ND 0.00204	
orXylene		ND 0.00104	ND 0.00102	
Total Xylencs		ND 0.00104	ND 0.00102	
Total BTEX		ND 0.00104	ND 0.00102	
Percent Moisture	Extracted:			
	Analyzed:	Oct-27-14 16:40	Oct-27-14 16:40	
	Units/RL:	% RL	% RL	
Percent Moisture		4.49 1.00	2.05 1.00	
TPH By SW8015 Mod	Extracted:	Oct-24-14 17:00	Oct-24-14 17:00	
	Analyzed:	Oct-25-14 23:07	Oct-25-14 23:30	
	Units/RL:	mg/kg RL	mg/kg RL	
C6-C12 Gasoline Range Hydrocarbons		16.6 15.7	19.1 15.3	
C12-C28 Diesel Range Hydrocarbons		66.8 15.7	1300 15.3	
C28-C35 Oil Range Hydrocarbons		ND 15.7	179 15.3	
Total TDH		83.4 15.7	1500 15.3	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed hroughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Murs Moah Kelsey Brooks Project Manager

Page 5 of 14

Final 1.000



Flagging Criteria



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

PQL Practical Quantitation Limit MQL Method Quantitation Limit

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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LOQ Limit of Quantitation

Houston - Dallas - San Antonio - Atlanta - Midland/Odessa - Tampa/Lakeland - Phoenix - Latin America

4143 Greenbriar Dr, Stafford, TX 77477 9701 Harry Hines Blvd , Dallas, TX 75220 5332 Blackberry Drive, San Antonio TX 78238 2505 North Falkenburg Rd, Tampa, FL 33619 12600 West I-20 East, Odessa, TX 79765 6017 Financial Drive, Norcross, GA 30071 3725 E. Atlanta Ave, Phoenix, AZ 85040

Fax
(281) 240-4280
(214) 351-9139
(210) 509-3335
(813) 620-2033
(432) 563-1713
(770) 449-5477



Project Name: Hobbs Reclamation Plant

T-the	ma /1-2	Data Analyzada 10/25/14 02.25		DDOCLOTE T	COLENT		
Units:	mg/kg	Date Analyzed: 10/25/14 03:35	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluoro	benzene		0.0322	0.0300	107	80-120	
4-Bromoflu			0.0293	0.0300	98	80-120	
Lab Batch	#: 953877	Sample: 495885-002 / SMP	Batcl	h: 1 Matrix	: Soil	11	
Units:	mg/kg	Date Analyzed: 10/25/14 03:52	SU	RROGATE R	ECOVERY S	STUDY	
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluoro	benzene		0.0334	0.0300	111	80-120	
4-Bromoflu			0.0349	0.0300	116	80-120	
Lab Batch	#: 953918	Sample: 495885-001 / SMP	Batcl	h: 1 Matrix	: Soil	11	
Units:	mg/kg	Date Analyzed: 10/25/14 23:07	SU	RROGATE R	ECOVERY	STUDY	
	TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooct	ane		115	99.8	115	70-135	
o-Terphenyl			63.7	49.9	128	70-135	
Lab Batch	#: 953918	Sample: 495885-002 / SMP	Batcl	h: 1 Matrix	: Soil	·	
Units:	mg/kg	Date Analyzed: 10/25/14 23:30	SU	RROGATE R	ECOVERY	STUDY	
	TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	ane		101	99.6	101	70-135	
o-Terpheny			52.0	49.8	104	70-135	
Lab Batch	#: 953877	Sample: 663502-1-BLK / BL	K Batc	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 10/24/14 19:30	SU	RROGATE R	ECOVERY	STUDY	
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1,4-Difluoro	benzene		0.0312	0.0300	104	80-120	
1							

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / BAll results are based on MDL and validated for QC purposes.



Project Name: Hobbs Reclamation Plant

Units: mg/kg	Date Analyzed: 10/25/14 15:35	SU	RROGATE R	ECOVERY S	STUDY	
	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		102	100	102.	70-135	
o-Terphenyl		56.4	50.0	113	70-135	
Lab Batch #: 953877	Sample: 663502-1-BKS / BI	KS Batch	h: 1 Matrix	: Solid		
Units: mg/kg	Date Analyzed: 10/24/14 19:46	SU	RROGATE R	ECOVERY S	STUDY	
	by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1,4-Difluorobenzene		0.0311	0.0300	104	80-120	
4-Bromofluorobenzene		0.0293	0.0300	98	80-120	
Lab Batch #: 953918	Sample: 663509-1-BKS / BI	KS Batcl	h: 1 Matrix	: Solid		
Units: mg/kg	Date Analyzed: 10/25/14 02:56		RROGATE R	ECOVERY	STUDY	
	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		113	100	113	70-135	
o-Terphenyl		59.4	50.0	119	70-135	
Lab Batch #: 953877	Sample: 663502-1-BSD / BS	SD Batcl	h: 1 Matrix	: Solid	1	
Units: mg/kg	Date Analyzed: 10/24/14 20:02	SU	RROGATE R	ECOVERY	STUDY	
	by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1,4-Difluorobenzene		0.0305	0.0300	102	80-120	
4-Bromofluorobenzene		0.0291	0.0300	97	80-120	
Lab Batch #: 953918	Sample: 663509-1-BSD / B	SD Batcl	h: 1 Matrix	: Solid		
Units: mg/kg	Date Analyzed: 10/25/14 03:35	SU	RROGATE R	ECOVERY	STUDY	
	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		113	100	113	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Project Name: Hobbs Reclamation Plant

Work Orders: 495885, Lab Batch #: 953877 Sample: 495800-003 S /	MS Batc	Project ID h: 1 Matrix			
Units: mg/kg Date Analyzed: 10/24/14 20:19	SU	RROGATE R	ECOVERY S	STUDY	T
BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	80-120	
4-Bromofluorobenzene	0.0328	0.0300	109	80-120	
Lab Batch #: 953918 Sample: 495874-001 S /	MS Batc	h: 1 Matrix	: Soil		
Units: mg/kg Date Analyzed: 10/25/14 16:31	SU	RROGATE R	ECOVERY S	STUDY	
TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	113	99.8	113	70-135	
o-Terphenyl	64.7	49.9	130	70-135	
Lab Batch #: 953877 Sample: 495800-003 SE	D/MSD Batc	h: 1 Matrix	: Soil	1	
Units: mg/kg Date Analyzed: 10/24/14 20:35	SU	RROGATE R	ECOVERY	STUDY	
BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0337	0.0300	112	80-120	
4-Bromofluorobenzene	0.0341	0.0300	114	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

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-			

BS / bad Recoveries





Work Order #: 495885 Analyst: ARM Lab Batch ID: 953877 Sample: 663502-1-BKS Units: mg/kg

Date Prepared: 10/24/2014

Batch #: 1

Date Analyzed: 10/24/2014 Matrix: Solid

Project ID: 12032

Units:	mg/kg		BLANH	K/BLANK	SPIKE / I	STANK S	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	ICATE	RECOVI	ERY STUI	Y	
Ana	BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene		<0.00100	0.100	0,0934	93	0.100	0.0903	90	3	70-130	35	
Toluene		<0.00200	0.100	0.100	100	0.100	0960.0	96	4	70-130	35	
Ethylbenzene	uzene	<0.00100	0.100	0.105	105	0.100	0.100	100	5	71-129	35	
m_p-Xylenes	vlenes	<0.00200	0.200	0.215	108	0.200	0.205	103	5	70-135	35	
o. Xylene	le	<0.00100	0.100	0.0995	100	0.100	0.0956	96	4	71-133	35	
Analyst: ARM Lab Batch ID: 953918 Unite:	ARM D: 953918 Sample: 663509-1-BKS		ate Prepared: Batch #:	Date Prepared: 10/24/2014 Batch #: 1	4	3 71.4 1		Date A	nalyzed: 10/25 Matrix: Solid	Date Analyzed: 10/25/2014 Matrix: Solid		
CIIIIS.	IIIB/KS		BLAN	K /BLANK	SPIKE / I	STANKS	BLANK/BLANK SPIKE/BLANK SPIKE DUPLICATE KECUVERY STUDY	LICALE	KECUVI	EKY STUL	X	

TPH By SW8015 Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[c]	[0]	[E]	Result [F]	[6]				
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	849	85	1000	854	85	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	977	98	1000	970	67	1	70-135	35	

Relative Percent Difference RPD = 200*((C-F)/(C+F)) Blank Spike Recovery [D] = 100*(C)/[B] Blank Spike Duplicate Recovery [G] = 100*(F)/[E] All results are based on MDL and Validated for QC Purposes Page 10 of 14

Final 1.000



Form 3 - MS Recoveries Project Name: Hobbs Reclamation Plant



 Work Order #: 495885

 Lab Batch #:
 953918

 Date Analyzed:
 10/25/2014

 QC- Sample ID:
 495874-001 S

 Reporting Units:
 mg/kg

Project ID: 12032

Date Prepared: 10/24/2014 Batch #: 1 Analyst: ARM

Matrix: Soil

MATRIX / MATRIX SPIKE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.0	998	870	87	70-135	
C12-C28 Diesel Range Hydrocarbons	135	998	986	85	70-135	

Matrix Spike Percent Recovery $[D] = 100^{*}(C-A)/B$ Relative Percent Difference $[E] = 200^{*}(C-A)/(C+B)$ All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit



Form 3 - N / MSD Recoveries



Project Name: Hobbs Reclamation Plant

	BTEX by EPA 8021B	
	mg/kg	Reporting Units:
Dat	10/24/2014	Date Analyzed:
QC-	953877	Lab Batch ID:
	495885	Work Order # :

Project ID:12032Sample ID:495800-003 SBatch #:1Matrix:Soilte Prepared:10/24/2014Analyst:ARM

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

DTEV L. FDA 0001D	Parent		Spiked Sample			Duplicate	41		Control	Control	
DILA DY LFA 0021D Analytes	Sample Result [A]	Spike Added [B]	Result [C]	Sample %R	Spike Added [E]	Spiked Sample Result [F]	Dup. %R	RPD %	Limits %R	Limits %aRPD	Flag
Benzene	<0.00113	0.113	0.0917	81		0.0908	80	1	70-130	35	
Toluene	<0.00225	0.113	0.0980	87	0.113	0.0961	85	2	70-130	35	
Ethylbenzene	<0.00113	0.113	0.101	89	0.113	0.0977	86	3	71-129	35	
th_p-Xylenes	<0.00225	0.225	0.206	92	0.225	0.201	89	2	70-135	35	
o-Xylene	<0.00113	0.113	0.0971	86	0.113	0.0952	84	2	71-133	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, <math>B = Present in Blank, NR = Not Requested, I = Interference, <math>NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit, <math>NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Applicable

Page 12 of 14



Sample Duplicate Recovery



Project Name: Hobbs Reclamation Plant

Work Order #: 495885

Lab Batch #: 953972 Date Analyzed: 10/27/2014 16:40 QC- Sample ID: 495800-028 D	Date Prepared Batch #	: 1	Ana	lyst: WRU trix: Soil	D: 12032	OVERV
Reporting Units: % Percent Moisture		rent Sample Result		RPD	Control Limits %RPD	Flag
Analyte		[A]	[B]			
Percent Moisture		28.5	29.9	5	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) | All Results are based on MDL and validated for QC purposes. BRL - Below Reporting Limit



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: Entech Consulting Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 10/24/2014 03:25:00 PM **Temperature Measuring device used :** Work Order #: 495885 Comments **Sample Receipt Checklist** #1 *Temperature of cooler(s)? 8 #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? No #5 Custody Seals intact on sample bottles? No #6 *Custody Seals Signed and dated? No #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No Voc #10 Chain of Custody signed when relinquished/ received?

#10 Chain of Custody signed when relinquished/ received?	res
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	No
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

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

Analyst:

PH Device/Lot#:

Date: 10/24/2014

Checklist completed by: Mms Moah Kelsey Brooks Checklist reviewed by: Mms Moah Kelsey Brooks

Date: 10/24/2014

Analytical Report 512607

for Entech Consulting

Project Manager: Chan Patel

Hobbs Reclamation Plant

NCPS 14017

11-AUG-15

Collected By: Client





12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054) Oklahoma (9218)

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135) Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

> Xenco-Lakeland: Florida (E84098) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX) Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX) Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) Xenco Tucson (EPA Lab code: AZ00989): Arizona (AZ0758)





11-AUG-15

Project Manager: Chan Patel Entech Consulting 21 Waterway Ave, Suite 300 The Woodlands, TX 77380

Reference: XENCO Report No(s): 512607 Hobbs Reclamation Plant Project Address: Hobbs,NM

Chan Patel:

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) 512607. 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. 512607 will be filed for 60 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.

Ams boah

Kelsey Brooks Project Manager Recipient of the Prestigious Small Business Administration Award of Excellence in 1994. Certified and approved by numerous States and Agencies. A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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Sample Cross Reference 512607



Entech Consulting, The Woodlands, TX

Hobbs Reclamation Plant

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-4-POST MICROB TREAT	S	07-29-15 14:00		512607-001



CASE NARRATIVE



Client Name: Entech Consulting Project Name: Hobbs Reclamation Plant

Project ID: NCPS 14017 Work Order Number(s): 512607
 Report Date:
 11-AUG-15

 Date Received:
 07/31/2015

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-973790 BTEX by SW 8260B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; This surrogate is not associated with target compounds.

Samples affected are: 512607-001.

Internal standard, 1, 4-Dichlorobenzene-d4 was outside method acceptance criteria for 512607-001. This internal standard is not associated with target compounds.



Project Id: NCPS 14017 Contact: Chan Patel

Certificate of Analysi ummary 512607 Entech Consulting, The Woodlands, TX Project Name: Hobbs Reclamation Plant



Date Received in Lab: Fri Jul-31-15 12:25 pm Report Date: 11-AUG-15 Project Manager: Kelsey Brooks

			and farmer in Guinning for t	A second s
	Lab Id:	512607-001		
L	Field Id: 3	Field Id: BH-4-POST MICROB TREA		
Analysis Kequestea	Depth:			
	Matrix:	SOIL		
	Sampled:	Jul-29-15 14:00		
BTEX by SW 8260B	Extracted:	Aug-04-15 11:49		
SUB: TX104704215	Analyzed:	Aug-04-15 15:23		
	Units/RL:		- Starford	
Benzene		ND 0.00158		
Toluene		ND 0.00158		
Ethylbenzene		ND 0.00158		
m,p-Xylenes		ND 0.00315		
0-Xylene		ND 0.00158		
Total Xylenes		ND 0.00158		
Total BTEX		ND 0.00158		
Percent Moisture	Extracted:		9. of 200 c	
SUB: TX104704215	Analyzed:	Aug-07-15 14:26	pr. mar. da	
	Units/RL:	% RL		
Percent Moisture		36.9 1.00		
TPH By SW8015 Mod	Extracted:	Aug-10-15 13:53		
SUB: TX104704215	Analyzed:	Aug-11-15 10:33		
	Units/RL:	mg/kg RL	. 44 . 64	
C6-C12 Gasoline Range Hydrocarbons		ND 47.0		
C12-C28 Diesel Range Hydrocarbons		ND 47.0		
C28-C35 Oil Range Hydrocarbons		ND 47.0		
Total TPH		ND 47.0		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our lisbility is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Heuston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Version: 1.%

Kelsey Brooks Project Manager

Murs Moah

Final 1.000



Flagging Criteria



- 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

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

MQL Method Quantitation Limit **PQL** Practical Quantitation Limit

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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LOQ Limit of Quantitation

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(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	



Project Name: Hobbs Reclamation Plant

Units: mg/kg Date Analyzed: 08/04/15 15:23		DDOCLETE D	ECOVEDS		
Units: mg/kg Date Analyzed: 08/04/15 15:23	SU	RROGATE R	ECOVERY	STUDY	
BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0534	0.0500	107	74-126	
1.2-Dichloroethane-D4	0.0458	0.0500	92	80-120	
Toluene-D8	0.0534	0.0500	107	73-132	
4-Bromofluorobenzene	0.0334	0.0500	160	58-152	**
				38-132	
Lab Batch #: 974219 Sample: 512607-001 / SMP	Batch				
Units: mg/kg Date Analyzed: 08/11/15 10:33	SU	RROGATE R	ECOVERY	STUDY	
TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	188	198	95	70-135	
o-Terphenyl	107	98.8	108	70-135	
Lab Batch #: 973790 Sample: 696141-1-BLK / B	LK Batc	h: 1 Matrix	: Solid	1I	
Units: mg/kg Date Analyzed: 08/04/15 11:08	SU	RROGATE R	ECOVERY	STUDY	
BTEX by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
Dibromofluoromethane	0.0513	0.0500	103	74-126	
1,2-Dichloroethane-D4	0.0445	0.0500	89	80-120	
Toluene-D8	0.0491	0.0500	98	73-132	
4-Bromofluorobenzene	0.0509	0.0500	102	58-152	
Lab Batch #: 974219 Sample: 696383-1-BLK / B	LK Batc	h: 1 Matrix	: Solid		
Units: mg/kg Date Analyzed: 08/11/15 11:11	SU	RROGATE R	ECOVERY	STUDY	
	Amount	True	Deserver	Control Limits	Flags
TPH By SW8015 Mod Analytes	Found [A]	Amount [B]	Recovery %R [D]	%R	
	Found		%R	%R	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Project Name: Hobbs Reclamation Plant

	D					
Units: mg/kg	Date Analyzed: 08/04/15 09:58	SU	RROGATE R	ECOVERY	STUDY	
BTE	X by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane		0.0501	0.0500	100	74-126	
1,2-Dichloroethane-D4		0.0517	0.0500	103	80-120	
Toluene-D8		0.0484	0.0500	97	73-132	
4-Bromofluorobenzene		0.0521	0.0500	104	58-152	
Lab Batch #: 974219	Sample: 696383-1-BKS / BF	KS Batcl	h: 1 Matrix	: Solid	<u>.</u>	
U nits: mg/kg	Date Analyzed: 08/10/15 17:56	SU	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	Analytes	110	100	110	70-135	
		58.1	50.0	116	70-135	
o-Terphenyl	Sample: 696141-1-BSD / BS		-		70-133	
Lab Batch #: 973790						
Units: mg/kg	Date Analyzed: 08/04/15 10:12	SU	RROGATE R	ECOVERY	STUDY	
BTE	X by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane		0.0493	0.0500	99	74-126	
1.2-Dichloroethane-D4		0.0529	0.0500	106	80-120	
Toluene-D8		0.0486	0.0500	97	73-132	
4-Bromofluorobenzene		0.0518	0.0500	104	58-152	
Lab Batch #: 974219	Sample: 696383-1-BSD / BS		1			
Units: mg/kg	Date Analyzed: 08/10/15 18:15		RROGATE R		STUDY	
ТРН	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		117	100	117	70-135	
1-Chlorooctane		11/	100	11/	10-100	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Project Name: Hobbs Reclamation Plant

Work Orders: 512607, Lab Batch #: 973790 Sample: 512654-001 S / MS	Batc	-	NCPS 1401	7	
Units: mg/kg Date Analyzed: 08/04/15 13:50		RROGATE R		STUDY	
BTEX by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
Dibromofluoromethane	0.0512	0.0500	102	74-126	
1,2-Dichloroethane-D4	0.0542	0.0500	108	80-120	
Toluene-D8	0.0546	0.0500	109	73-132	
4-Bromofluorobenzene	0.0514	0.0500	103	58-152	
Lab Batch #: 973790 Sample: 512654-001 SD / M	ISD Batc	h: 1 Matrix	: Soil		
Units: mg/kg Date Analyzed: 08/04/15 14:09	SU	RROGATE R	ECOVERY	STUDY	
BTEX by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes	[]		[D]		
Analytes	0.0511	0.0500	[D] 102	74-126	
_		0.0500		74-126 80-120	
Dibromofluoromethane	0.0511		102		-

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / BAll results are based on MDL and validated for QC purposes.

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-			-	

BS / bad Recoveries



Project Name: Hobbs Reclamation Plant

Work Order #: 512607Analyst:MCHLab Batch ID: 973790Sample: 696141-1-BKSUnits:mg/kg

Date Prepared: 08/04/2015

Batch #: 1

Date Analyzed: 08/04/2015 Matrix: Solid

Project ID: NCPS 14017

Units:	mg/kg			BLANK	K/BLANK	SPIKE /]	BLANK S	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	LICATE]	RECOVI	ERY STUI	X	
An	BTEX by SW 8260B Analytes	W 8260B Blank Sample Result [A]	nk Result	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	ene	<0.00	<0.00100	0.100	0.0981	98	0.100	0.105	105	7	62-132	25	
Toluene	me	<0.00	<0.00100	0.100	0.0917	92	0.100	0.0973	67	6	66-124	25	
Ethylb	Ethylbenzene	<0.00	<0.00100	0.100	0.0948	95	0.100	0.102	102	7	71-134	25	
X-d'u	m,p-Xylenes	<0.00	<0.00200	0.200	0.188	94	0.200	0.202	101	7	69-128	25	
o. Xylene	lene	<0.0	<0.00100	0.100	0,0918	92	0.100	0.100	100	6	72-131	25	
Analyst: Lab Batch	Analyst: JTR Lab Batch ID: 974219	Sample: 696383-1-BKS	Da	te Prepared: Batch #:	Date Prepared: 08/10/2015 Batch #: 1	15			Date A	nalyzed: 08/10 Matrix: Solid	Date Analyzed: 08/10/2015 Matrix: Solid		
			and the second s		The second s	And and and an appropriate the second s	and the second se	A REAL PROPERTY OF A REAL PROPER	The local distance of	and the same and the same of the same same same same same same same sam	And the supervised on the supervised of the supe	same and supported in cases of party descent and supported and	The same as a second second we have a second se

Units:	mg/kg		BLANF	K/BLANK	SPIKE /]	BLANK S	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	LICATE	RECOVI	ERY STUD	Y	
An	TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %aRPD	Flag
C6-C1	C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	1230	123	1000	1210	121	2	70-135	35	
C12-C	C12-C28 Diesel Range Hydrocarbons	<15.0	1000	1040	104	1000	942	94	10	70-135	35	

Relative Percent Difference RPD = 200*((C-F)/(C+F)| Blank Spike Recovery [D] = 100*(C)/[B] Blank Spike Duplicate Recovery [G] = 100*(F)/[E] All results are based on MDL and Validated for QC Purposes

Version: 1.%



Form 3 - N / MSD Recoveries





Project Name: Hobbs Reclamation Plant

Work Order # :	512607						Project ID: NCPS 14017	: NCPS	14017	
Lab Batch ID:	973790	QC- Sample ID: 512654-001 S	512654-(001 S	Ba	Batch #:	1 Matrix: Soil	:: Soil		
Date Analyzed:	08/04/2015	Date Prepared: 08/04/2015	08/04/20	15	An	Analyst: MCH	ACH			
Reporting Units:	mg/kg		M	ATRIX SPIKI	E/MAT	RIX SPI	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	FE REC	DVERY S	TUDY
	BTEX by SW 8260B	Parent Sample Result	Spike	Spiked Sample Spiked Result Sample		Spike	Duplicate Spike Spiked Sample	Spiked Dup.	RPD	Control Limits
	Analytes	[A]	[B]	5		[E]	f al mean	[6]	e,	VIO
Benzene		<0.00115	0.115	0.116	101	0.116	0.118	102	2	62-132
Toluene		<0.00115	0.115	0.119	103	0.116	0.114	86	4	66-124
Ethylbenzene		<0.00115	0.115	0.120	104	0.116	0.116	100	3	71-134

Flag

Control Limits %RPD

32 35 52 35

2 4 3 -

0.118 0.114 0.116 0.225 0.108

67 93

0.232 0.116

0.228 0.121

<0.00231 <0.00115

rh.p-Xylenes d-Xylene

105 66

0.115 0.231

69-128 72-131

35

11

Matrix Spike Percent Recovery [D] = 100*(C-A)/B Relative Percent Difference RPD = 200*(C-F)(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Final 1.000

Page 11 of 14



Sample Duplicate Recovery



Project Name: Hobbs Reclamation Plant

Work Order #: 512607

Lab Batch #: 974051 Date Analyzed: 08/07/2015 14:26 QC- Sample ID: 512607-001 D	Date Prepared: 08/07/2015 Batch #: 1	Ana	Project I lyst: YAV trix: Soil	D: NCPS 14	1017
Reporting Units: %	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture	Parent Sample Result [A]	Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Percent Moisture	36.9	37.8	2	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) | All Results are based on MDL and validated for QC purposes. BRL - Below Reporting Limit

4			Relinquished by: Date Time: Received By: Custody Seal # Preserved where applicable On log Cooler Temp.	Image: Second state		Aptical information	
orting Information Project Information Branch: $C_{ansel / inq}$ Project Name/Number: Branch: $C_{ansel / inq}$ Project Name/Number: TERNAY BULD Ho RDS Reclamation Phone No: Invoice To: Invoice To: Phone No: Ear Tecl PO Number: Diller R Variation Variation Sample Odleptih Number of preserved battles Field ID / Point of Collection Sample Number of preserved battles Variation Deptih Date True Namix Point of Collection Sample Variation Namix Deptih Date True Namix Variation Variation Variation Variation	orting Information Project Information Branch: Cansul / Ling Project Name/Number: Imanch: Project Name/Number: Project Name/Number: Iman Name Project Name/Number: Iman Name Project Name/Number: Iman Name Project Name/Number: Iman <td< td=""><td>Analytical information Project Information Branch: Froject Information Branch: Froject Information Branch: Froject Information Information Froject Information Standa Froject Information Information Froject Information Standa Froject Information Information Froject Information Standa Froject Information Information Froject Information Informatinformating Froject Informating</td><td>Analyzin Invige Information Refer to Remark Internation The Analyzin Invige Information Private Name Vision Private N</td><td>Service Center - San Antonia, Texas (210-509-3334) w</td><td>www.xenco.com Xenco Quote #</td><td>co Job #</td></td<>	Analytical information Project Information Branch: Froject Information Branch: Froject Information Branch: Froject Information Information Froject Information Standa Froject Information Information Froject Information Standa Froject Information Information Froject Information Standa Froject Information Information Froject Information Informatinformating Froject Informating	Analyzin Invige Information Refer to Remark Internation The Analyzin Invige Information Private Name Vision Private N	Service Center - San Antonia, Texas (210-509-3334) w	www.xenco.com Xenco Quote #	co Job #	
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Final 1.000



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: Entech Consulting Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 07/31/2015 12:25:00 PM **Temperature Measuring device used :** Work Order #: 512607 Sample Receipt Checklist Comments 6 #1 *Temperature of cooler(s)? Yes #2 *Shipping container in good condition? Yes #3 *Samples received on ice? N/A #4 *Custody Seals intact on shipping container/ cooler?

in the output of	
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	No
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	No
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	No

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

Analyst:

PH Device/Lot#:

Checklist completed by: Mury Moah Kelsey Brooks Checklist reviewed by: Mury Moah Kelsey Brooks

Date: 07/31/2015

Date: 08/03/2015