

Conditional

By OCD District 1 at 11:34 am, Aug 28, 2015

- 1. Ensure BLM approval/concurrence.
- 2. Submit final C-141.

August 20 2015

Reference No. 088210-13

Mr. Zane Kurtz Sr. Safety and Environmental Representative 5509 Champions Dr. Midland, TX 79706 VIA E-Mail: zane\_kurtz@eogresources.com

Dear Mr. Kurtz:

Re: Remediation Summary Report

Vaca 24 Fed Com 3H (API #30-025-40530)

1RP-3610 EOG Resources

Site Location: Unit N, Sec. 24, T 25-S, R 33-E

(Lat 32.113754°, Long -103.530836°)

Lea County, New Mexico

Remediation activities were performed at the Vaca 24 Fed Com 3H site from April 14, 2015 to May 20, 2015. The Vaca 24 Fed Com 3H site (hereafter referred to as the "Site"), is located within Unit N, Section 24, Township 25 South, Range 33 East, in Lea County, New Mexico (see Figure 1).

The Site is an active well location operated by EOG Resources (EOG). According to EOG personnel, a release of an unknown quantity of produced water occurred on April 13, 2015 due to a ruptured seam on a six inch poly flow line (see Appendix A). Upon discovery, the line was repaired and a vacuum truck was mobilized to the Site and used to recover approximately 30 barrels of produced water. A C-141 Form was submitted to the New Mexico Oil Conservation Division (NMOCD) and remediation permit (RP) number 1RP-3610 was assigned.

#### 1. Introduction

Site remediation activities consisted of an excavation event accompanied by the collection and analysis of soil samples. Excavation activities were performed by Watson Construction of Hobbs, New Mexico and observed by GHD (formerly Conestoga-Rovers and Associates), of Albuquerque, New Mexico. Soil samples were collected by CRA and analyzed by Xenco Laboratories (Xenco) of Odessa, Texas.

Based on information available from the Petroleum Recovery Research Center Pit Rule Mapping Portal, the depth to groundwater at the Site is indicated to be approximately 185 feet below ground surface (bgs). Additionally, there are no well head protection areas or surface water bodies within 1,000 feet of the Site. Therefore, the preliminary total ranking score is 0 (see table below).

Based on this score, the applicable NMOCD Site-specific Recommended Remediation Action Limits (RRALs) are 10 milligrams per kilogram (mg/kg) for benzene, 50 mg/kg for total benzene, toluene, ethylbenzene, and xylenes (BTEX), 5,000 mg/kg for total petroleum hydrocarbons (TPH), and 500 mg/kg for chlorides.

New Mexico Oil Conservation Division Site Assessment							
Ranking Criteria	Score						
Depth to Ground Water (> 100 feet bgs)	0						
Wellhead Protection Area (> 1000 feet from water source, > 200 feet from domestic source)	0						
Distance to Surface Body Water (> 1000 feet)	0						
Ranking Criteria Total Score	0*						
*Because the ranking criteria total score is 0, NMOCD established RRALs are 10 ppm for benzene, 50 ppm for total BTEX, 5,000 ppm for TPH, and 500 ppm for chlorides1.							

<sup>1</sup> NMOCD Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993

#### 2. Remediation Activities

CRA conducted an initial soil sampling event on April 14, 2015 to assess for the presence of hydrocarbon and produced water impacts. Soil samples were collected at three feet bgs in four locations within the areas of concern using a hand auger. The samples were field screened for chloride and submitted to Xenco for laboratory analysis of BTEX by EPA Method 8021B, TPH gasoline range organics (TPH-GRO) and diesel range organics (TPH-DRO) by EPA Modified Method SW8015B, and chloride by EPA Method 300.

Laboratory analytical results from this event indicated that chloride concentrations exceeded the RRAL in all samples with results ranging from 7,230 mg/kg to 10,600 mg/kg. However, BTEX concentrations were not detected above the RRAL and TPH concentrations were not detected above the laboratory reporting limit (see Table 1 and Appendix B). Based on the laboratory results and visual observations, the impacted area requiring excavation appeared to be large.

A scope of work was discussed and agreed upon by Dr. Tomas Oberding with the NMOCD and Mr. Jim Amos with the Bureau of Land Management (BLM) via emails on May 4, 2015. The agreed upon scope of work included the following:

- Excavation of impacted soils to a depth of approximately four feet bgs;
- Placement of a 20 mil polyethylene liner in the bottom of the excavation;
- · Backfilling of excavation with clean fill material; and
- Fertilizing and reseeding of the disturbed area with a BLM approved seed mix.

Excavation activities occurred from April 27 to May 20, 2015. Field screening of soils for chloride, TPH, and organic vapors were performed to guide excavation activities. Once field screening indicated soil concentrations were below the RRALs, soil samples were collected and submitted to Xenco and analyzed for BTEX, TPH-GRO, TPH-DRO, and chloride by the methods listed above.

Laboratory analytical results for the excavation samples indicated that TPH concentrations were not detected above the RRAL and BTEX concentrations were not detected above the laboratory reporting limit (see Table 1 and Appendix B). Chloride concentrations exceeded the RRAL in several locations throughout the excavation (see Figure 2). However, all soil samples collected at the perimeter of the excavation were below the chloride RRAL. Additionally, soil samples SO-088210-13-051215-SP-04 and SO-088210-13-051215-SP-05, collected from 20 feet and 22 feet bgs adjacent to the release point, returned chloride analytical results of 810 mg/kg and 18.6 mg/kg, respectively. Based on this, the vertical extent of chloride impacts in the area of the release appears to be approximately 21 feet bgs.

A 20 mil polyethylene liner was placed in the bottom of the excavation in order to minimize vertical migration of chloride in the soil. The liner was placed without rips or tears and sections were overlapped a minimum of 24 inches. The excavation was backfilled with clean fill obtained from the Dillon pit located approximately five miles from the Site and graded to the natural ground surface. An N-P-K fertilizer and BLM #2 seed mix was broadcasted over the disturbed area and tracked into the soil using the heavy equipment on Site.

A total of approximately 4,950 cubic yards of impacted soil were removed and transported to Sundance Services, Inc. of Eunice, New Mexico, for landfill disposal. Waste manifests are included as Appendix C.

#### 3. Summary and Recommendations

Impacted soils at the Vaca 24 Federal Com 3H site were excavated to a depth of approximately four feet bgs. Confirmatory soil samples were collected from throughout the excavation (see Figure 2) for laboratory analysis. The final dimensions of the excavation were approximately 446 feet by 70 feet and a total of approximately 4,950 cubic yards of impacted soil were removed.

On behalf of EOG Resources, GHD requests that the Site be granted no further action status. Should you have any questions, or require additional information regarding this submittal, please feel free to contact myself or Bernie Bockisch at (505) 884-0672 or Bernard.Bockisch@ghd.com.

Sincerely,

GHD

Cale Kanack Staff Scientist

CK/mc/02

Encl. (4)

Figure 1 – Site Location Map

Figure 2 – Site Detail Map

Table 1 – Soil Analytical Results Summary

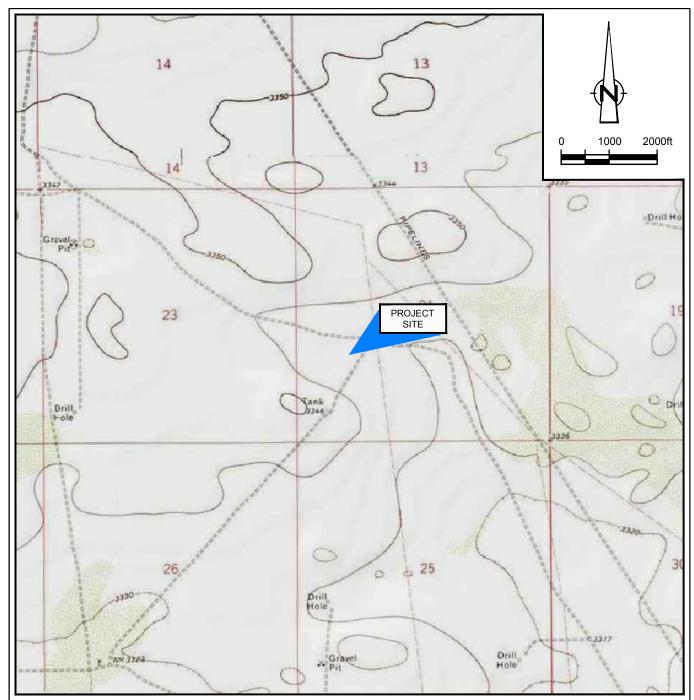
Appendix A – Photo Log

Appendix B - Laboratory Analytical Reports

Samuel For I

Bernard Bockisch Senior Project Manager

# **Figures**

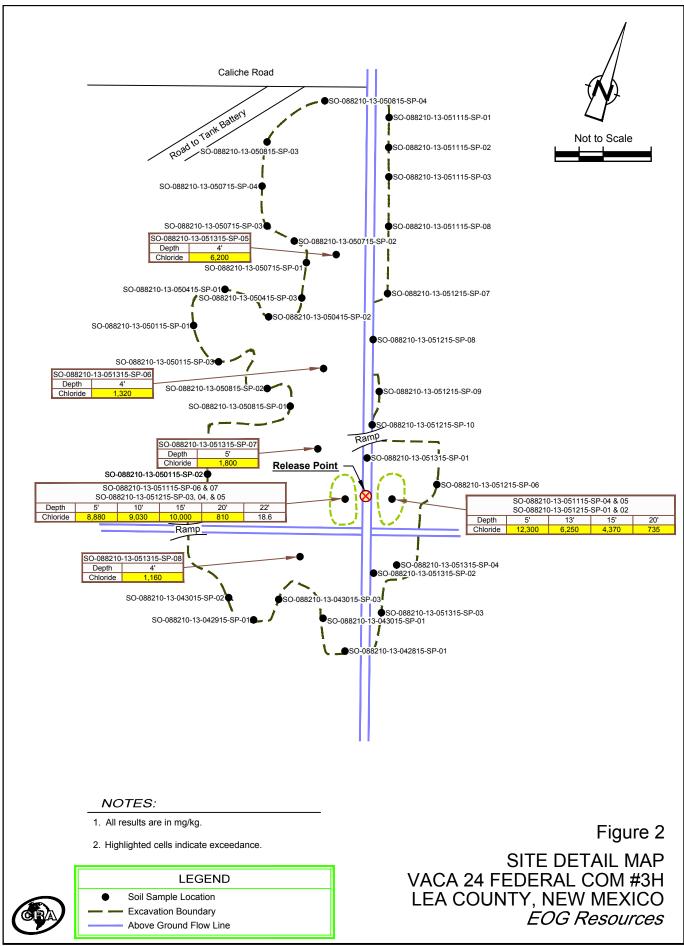


SOURCE: USGS 7.5 MINUTE QUAD
"PADUCA BREAKS EAST AND BELL LAKE, NEW MEXICO"

LAT/LONG: 32.1137° NORTH, 103.5308° WEST COORDINATE: NAD83 DATUM, U.S. FOOT STATE PLANE ZONE - NEW MEXICO EAST

Figure 1
SITE LOCATION MAP
VACA 24 FEDERAL COM #3H
LEA COUNTY, NEW MEXICO
EOG Resources





# **Tables**

#### Table 1 Soil Analytical Data Summary Vaca 24 Fed Com 3H Lea County, New Mexico

						Total			TPH		
Sample ID	Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	Total TPH (mg/kg)	Chlorides (mg/kg)
NMOCD RRALs (Total Ra	anking Score	= 0)	10				50			5000	500
SO-088210-041415-SP-01*	3.0	4/14/15	0.158	0.092	< 0.001	< 0.001	0.25	< 17.9	< 17.9	< 17.9	10600
SO-088210-041415-SP-02*	3.0	4/14/15	0.039	0.0326	< 0.001	< 0.001	0.0716	< 17.3	< 17.3	< 17.3	8940
SO-088210-041415-SP-03*	3.0	4/14/15	0.0209	0.0221	< 0.001	< 0.001	0.043	< 17.6	< 17.6	< 17.6	10300
SO-088210-041415-SP-04*	3.0	4/14/15	0.0145	0.00793	< 0.001	< 0.001	0.0224	< 17.6	< 17.6	< 17.6	7230
SO-088210-13-042815-SP-01	2.5	4/28/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.1	< 16.1	< 16.1	28.8
SO-088210-13-042915-SP-01	3.0	4/29/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.9	< 16.9	< 16.9	3.54
SO-088210-13-043115-SP-01	3.0	4/30/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.9	< 16.9	< 16.9	97.3
SO-088210-13-043015-SP-02	3.0	4/30/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 17.6	< 17.6	< 17.6	131
SO-088210-13-043015-SP-03	3.0	4/30/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.4	< 16.4	< 16.4	223
SO-088210-13-050115-SP-01	3.5	5/1/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.3	< 16.3	< 16.3	4.89
SO-088210-13-050115-SP-02	2.5	5/1/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.3	< 16.3	< 16.3	11.3
SO-088210-13-050115-SP-03	3.0	5/1/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.9	< 15.9	< 15.9	3.78
SO-088210-13-050415-SP-01	3.3	5/4/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.6	< 16.6	< 16.6	6.04
SO-088210-13-050415-SP-02	3.0	5/4/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 17.1	< 17.1	< 17.1	12.1
SO-088210-13-050415-SP-03	3.3	5/4/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.6	< 16.6	< 16.6	< 2.22
SO-088210-13-050715-SP-01	3.5	5/7/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.9	< 15.9	< 15.9	191
SO-088210-13-050715-SP-02	3.3	5/7/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.5	< 16.5	< 16.5	13.3
SO-088210-13-050715-SP-03	3.3	5/7/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.5	< 15.5	< 15.5	2.62
SO-088210-13-050715-SP-04	3.0	5/7/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.6	< 15.6	< 15.6	15.6
SO-088210-13-050815-SP-01	3.5	5/8/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.5	< 15.5	< 15.5	5.07
SO-088210-13-050815-SP-02	3.5	5/8/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.7	< 15.7	< 15.7	6.66
SO-088210-13-050815-SP-03	3.5	5/8/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.3	< 16.3	< 16.3	51
SO-088210-13-050815-SP-04	4.0	5/8/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 17.4	< 17.4	< 17.4	31.8
SO-088210-13-051115-SP-01	3.0	5/11/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.7	< 15.7	< 15.7	24.3
SO-088210-13-051115-SP-02	3.0	5/11/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.8	< 15.8	< 15.8	2.36
SO-088210-13-051115-SP-03	2.0	5/11/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.6	< 15.6	< 15.6	6.51
SO-088210-13-051115-SP-04	5.0	5/11/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 18.0	< 18.0	< 18.0	12300
SO-088210-13-051115-SP-05	13.0	5/11/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.7	< 16.7	< 16.7	6250
SO-088210-13-051115-SP-06	5.0	5/11/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 17.6	117	117	8880
SO-088210-13-051115-SP-07	10.0	5/11/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 17.3	19.5	19.5	9030
SO-088210-13-051115-SP-08	2.0	5/11/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.7	< 15.7	< 15.7	13.1
SO-088210-13-051215-SP-01	20.0	5/12/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.5	< 15.5	< 15.5	735
SO-088210-13-051215-SP-02	15.0	5/12/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.9	< 15.9	< 15.9	4370
SO-088210-13-051215-SP-03	15.0	5/12/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 17.1	< 17.1	< 17.1	10000
SO-088210-13-051215-SP-04	20.0	5/12/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.9	< 15.9	< 15.9	810
SO-088210-13-051215-SP-05	22.0	5/12/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.2	< 15.2	< 15.2	18.6
SO-088210-13-051215-SP-06	2.5	5/12/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.2	< 15.2	< 15.2	31.9
SO-088210-13-051215-SP-07	2.5	5/12/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.7	< 15.7	< 15.0	11.7
SO-088210-13-051215-SP-08	2.5	5/12/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.7	< 15.7	< 15.7	2.87
SO-088210-13-051215-SP-09	2.5	5/12/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.4	< 15.4	< 15.4	< 2.09
SO-088210-13-051215-SP-10	2.5	5/12/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.5	< 15.5	< 15.5	2.6
SO-088210-13-051315-SP-01	2.0	5/12/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.3	< 16.3	< 16.3	3.6
SO-088210-13-051315-SP-02	2.5	5/13/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.3	< 16.3	< 16.3	9.52
SO-088210-13-051315-SP-02	2.5	5/13/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 15.7	< 15.7	< 15.7	10.9
SO-088210-13-051315-SP-04	2.5	5/13/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.3	< 16.3	< 16.3	5.85
SO-088210-13-051315-SP-04 SO-088210-13-051315-SP-05	4.0	5/13/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.5	< 16.5	< 16.5	6200
	4.0	5/13/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 16.5	< 16.5	< 16.5	1320
SO-088210-13-051315-SP-06											
SO-088210-13-051315-SP-07	5.0	5/13/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 17.3	< 17.3	< 17.3	1800
SO-088210-13-051315-SP-08	4.0	5/13/15	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 17.3	< 17.3	< 17.3	1160

bgs = below ground surface

TPH = total petroleum hydrocarbons

NMOCD = New Mexico Oil Conservation Division

RRALs = Recommended Remediation Action Limits

Bold = Exceeds laboratory detection limits

Highlighted = Exceeds NMOCD RRALs

\* = Initial soil sample collected prior to excavation activities

Vaca 24 Fed Com 3H Appendix A – Photo Log



Photo 1 – Impacted area with previous excavation and stockpile. Photo taken facing northeast.



Photo 2 – Impacted area with previous excavations and stockpiles. Photo taken facing southeast.



Photo 3 – Northern portion of excavation. Photo taken facing north.

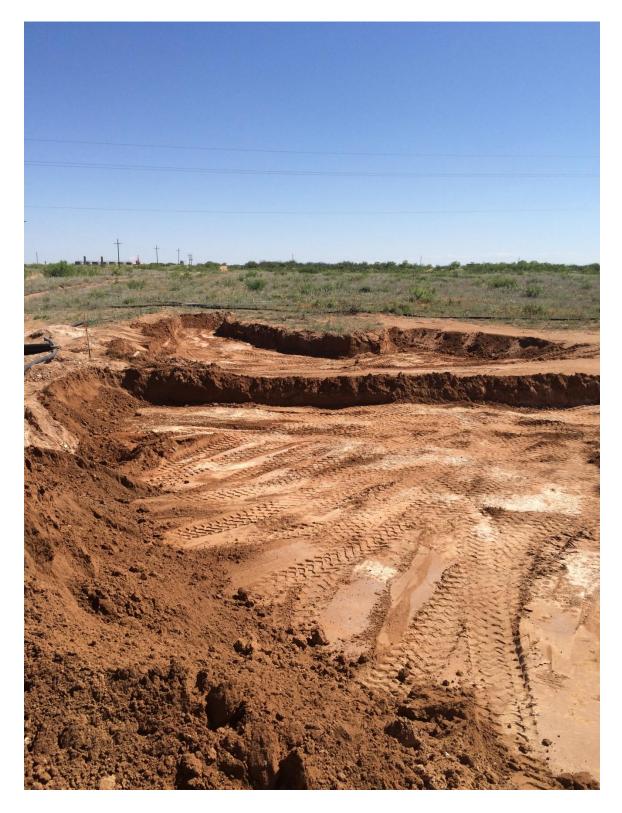


Photo 4 – Southern portion of excavation. Photo taken facing south.

Vaca 24 Fed Com 3H Appendix A – Photo Log



Photo 5 – Completed excavation with liner being placed in southern end. Photo taken facing south.



Photo 6 – Liner and backfill being placed in the excavation. Photo taken facing southeast.



Photo 7 – Excavation after liner placement. Photo taken facing north.



Photo 8 – Disturbed area after backfilling and grading. Photo taken facing north.



Photo 9 – Disturbed area after backfilling and grading. Photo taken facing south.

# Appendix B Laboratory Analytical Reports

# **Analytical Report 506111**

for

#### Conestoga-Rovers & Associates-Albuquerque, NM

Project Manager: Bernie Bockisch Vaca 24 PolyLine 088210 21-APR-15

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)





21-APR-15

Project Manager: Bernie Bockisch

Conestoga-Rovers & Associates-Albuquerque, NM

6121 Indian School Rd. NE Suite 200

Albuquerque, NM 87110

Reference: XENCO Report No(s): 506111

Vaca 24 PolyLine

Project Address: Lea County, NM

#### Bernie Bockisch:

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) 506111. 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. 506111 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.

**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 506111**



## Conestoga-Rovers & Associates-Albuquerque, NM, Albuque

Vaca 24 PolyLine

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
SO-088210-041415-SP-01	S	04-14-15 14:46	- 3 ft	506111-001
SO-088210-041415-SP-02	S	04-14-15 15:19	- 3 ft	506111-002
SO-088210-041415-SP-03	S	04-14-15 15:36	- 3 ft	506111-003
SO-088210-041415-SP-04	S	04-14-15 15:52	- 3 ft	506111-004



#### **CASE NARRATIVE**



Client Name: Conestoga-Rovers & Associates-Albuquerque, NM

Project Name: Vaca 24 PolyLine

 Project ID:
 088210
 Report Date:
 21-APR-15

 Work Order Number(s):
 506111
 Date Received:
 04/16/2015

Sample rece	eipt non confo	ormances and	comments:			
Sample rece	eipt non confo	ormances and	comments pe	r sample:		



### **Certificate of Analysis Summary 506111**

#### Conestoga-Rovers & Associates-Albuquerque, NM, Albuquerque, NM



**Project Id:** 088210

Project Location: Lea County,NM

Contact: Bernie Bockisch

Project Name: Vaca 24 PolyLine

Date Received in Lab: Thu Apr-16-15 10:00 am

**Report Date:** 21-APR-15

Project Manager: Kelsey Brooks

							= 10,000 1114			
Lab Id:	506111-	001	506111-0	002	506111-0	003	506111-	004		
Field Id:	SO-088210-041	415-SP-01	SO-088210-0414	415-SP-02	SO-088210-0414	415-SP-03	SO-088210-041	415-SP-04		
Depth:	3 ft		3 ft		3 ft		3 ft			
Matrix:	SOIL		SOIL		SOIL	,	SOIL			
Sampled:	Apr-14-15	14:46	Apr-14-15	15:19	Apr-14-15	15:36	Apr-14-15	15:52		
Extracted:	Apr-16-15	14:00	Apr-16-15	14:00	Apr-16-15	14:00	Apr-16-15	14:00		
Analyzed:	Apr-16-15	17:41	Apr-16-15	18:00	Apr-16-15	18:18	Apr-16-15	18:34		
Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
	0.158	0.00119	0.0390	0.00116	0.0209	0.00117	0.0145	0.00117		
	0.0920	0.00238	0.0326	0.00231	0.0221	0.00235	0.00793	0.00234		
	ND	0.00119	ND	0.00116	ND	0.00117	ND	0.00117		
	ND	0.00238	ND	0.00231	ND	0.00235	ND	0.00234		
o-Xylene		0.00119	ND	0.00116	ND	0.00117	ND	0.00117		
	ND	0.00119	ND	0.00116	ND	0.00117	ND	0.00117		
	0.250	0.00119	0.0716	0.00116	0.0430	0.00117	0.0224	0.00117		
Extracted:	Apr-17-15	14:00	Apr-17-15	14:00	Apr-17-15	14:00	Apr-17-15	14:00		
Analyzed:	Apr-17-15	18:26	Apr-17-15 19:11		Apr-17-15 19:34		Apr-17-15	19:56		
Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
	10600	479	8940	463	10300	471	7230	471		
Extracted:										
Analyzed:	Apr-16-15	17:15	Apr-16-15	17:15	Apr-16-15	17:15	Apr-16-15	17:15		
Units/RL:	%	RL	%	RL	%	RL	%	RL		
	16.4	1.00	13.6	1.00	15.1	1.00	15.0	1.00		
Extracted:	Apr-16-15	14:00	Apr-16-15	14:00	Apr-16-15	14:00	Apr-16-15	14:00		
Analyzed:	Apr-16-15	22:16	Apr-16-15	22:38	Apr-16-15	23:00	Apr-16-15	23:22		
Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
	ND	17.9	ND	17.3	ND	17.6	ND	17.6		
C10-C28 Diesel Range Hydrocarbons		17.9	ND	17.3	ND	17.6	ND	17.6	·	
Total TPH		17.9	ND	17.3	ND	17.6	ND	17.6		
	Field Id: Depth: Matrix: Sampled: Extracted: Analyzed: Units/RL:  Extracted: Analyzed: Units/RL:  Extracted: Analyzed: Units/RL:  Extracted: Analyzed: Analyzed: Analyzed:	Field Id:         SO-088210-041           Depth:         3 ft           Matrix:         SOIL           Sampled:         Apr-14-15           Extracted:         Apr-16-15           Analyzed:         Mpr-16-15           Units/RL:         mg/kg           ND         ND           ND         ND           ND         ND           Extracted:         Apr-17-15           Analyzed:         Apr-17-15           Units/RL:         mg/kg           Lunits/RL:         %           Extracted:         Apr-16-15           Analyzed:         Apr-16-15           Analyzed:         Apr-16-15           Units/RL:         mg/kg	Field Id:         SO-088210-041415-SP-01           Depth:         3 ft           Matrix:         SOIL           Sampled:         Apr-14-15 14:46           Extracted:         Apr-16-15 17:41           Units/RL:         mg/kg         RL           0.0920         0.00238           ND         0.00119           ND         0.00119           ND         0.00119           ND         0.00119           Extracted:         Apr-17-15 14:00           Analyzed:         Apr-17-15 18:26           Units/RL:         mg/kg         RL           Lonits/RL:         %         RL           Lonits/RL:         %         RL           Lonits/RL:         %         RL           Lonits/RL:         mg/kg         RL           Units/RL:         mg/kg         RL           Units/RL:         mg/kg         RL           ND         17.9           ND         17.9           ND         17.9	Field Id:         SO-088210-041415-SP-01         SO-088210-0414           Depth:         3 ft         3 ft           Matrix:         SOIL         SOIL           Sampled:         Apr-14-15 14:46         Apr-14-15           Extracted:         Apr-16-15 14:00         Apr-16-15           Analyzed:         Apr-16-15 17:41         Apr-16-15           Units/RL:         mg/kg         RL         mg/kg           0.0920         0.00238         0.0326           ND         0.00119         ND           Apr-17-15 14:00         Apr-17-15           Analyzed:         Apr-17-15 18:26         Apr-17-15           Apratyzed:         Apr-16-15 17:15         Apr-16-15           Apratyzed:         Apr-16-15 14:00         Apr-16-15           Analyzed:         Apr-16-15 22:16	Field Id:         SO-088210-041415-SP-01         SO-088210-041415-SP-02           Depth:         3 ft         3 ft           Matrix:         SOIL         SOIL           Sampled:         Apr-14-15 14:46         Apr-14-15 15:19           Extracted:         Apr-16-15 14:00         Apr-16-15 14:00         Apr-16-15 18:00           Analyzed:         Apr-16-15 17:41         Apr-16-15 18:00         Apr-16-15 18:00           Units/RL:         mg/kg         RL         mg/kg         RL           0.0920         0.00238         0.0326         0.00231           ND         0.00119         ND         0.00116           ND         0.00119         ND         0.00116           ND         0.00119         ND         0.00116           ND         0.00119         ND         0.00116           Extracted:         Apr-17-15 14:00         Apr-17-15 14:00         Apr-17-15 19:11           Units/RL:         mg/kg         RL         mg/kg         RL           Units/RL:         %         RL         %         RL           Units/RL:         %         RL         %         RL           Limits/RL:         Apr-16-15 14:00         Apr-16-15 14:00         Apr-16-15 22:3	Field Id:         SO-088210-041415-SP-01         SO-088210-041415-SP-02         SO-088210-041           Depth:         3 ft         3 ft         3 ft           Matrix:         SOIL         SOIL         SOIL           Sampled:         Apr-14-15 14:46         Apr-14-15 15:19         Apr-14-15           Extracted:         Apr-16-15 14:00         Apr-16-15 14:00         Apr-16-15           Analyzed:         Apr-16-15 17:41         Apr-16-15 18:00         Apr-16-15           Units/RL:         mg/kg         RL         mg/kg         RL         mg/kg           0.158         0.00119         0.0390         0.00116         0.0209           0.0920         0.00238         0.0326         0.00231         0.0221           ND         0.00119         ND         0.00116         ND           ND         0.00119         ND         0.00116         ND           ND         0.00119         ND         0.00116         ND           Extracted:         Apr-17-15 14:00         Apr-17-15 14:00         Apr-17-15 19:11         Apr-17-15           Units/RL:         mg/kg         RL         mg/kg         RL         mg/kg           Extracted:         Apr-16-15 17:15         Apr-16-15 17:15 </th <th>Field Id:         SO-088210-041415-SP-01         SO-088210-041415-SP-02         SO-088210-041415-SP-03           Depth:         3 ft         3 ft         SOIL         SOIL         SOIL         SOIL         SOIL         SOIL         SOIL         SOIL         Apr-14-15 15:36         Apr-16-15 14:00         Apr-16-15 14:00         Apr-16-15 18:00         Apr-16-15 14:00         Apr-16-15 18:00         Apr-16-15 18:18         Apr-16-15 18:00         Apr-16-15 18:18         Mp/kg         RL         mg/kg         RL         mg/kg         RL         mg/kg         RL         mg/kg         RL         Mp-16-15 18:00         Apr-16-15 18:00         Apr-16-15 18:18         Mp-10-10-10         Mp-10-10-10</th> <th>Lab Id:         506111-001         506111-002         506111-03         506111-03         506111-04           Field Id:         SO-088210-041415-SP-01         SO-088210-041415-SP-02         SO-088210-041415-SP-03         SO-088210-041           Depth:         3 ft         3 ft         3 ft         3 ft         3 ft         3 ft           Matrix:         SOIL         Apr-14-15         15:16         Apr-14-15         15:16         Apr-14-15         15:18         Apr-14-15         15:18         Apr-16-15         4pr-14-15         15:18         Apr-16-15         18:18         Apr-16-15         18:10         Apr-16-15         18:10         A</th> <th>Lab Id:         506111-001         506111-002         506111-003         506111-004           Field Id:         SO-088210-041415-SP-01         SO-088210-041415-SP-02         SO-088210-041415-SP-03         SO-088210-041415-SP-04           Depth:         3 ft         3 ft         3 ft         3 ft         3 ft         SOIL         Apr-14-15 15:52         Apr-14-15 15:36         Apr-14-15 15:52         Apr-16-15 14:00         Apr-16-15 14:00         Apr-16-15 14:00         Apr-16-15 14:00         Apr-16-15 18:18         Apr-16-15 14:00         Apr-16-15 18:34         Apr-16-15 18:00         Apr-16-15 18:18         Apr-16-15 18:34         Apr-16-15 18:00         Apr-16-15 18:18         Apr-16-15 18:34         Apr-16-15 18:00         Apr-16-15 18:18         Apr-16-15 18:34         Apr-16-15 18:00         Apr-16-1</th> <th>Field Id:         SO-088210-041415-SP-01         SO-088210-041415-SP-03         SO-088210-041415-SP-04         SOIL         SOIL</th>	Field Id:         SO-088210-041415-SP-01         SO-088210-041415-SP-02         SO-088210-041415-SP-03           Depth:         3 ft         3 ft         SOIL         SOIL         SOIL         SOIL         SOIL         SOIL         SOIL         SOIL         Apr-14-15 15:36         Apr-16-15 14:00         Apr-16-15 14:00         Apr-16-15 18:00         Apr-16-15 14:00         Apr-16-15 18:00         Apr-16-15 18:18         Apr-16-15 18:00         Apr-16-15 18:18         Mp/kg         RL         mg/kg         RL         mg/kg         RL         mg/kg         RL         mg/kg         RL         Mp-16-15 18:00         Apr-16-15 18:00         Apr-16-15 18:18         Mp-10-10-10         Mp-10-10-10	Lab Id:         506111-001         506111-002         506111-03         506111-03         506111-04           Field Id:         SO-088210-041415-SP-01         SO-088210-041415-SP-02         SO-088210-041415-SP-03         SO-088210-041           Depth:         3 ft         3 ft         3 ft         3 ft         3 ft         3 ft           Matrix:         SOIL         Apr-14-15         15:16         Apr-14-15         15:16         Apr-14-15         15:18         Apr-14-15         15:18         Apr-16-15         4pr-14-15         15:18         Apr-16-15         18:18         Apr-16-15         18:10         Apr-16-15         18:10         A	Lab Id:         506111-001         506111-002         506111-003         506111-004           Field Id:         SO-088210-041415-SP-01         SO-088210-041415-SP-02         SO-088210-041415-SP-03         SO-088210-041415-SP-04           Depth:         3 ft         3 ft         3 ft         3 ft         3 ft         SOIL         Apr-14-15 15:52         Apr-14-15 15:36         Apr-14-15 15:52         Apr-16-15 14:00         Apr-16-15 14:00         Apr-16-15 14:00         Apr-16-15 14:00         Apr-16-15 18:18         Apr-16-15 14:00         Apr-16-15 18:34         Apr-16-15 18:00         Apr-16-15 18:18         Apr-16-15 18:34         Apr-16-15 18:00         Apr-16-15 18:18         Apr-16-15 18:34         Apr-16-15 18:00         Apr-16-15 18:18         Apr-16-15 18:34         Apr-16-15 18:00         Apr-16-1	Field Id:         SO-088210-041415-SP-01         SO-088210-041415-SP-03         SO-088210-041415-SP-04         SOIL         SOIL

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 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

Kelsey Brooks Project Manager



#### 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

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

PQL Practical Quantitation Limit MQL 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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Project Name: Vaca 24 PolyLine

 Work Orders: 506111,
 Project ID: 088210

 Lab Batch #: 966263
 Sample: 506111-001 / SMP
 Batch: 1 Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 04/16/15 17:41	SURROGATE RECOVERY STUDY						
	ВТЕ	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
		Analytes			[D]				
1,4-Difluor	obenzene		0.0315	0.0300	105	80-120			
4-Bromoflu	iorobenzene		0.0302	0.0300	101	80-120			

Units:	mg/kg	<b>Date Analyzed:</b> 04/16/15 18:00	SURROGATE RECOVERY STUDY							
	ВТЕ	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]					
1,4-Difluor	obenzene		0.0326	0.0300	109	80-120				
4-Bromoflu	iorobenzene		0.0285	0.0300	95	80-120				

Units: mg/kg Date Analyzed: 04/16/15 18:18 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	80-120	
4-Bromofluorobenzene	0.0329	0.0300	110	80-120	

Units:	mg/kg	<b>Date Analyzed:</b> 04/16/15 18:34	SURROGATE RECOVERY STUDY							
	BTE	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1,4-Difluor	robenzene	Analytes	0.0308	0.0300	103	80-120				
4-Bromoflu	uorobenzene		0.0325	0.0300	108	80-120				

Units:	mg/kg	<b>Date Analyzed:</b> 04/16/15 22:16	SURROGATE RECOVERY STUDY							
	TPH 1	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1-Chlorooct	tane		86.0	99.6	86	70-135				
o-Terpheny	1		84.2	99.6	85	70-135				

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: Vaca 24 PolyLine

Work Orders: 506111,

Lab Batch #: 966262 Sample: 506111-002 / SMP Batch: 1 Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 04/16/15 22:38	SURROGATE RECOVERY STUDY						
	ТРН Е	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
		Analytes			[D]				
1-Chloroocta	ane		88.0	99.9	88	70-135			
o-Terphenyl			90.0	99.9	90	70-135			

**Units:** mg/kg Date Analyzed: 04/16/15 23:00 SURROGATE RECOVERY STUDY **Amount** True Control TPH By SW8015B Mod Flags Found Limits Amount Recovery [A] [B] %R %R **Analytes** [D] 1-Chlorooctane 89.0 99.8 89 70-135 o-Terphenyl 90.9 99.8 70-135 91

Units: mg/kg Date Analyzed: 04/16/15 23:22 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.6	99.8	88	70-135	
o-Terphenyl	87.8	99.8	88	70-135	

Lab Batch #: 966263 Sample: 691391-1-BLK/BLK Batch: 1 Matrix: Solid

**Units:** mg/kg Date Analyzed: 04/16/15 15:44 SURROGATE RECOVERY STUDY Amount True Control BTEX by EPA 8021B Found Amount Recovery Limits **Flags** [B] %R %R [A] [D] **Analytes** 1,4-Difluorobenzene 0.0294 0.0300 98 80-120 4-Bromofluorobenzene 0.0299 0.0300 100 80-120

Lab Batch #: 966262Sample: 691390-1-BLK / BLKBatch: 1Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 04/16/15 20:04	SU	RROGATE RE	ECOVERY S	STUDY	
	TPH 1	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	ane		84.7	100	85	70-135	
o-Terphenyl			85.5	100	86	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: Vaca 24 PolyLine

 Work Orders:
 506111,
 Project ID:
 088210

 Lab Batch #:
 966263
 Sample:
 691391-1-BKS / BKS
 Batch:
 1
 Matrix:
 Solid

Units:	mg/kg	<b>Date Analyzed:</b> 04/16/15 16:01	SU	RROGATE RE	ECOVERY S	STUDY	
	BTE	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluorob	enzene		0.0296	0.0300	99	80-120	
4-Bromofluor	obenzene		0.0296	0.0300	99	80-120	

Lab Batch #: 966262 Sample: 691390-1-BKS / BKS Batch: 1 Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 04/16/15 20:26	SU	RROGATE RI	ECOVERY S	STUDY	
	TPH 1	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooc	etane		97.8	100	98	70-135	
o-Terpheny	/l		91.7	100	92	70-135	

Lab Batch #: 966263 Sample: 691391-1-BSD / BSD Batch: 1 Matrix: Solid

Units: mg/kg Date Analyzed: 04/16/15 16:17 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	80-120	

Lab Batch #: 966262 Sample: 691390-1-BSD / BSD Batch: 1 Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 04/16/15 20:48	SU	RROGATE RE	ECOVERY S	STUDY	
	TPH :	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	ane		101	100	101	70-135	
o-Terpheny	1		98.8	100	99	70-135	

Units:	mg/kg	<b>Date Analyzed:</b> 04/16/15 16:34	SU	RROGATE RE	ECOVERY S	STUDY	
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluoro	benzene		0.0286	0.0300	95	80-120	
4-Bromoflu	orobenzene		0.0350	0.0300	117	80-120	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: Vaca 24 PolyLine

 Work Orders: 506111,
 Project ID: 088210

 Lab Batch #: 966262
 Sample: 506109-001 S / MS
 Batch: 1 Matrix: Soil

Units: **Date Analyzed:** 04/16/15 21:32 mg/kg SURROGATE RECOVERY STUDY Amount True Control TPH By SW8015B Mod Found Amount Recovery Limits Flags [A] [B] %R %R [D]**Analytes** 1-Chlorooctane 101 99.7 101 70-135 o-Terphenyl 98.6 99.7 99 70-135

Lab Batch #: 966263 Sample: 506109-001 SD / MSD Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 04/16/15 16:51 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Amount Limits Flags Recovery [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0297 0.0300 99 80-120 4-Bromofluorobenzene 0.0296 0.0300 80-120 99

**Units:** mg/kg Date Analyzed: 04/16/15 21:54 SURROGATE RECOVERY STUDY Amount True Control TPH By SW8015B Mod Found Amount Limits Flags Recovery %R %R [A] [B] [D] **Analytes** 1-Chlorooctane 117 99.8 117 70-135 o-Terphenyl 115 99.8 115 70-135

Surrogate Recovery [D] = 100 \* A / B

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



#### **BS / BSD Recoveries**



Project Name: Vaca 24 PolyLine

Work Order #: 506111 Project ID: 088210

 Analyst:
 ARM
 Date Prepared:
 04/16/2015
 Date Analyzed:
 04/16/2015

 Lab Batch ID: 966263
 Sample: 691391-1-BKS
 Batch #: 1
 Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE	DUPLICATE RECOVERY STUDY
---	--------------------------

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	0.0980	98	0.100	0.0959	96	2	70-130	35	
Toluene	< 0.00200	0.100	0.101	101	0.100	0.0983	98	3	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.103	103	0.100	0.101	101	2	71-129	35	
m,p-Xylenes	< 0.00200	0.200	0.208	104	0.200	0.203	102	2	70-135	35	
o-Xylene	< 0.00100	0.100	0.102	102	0.100	0.0998	100	2	71-133	35	

Analyst: JUM Date Prepared: 04/17/2015 Date Analyzed: 04/17/2015

Lab Batch ID: 966391 Sample: 691419-1-BKS Batch #: 1 Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1  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
Chloride	<2.00	50.0	53.5	107	50.0	53.7	107	0	90-110	20	

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



#### **BS / BSD Recoveries**



**Project Name: Vaca 24 PolyLine** 

Work Order #: 506111 Project ID: 088210

 Analyst:
 ARM
 Date Prepared: 04/16/2015
 04/16/2015
 Date Analyzed: 04/16/2015

 Lab Batch ID: 966262
 Sample: 691390-1-BKS
 Batch #: 1
 Matrix: Solid

Units: mg/kg BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	957	96	1000	926	93	3	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	959	96	1000	1020	102	6	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



#### Form 3 - MS Recoveries

Project Name: Vaca 24 PolyLine



**Work Order #:** 506111

**Project ID:** 088210 Lab Batch #: 966391

**Date Analyzed:** 04/17/2015 **Date Prepared:** 04/17/2015 Analyst: JUM **QC- Sample ID:** 506111-001 S **Batch #:** 1 Matrix: Soil

Reporting Units: mg/kg	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	10600	12000	24300	114	80-120	

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 - MS / MSD Recoveries



**Project Name: Vaca 24 PolyLine** 

Work Order #: 506111 Project ID: 088210

**Lab Batch ID:** 966263 **QC- Sample ID:** 506109-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/16/2015 Date Prepared: 04/16/2015 Analyst: ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	< 0.00128	0.128	0.104	81	0.128	0.115	90	10	70-130	35	
Toluene	< 0.00255	0.128	0.115	90	0.128	0.116	91	1	70-130	35	
Ethylbenzene	< 0.00128	0.128	0.123	96	0.128	0.117	91	5	71-129	35	
m,p-Xylenes	< 0.00255	0.255	0.266	104	0.255	0.235	92	12	70-135	35	
o-Xylene	< 0.00128	0.128	0.133	104	0.128	0.116	91	14	71-133	35	

**Lab Batch ID:** 966262 **QC- Sample ID:** 506109-001 S **Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 04/16/2015 **Date Prepared:** 04/16/2015 **Analyst:** ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<19.2	1280	1430	112	1280	1440	113	1	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<19.2	1280	1300	102	1280	1510	118	15	70-135	35	

Final 1.000



# **Sample Duplicate Recovery**



**Project Name: Vaca 24 PolyLine** 

Work Order #: 506111

**Lab Batch #:** 966270 **Project ID:** 088210

 Date Analyzed:
 04/16/2015 17:15
 Date Prepared:
 04/16/2015
 Analyst: WRU

 QC- Sample ID:
 506109-001 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE / SAMPLE DUPLICATE RECOVERY						
Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag		
,	22.1	21.4	2	20			
Percent Moisture	22.1	21.4	3	20			



# CHAIN OF CUSTODY

Odessa, Texas (432-563-1800)

Lakeland, Florida (863-646-8526)

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Dallas, Texas (214-902-0300)

			Norcross, Georgi	Georgia (770-449-8800)	Tampa, Florida (813-620-2000)
Service Center - San Antonio, Texas (210-509-3334)	J-509-3334)	www.xenco.com	Xenco Quote #	Xenco Job#	36
			Anal	Analytical Information	Matrix Codes
Client / Reporting Information	A Droine	Project Information			
Company Name Lore Sto Sa Bou		Project Name/Number: 24 Poly Inc /	(188210		A= Air S = Soil/Sed/Solid
1621 Indian Stool Bd NE, St 200 All, NA		Lea Courty, NM	RO/0		GW =Ground Water DW = Drinking Water P = Product
Phone North Office of the Property of the Prop		) To:	0 ) 3 6,		SW = Surface water SL = Sludge
Project Contact: 16 SK Contact Room 50's 280'ds	-		0, C 02 158		SL= Sludge WW= Waste Water W = Wine
Samplers's Name: Steve Pere 7	PO Number:	nber:	30		O = Oil
1	Collection	on Number of preserved bottles	nele EX		WW= Waste Water
No. Field ID / Point of Collection	ion Sample Depth Date	Marrix Matrix Mottles HCI NaOH/Zn Accetate HNO3 H2SO4 NaOH	NaHSO4 MEOH		
1 50-088210-041415-SP-0		5 -			1 Total Committation
2 58-088210-041415-59-	P- 02 1 1	15/9	- `		
0	\$1-03	1536			
10-18-51/1/10-01/2381-03	N A 60-15	1552 V V			
o (					
7					
8					
9		4			
Turnaround Time ( Business days)					
Same Day TAT	5 Day TAT		Level IV (Full Data Pkg /raw data)		
Next Day EMERGENCY	7 Day TAT	Level III Std QC+ Forms TRRP I	TRRP Level IV	Those Cun	and in establish and
2 Day EMERGENCY	Contract TAT	Level 3 (CLP Forms) UST / F	UST / RG -411	speed for th	Dizect
3 Day EMERGENCY	4	TRRP Checklist			
TAT Starts Day received by Lab, if received by 3:00 pm	eceived by 3:00 pm			FED-EX / UPS: Tracking #	
Sample:	Pate Time: 3:31	Date Time: Received By:  Pate Time: Received By:  Date Time: Received By: R	Relinquished By:  Deler in the country of the count	Received By:	
Helinquished by:	Date Time:	Received By: Relinqui	Relinquished By: Date Time:		

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service. The previously neglocitated under a fully executed client contract.

Preserved where applicable

Received By:

Relinquished by:



Work Order #: 506111

#### **XENCO Laboratories** Prelogin/Nonconformance Report- Sample Log-In



Client: Conestoga-Rovers & Associates-Albuqu

Date/ Time Received: 04/16/2015 10:00:00 AM

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

**Temperature Measuring device used:** 

	Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?		2.5
#2 *Shipping container in good condition	?	Yes
#3 *Samples received on ice?		Yes
#4 *Custody Seals intact on shipping cor	ntainer/ cooler?	N/A
#5 Custody Seals intact on sample bottle	es?	N/A
#6 *Custody Seals Signed and dated?		N/A
#7 *Chain of Custody present?		Yes
#8 Sample instructions complete on Cha	in of Custody?	Yes
#9 Any missing/extra samples?		No
#10 Chain of Custody signed when relind	quished/ received?	Yes
#11 Chain of Custody agrees with sampl	e label(s)?	Yes
#12 Container label(s) legible and intact?	?	Yes
#13 Sample matrix/ properties agree with	n 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 indicate	ed test(s)?	Yes
#18 All samples received within hold time	9?	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 HN samples for the analysis of HEM or HEM-analysts.		N/A
#22 >10 for all samples preserved with N	laAsO2+NaOH, ZnAc+NaOH?	N/A
* Must be completed for after-hours de Analyst:	livery of samples prior to placing in PH Device/Lot#:	the refrigerator
Checklist completed by:  Checklist reviewed by:	Mmy Moah Kelsey Brooks	Date: <u>04/16/2015</u>
Checklist reviewed by:	Julian Martinez	Date: 04/16/2015

# **Analytical Report 507282**

for

# Conestoga-Rovers & Associates-Albuquerque, NM

Project Manager: Bernie Bockisch Vaca 24 Federal Com #3H 088210/13 07-MAY-15

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)





07-MAY-15

Project Manager: Bernie Bockisch

Conestoga-Rovers & Associates-Albuquerque, NM

6121 Indian School Rd. NE Suite 200

Albuquerque, NM 87110

Reference: XENCO Report No(s): 507282

Vaca 24 Federal Com #3H Project Address: Lea County,NM

### Bernie Bockisch:

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) 507282. 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. 507282 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.

**Kelsey Brooks** 

Project Manager

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# **Sample Cross Reference 507282**



# Conestoga-Rovers & Associates-Albuquerque, NM, Albuque

Vaca 24 Federal Com #3H

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
SO-088210-13-042815-SP-01	S	04-28-15 15:49		507282-001
SO-088210-13-042915-SP-01	S	04-29-15 15:49		507282-002
SO-088210-13-043015-SP-01	S	04-29-15 13:28		507282-003
SO-088210-13-043015-SP-02	S	04-30-15 15:35		507282-004
SO-088210-13-043015-SP-03	S	04-30-15 15:38		507282-005
SO-088210-13-050115-SP-01	S	04-30-15 16:50		507282-006
SO-088210-13-050115-SP-02	S	05-01-15 13:10		507282-007
SO-088210-13-050115-SP-03	S	05-01-15 15:00		507282-008
SO-088210-13-050415-SP-01	S	05-04-15 12:45		507282-009
SO-088210-13-050415-SP-02	S	05-04-15 13:30		507282-010
SO-088210-13-050415-SP-03	S	05-04-15 14:50		507282-011



## **CASE NARRATIVE**



Client Name: Conestoga-Rovers & Associates-Albuquerque, NM

Project Name: Vaca 24 Federal Com #3H

 Project ID:
 088210/13
 Report Date:
 07-MAY-15

 Work Order Number(s):
 507282
 Date Received:
 05/06/2015



# **Certificate of Analysis Summary 507282**

## Conestoga-Rovers & Associates-Albuquerque, NM, Albuquerque, NM



**Project Id:** 088210/13

Project Location: Lea County,NM

Contact: Bernie Bockisch

Project Name: Vaca 24 Federal Com #3H

**Report Date:** 07-MAY-15

**Project Manager:** Kelsey Brooks

Date Received in Lab: Wed May-06-15 10:14 am

								1 Toject Ma	nager.	Neisey Drook			
	Lab Id:	507282-0	001	507282-0	02	507282-0	003	507282-0	004	507282-0	005	507282-	006
Analysis Requested	Field Id:	O-088210-13-04	2815-SP-0	SO-088210-13-042	2915-SP-0	SO-088210-13-04	3015-SP-0	SO-088210-13-04	3015-SP-08	O-088210-13-04	3015-SP-0	SO-088210-13-05	50115-SP-0
Anaiysis Kequesiea	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	_
	Sampled:	Apr-28-15	15:49	Apr-29-15 1	5:49	Apr-29-15	13:28	Apr-30-15	15:35	Apr-30-15	15:38	Apr-30-15	16:50
BTEX by EPA 8021B	Extracted:	May-06-15	17:00	May-06-15	17:00	May-06-15	17:00	May-06-15	17:00	May-06-15	17:00	May-06-15	17:00
	Analyzed:	May-07-15		May-07-15 (		May-07-15		May-07-15		May-07-15		May-07-15	
	Units/RL:	_	02.10 RL	mg/kg	RL	•	RL	-	RL	mg/kg	RL	•	RL
Benzene	Unus/KL:	mg/kg ND	0.00107		0.00112	mg/kg ND	0.00113	mg/kg ND	0.00117	ND	0.00109	mg/kg ND	0.00108
Toluene		ND	0.00214		0.00225	ND	0.00225	ND	0.00235	ND	0.00217	ND	0.00216
Ethylbenzene		ND	0.00107	ND	0.00112	ND	0.00113	ND	0.00117	ND	0.00109	ND	0.00108
m,p-Xylenes		ND	0.00214	ND	0.00225	ND	0.00225	ND	0.00235	ND	0.00217	ND	0.00216
o-Xylene		ND	0.00107	ND	0.00112	ND	0.00113	ND	0.00117	ND	0.00109	ND	0.00108
Total Xylenes		ND	0.00107	ND	0.00112	ND	0.00113	ND	0.00117	ND	0.00109	ND	0.00108
Total BTEX		ND	0.00107	ND	0.00112	ND	0.00113	ND	0.00117	ND	0.00109	ND	0.00108
Inorganic Anions by EPA 300/300.1	Extracted:	May-06-15	15:30	May-06-15	15:30	May-06-15	15:30	May-06-15	15:30	May-06-15	15:30	May-06-15	15:30
	Analyzed:	May-06-15	20:52	May-06-15 21:38 May-06-15 22:00		May-06-15 22:23		May-06-15 22:46		May-06-15 23:08			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		28.8	2.15	3.54	2.26	97.3	11.3	131	11.8	223	21.9	4.89	2.18
Percent Moisture	Extracted:												
	Analyzed:	May-07-15	12:13	May-07-15	12:13	May-07-15	12:13	May-07-15	12:13	May-07-15	12:13	May-07-15	12:13
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture	'	6.80	1.00	11.5	1.00	11.6	1.00	15.2	1.00	8.65	1.00	8.05	1.00
TPH By SW8015B Mod	Extracted:	May-06-15	17:00	May-06-15	17:00	May-06-15	17:00	May-06-15	17:00	May-06-15	17:00	May-06-15	17:00
	Analyzed:	May-06-15	20:26	May-06-15	21:28	May-06-15	21:49	May-06-15	22:09	May-06-15	22:30	May-06-15	22:52
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons	1	ND	16.1	ND	16.9	ND	16.9	ND	17.6	ND	16.4	ND	16.3
C10-C28 Diesel Range Hydrocarbons		ND	16.1	ND	16.9	ND	16.9	ND	17.6	ND	16.4	ND	16.3
Total TPH		ND	16.1	ND	16.9	ND	16.9	ND	17.6	ND	16.4	ND	16.3

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed 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 liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager



# **Certificate of Analysis Summary 507282**

## Conestoga-Rovers & Associates-Albuquerque, NM, Albuquerque, NM



**Project Id:** 088210/13

Project Location: Lea County,NM

Contact: Bernie Bockisch

Project Name: Vaca 24 Federal Com #3H

**Report Date:** 07-MAY-15

Project Manager: Kelsey Brooks

Date Received in Lab: Wed May-06-15 10:14 am

Analysis Requested	Lab Id: Field Id:	507282-0	007	507282-0	08	507282-0	100	507282-0	10	507202 A		
Analysis Requested	Field Id:				۱ ا	301202-0	109	307282-0	110	507282-0	111	
Anaiysis Kequesiea	1 1014 14.	SO-088210-13-05	0115-SP-0	SO-088210-13-050	)115-SP-0	O-088210-13-05	0415-SP-0	SO-088210-13-050	0415-SP-0	O-088210-13-050	0415-SP-0	
4	Depth:											
	Matrix:	SOIL	,	SOIL		SOIL		SOIL		SOIL		
	Sampled:	May-01-15	13:10	May-01-15 1	15:00	May-04-15	12:45	May-04-15	13:30	May-04-15	14:50	
BTEX by EPA 8021B	Extracted:	May-06-15	17:00	May-06-15 1	17:00	May-06-15	17:00	May-06-15	17:00	May-06-15	17:00	
	Analyzed:	May-07-15	03:53	May-07-15 (	04:10	May-07-15	04:26	May-07-15	04:43	May-07-15 (	04:59	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Benzene		ND	0.00108	ND	0.00106	ND	0.00111	ND	0.00114	ND	0.00110	
Toluene		ND	0.00216	ND	0.00212	ND	0.00222	ND	0.00228	ND	0.00220	
Ethylbenzene		ND	0.00108		0.00106	ND	0.00111	ND	0.00114	ND	0.00110	
m,p-Xylenes		ND	0.00216	ND	0.00212	ND	0.00222	ND	0.00228	ND	0.00220	
o-Xylene		ND	0.00108		0.00106	ND	0.00111	ND	0.00114	ND	0.00110	
Total Xylenes		ND	0.00108		0.00106	ND	0.00111	ND	0.00114	ND	0.00110	
Total BTEX		ND	0.00108	ND	0.00106	ND	0.00111	ND	0.00114	ND	0.00110	
Inorganic Anions by EPA 300/300.1	Extracted:	May-06-15	15:30	May-06-15 1	15:30	May-06-15	15:30	May-06-15	15:30	May-06-15	15:30	
	Analyzed:	May-07-15	00:16	May-07-15 (	00:39	May-07-15	01:02	May-07-15	01:24	May-07-15 (	01:47	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Chloride		11.3	2.18	3.78	2.12	6.04	2.22	12.1	2.29	ND	2.22	
Percent Moisture	Extracted:											
	Analyzed:	May-07-15	12:13	May-07-15 1	12:13	May-07-15	12:13	May-07-15	12:13	May-07-15	12:13	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	
Percent Moisture		8.09	1.00	5.87	1.00	9.91	1.00	12.5	1.00	9.80	1.00	
TPH By SW8015B Mod	Extracted:	May-06-15	17:00	May-06-15 1	17:00	May-06-15	17:00	May-06-15	17:00	May-06-15	17:00	
	Analyzed:	May-06-15	23:13	May-06-15 2	23:33	May-06-15	23:55	May-07-15	00:15	May-07-15 (	01:17	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
C6-C10 Gasoline Range Hydrocarbons		ND	16.3	ND	15.9	ND	16.6	ND	17.1	ND	16.6	
C10-C28 Diesel Range Hydrocarbons		ND	16.3	ND	15.9	ND	16.6	ND	17.1	ND	16.6	
Total TPH		ND	16.3	ND	15.9	ND	16.6	ND	17.1	ND	16.6	

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 liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager



# 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

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

PQL Practical Quantitation Limit MQL 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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# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders :** 507282, **Project ID:** 088210/13

**Lab Batch #:** 967570 **Sample:** 507282-001 / SMP **Batch:** 1 **Matrix:** Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/06/15 20:26	SU	RROGATE RE	ECOVERY S	STUDY	
	TPH 1	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	ane	Tananay voo	108	99.8	108	70-135	
o-Terphenyl	1		51.0	49.9	102	70-135	

**Lab Batch #:** 967570 **Sample:** 507282-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg Date Analyzed: 05/06/15 21:28 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.9	99.6	100	70-135	
o-Terphenyl	45.6	49.8	92	70-135	

**Lab Batch #:** 967570 **Sample:** 507282-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg Date Analyzed: 05/06/15 21:49 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.1	99.6	96	70-135	
o-Terphenyl	44.3	49.8	89	70-135	

**Lab Batch #:** 967570 **Sample:** 507282-004 / SMP **Batch:** 1 **Matrix:** Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/06/15 22:09	SURROGATE RECOVERY STUDY							
	TPH	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1-Chlorooc	tane		96.4	99.8	97	70-135				
o-Terpheny	1		43.6	49.9	87	70-135				

Lab Batch #: 967570 Sample: 507282-005 / SMP Batch: 1 Matrix: Soil

<b>Units:</b>	mg/kg	<b>Date Analyzed:</b> 05/06/15 22:30	SURROGATE RECOVERY STUDY						
	TPH 1	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooct	ane		98.5	99.8	99	70-135			
o-Terpheny	1		44.6	49.9	89	70-135			

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders :** 507282, **Project ID:** 088210/13

**Lab Batch #:** 967570 **Sample:** 507282-006 / SMP **Batch:** 1 **Matrix:** Soil

Data Amalamada 05/06/15 22:52

<b>Units:</b> mg/kg <b>Date Analyzed:</b> 05/06/15 22:52	SURROGATE RECOVERY STUDY						
TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
Analytes			[D]				
1-Chlorooctane	111	99.8	111	70-135			
o-Terphenyl	50.3	49.9	101	70-135			

Lab Batch #: 967570 Sample: 507282-007 / SMP Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 05/06/15 23:13 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	48.1	50.0	96	70-135	

**Lab Batch #:** 967570 **Sample:** 507282-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg Date Analyzed: 05/06/15 23:33 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	99.7	102	70-135	
o-Terphenyl	46.5	49.9	93	70-135	

Lab Batch #: 967570 Sample: 507282-009 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/06/15 23:55 SURROGATE RECOVERY STUDY Amount True Control TPH By SW8015B Mod Found Amount Recovery Limits **Flags** [B] %R %R [A] [D] **Analytes** 1-Chlorooctane 99.7 107 107 70-135 o-Terphenyl 49.4 49.9 99 70-135

Lab Batch #: 967570 Sample: 507282-010 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/07/15 00:15 SURROGATE RECOVERY STUDY Amount True Control TPH By SW8015B Mod **Found** Amount Recovery Limits Flags [A] [B] %R %R [D]**Analytes** 1-Chlorooctane 103 99.8 103 70-135 o-Terphenyl 46.7 49.9 94 70-135

Surrogate Recovery [D] = 100 \* A / B

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

Work Orders: 507282, **Project ID:** 088210/13

**Lab Batch #:** 967570 Matrix: Soil Sample: 507282-011 / SMP Batch:

Units:	mg/kg	<b>Date Analyzed:</b> 05/07/15 01:17	SURROGATE RECOVERY STUDY					
	TPH 1	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chloroocta	ane	Analytes	96.3	99.9	96	70-135		
o-Terphenyl			43.0	50.0	86	70-135		

**Lab Batch #:** 967568 Sample: 507282-001 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/07/15 02:16 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Flags Found Limits Amount Recovery [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0296 0.0300 99 80-120 4-Bromofluorobenzene 0.0311 0.0300 104 80-120

Lab Batch #: 967568 Sample: 507282-002 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/07/15 02:32 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0311	0.0300	104	80-120	

Sample: 507282-003 / SMP **Lab Batch #:** 967568 Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/07/15 02:47	SURROGATE RECOVERY STUDY					
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluor	robenzene	Time y ees	0.0288	0.0300	96	80-120		
4-Bromoflu	uorobenzene		0.0308	0.0300	103	80-120		

**Lab Batch #:** 967568 Sample: 507282-004 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/07/15 03:04	SURROGATE RECOVERY STUDY					
	вте	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluoro	benzene		0.0291	0.0300	97	80-120		
4-Bromofluo	orobenzene		0.0305	0.0300	102	80-120		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507282, **Project ID:** 088210/13

**Lab Batch #:** 967568 **Sample:** 507282-005 / SMP **Batch:** 1 **Matrix:** Soil

Data Amalamada 05/07/15 02:20

Units: mg/kg Date Analyzed: 05/07/15 03:20 SURROGATE RECOVERY STUDY								
BTEX by E	CPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
Anal	ytes			[D]				
1,4-Difluorobenzene		0.0293	0.0300	98	80-120			
4-Bromofluorobenzene		0.0313	0.0300	104	80-120			

Lab Batch #: 967568Sample: 507282-006 / SMPBatch: 1Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/07/15 03:37 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0288 0.0300 96 80-120 4-Bromofluorobenzene 0.0311 0.0300 104 80-120

Units: mg/kg Date Analyzed: 05/07/15 03:53 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0312	0.0300	104	80-120	

Units:	mg/kg	<b>Date Analyzed:</b> 05/07/15 04:10	SURROGATE RECOVERY STUDY						
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluor	robenzene	Analytes	0.0284	0.0300	95	80-120			
4-Bromoflu	uorobenzene		0.0305	0.0300	102	80-120			

Units:	mg/kg	<b>Date Analyzed:</b> 05/07/15 04:26	SURROGATE RECOVERY STUDY					
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluoro	benzene	•	0.0291	0.0300	97	80-120		
4-Bromofluc	orobenzene		0.0312	0.0300	104	80-120		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

Work Orders: 507282, **Project ID:** 088210/13

**Lab Batch #:** 967568 Matrix: Soil Sample: 507282-010 / SMP Batch:

Units:	mg/kg	<b>Date Analyzed:</b> 05/07/15 04:43	SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B  Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluoro	obenzene		0.0284	0.0300	95	80-120		
4-Bromoflu	orobenzene		0.0300	0.0300	100	80-120		

**Lab Batch #:** 967568 Sample: 507282-011 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/07/15 04:59 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Flags Found Limits Amount Recovery [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0294 0.0300 98 80-120 4-Bromofluorobenzene 0.0315 0.0300 80-120 105

Lab Batch #: 967570 Sample: 692216-1-BLK / BLK Batch: Matrix: Solid

**Units:** mg/kg Date Analyzed: 05/06/15 19:23 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	50.6	50.0	101	70-135	

**Sample:** 692214-1-BLK / BLK **Lab Batch #:** 967568 Batch: 1 Matrix: Solid

**Units:** Date Analyzed: 05/07/15 00:38 mg/kg SURROGATE RECOVERY STUDY Amount True Control BTEX by EPA 8021B Found Amount Recovery Limits **Flags** [B] %R %R [A] [D] **Analytes** 1,4-Difluorobenzene 0.0281 0.0300 94 80-120 4-Bromofluorobenzene 0.0295 0.0300 98 80-120

Lab Batch #: 967570 Sample: 692216-1-BKS / BKS Batch: Matrix: Solid

Units: mg/kg Date Analyzed: 05/06/15 19:44 SURROGATE RECOVERY STUDY							
	TPH By SW8015B Mod			True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes	[A]		[D]		
1-Chlorooct	ane		118	100	118	70-135	
o-Terphenyl			58.7	50.0	117	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

Work Orders: 507282, **Project ID:** 088210/13

**Lab Batch #: 967568** Matrix: Solid **Sample:** 692214-1-BKS / BKS Batch: 1

Units:	mg/kg	<b>Date Analyzed:</b> 05/07/15 00:55	SURROGATE RECOVERY STUDY									
	вте	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags					
		Analytes			[D]							
1,4-Difluorobenzene		0.0304	0.0300	101	80-120							
4-Bromofluorobenzene			0.0305	0.0300	102	80-120						

**Lab Batch #:** 967570 **Sample:** 692216-1-BSD / BSD Batch: 1 Matrix: Solid

**Units:** mg/kg Date Analyzed: 05/06/15 20:05 SURROGATE RECOVERY STUDY **Amount** True Control TPH By SW8015B Mod Found Limits Flags Amount Recovery [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 122 100 122 70-135 o-Terphenyl 59.7 50.0 119 70-135

Lab Batch #: 967568 Sample: 692214-1-BSD / BSD Matrix: Solid Batch: 1

**Units:** mg/kg Date Analyzed: 05/07/15 01:11 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

**Lab Batch #:** 967570 **Sample:** 507282-001 S / MS Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/06/15 20:47	SURROGATE RECOVERY STUDY										
	ТРН	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery Limits %R [D]		Flags						
1-Chlorooct	tane		125	99.7	125	70-135							
o-Terpheny	1		61.8	49.9	124	70-135							

**Lab Batch #:** 967568 Sample: 507282-001 S / MS Batch: Matrix: Soil

Units: mg/kg Date Analyzed: 05/07/15 01:26 SURROGATE RECOVERY STUDY									
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluor	obenzene		0.0306	0.0300	102	80-120			
4-Bromoflu	orobenzene		0.0316	0.0300	105	80-120			

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507282, **Project ID:** 088210/13

**Lab Batch #:** 967570 **Sample:** 507282-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/06/15 21:07	SURROGATE RECOVERY STUDY									
	TPH 1	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags					
		Analytes			[							
1-Chloroocta	ane		122	99.9	122	70-135						
o-Terphenyl			58.5	50.0	117	70-135						

<b>Units:</b> mg/kg <b>Date Analyzed:</b> 05/07/15 01:4	<sup>13</sup> SU	JRROGATE RI	ECOVERY S	STUDY	
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1,4-Difluorobenzene	0.0310	0.0300	103	80-120	
4-Bromofluorobenzene	0.0325	0.0300	108	80-120	

Surrogate Recovery [D] = 100 \* A / B

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



## **BS / BSD Recoveries**



Project Name: Vaca 24 Federal Com #3H

Work Order #: 507282 Project ID: 088210/13

Analyst: ARM Date Prepared: 05/06/2015 Date Analyzed: 05/07/2015

Lab Batch ID: 967568Sample: 692214-1-BKSBatch #: 1Matrix: Solid

## Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[2]	[0]	[2]	[12]	result [1]	[0]				
Benzene	< 0.00100	0.100	0.0971	97	0.100	0.0991	99	2	70-130	35	
Toluene	< 0.00200	0.100	0.101	101	0.100	0.103	103	2	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.105	105	0.100	0.108	108	3	71-129	35	
m,p-Xylenes	< 0.00200	0.200	0.212	106	0.200	0.216	108	2	70-135	35	
o-Xylene	< 0.00100	0.100	0.105	105	0.100	0.107	107	2	71-133	35	

Analyst: JUM Date Prepared: 05/06/2015 Date Analyzed: 05/06/2015

Lab Batch ID: 967583 Sample: 692206-1-BKS Batch #: 1 Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1  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
Chloride	<2.00	50.0	50.4	101	50.0	50.4	101	0	90-110	20	

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



## **BS / BSD Recoveries**



Project Name: Vaca 24 Federal Com #3H

Work Order #: 507282 Project ID: 088210/13

 Analyst:
 ARM
 Date Prepared: 05/06/2015
 Date Analyzed: 05/06/2015

Lab Batch ID: 967570Sample: 692216-1-BKSBatch #: 1Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B 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 %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	928	93	1000	972	97	5	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	998	100	1000	1030	103	3	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



# Form 3 - MS Recoveries



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507282

**Lab Batch #:** 967583 **Project ID:** 088210/13

 Date Analyzed:
 05/06/2015
 Date Prepared: 05/06/2015
 Analyst: JUM

 QC- Sample ID:
 507282-001 S
 Batch #: 1
 Matrix: Soil

Reporting Units: mg/kg

Reporting Units: mg/kg	MATRIX / MATRIX SPIKE RECOVERY STUDY							
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag		
Chloride	28.8	53.6	76.4	89	80-120			

**Lab Batch #:** 967583

 Date Analyzed:
 05/07/2015
 Date Prepared: 05/06/2015
 Analyst: JUM

 QC- Sample ID:
 507282-011 S
 Batch #: 1
 Matrix: Soil

**Reporting Units:** mg/kg

keporting Units: mg/kg	MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]				
Chloride	<2.22	55.4	60.5	109	80-120	

Matrix Spike Percent Recovery [D] = 100\*(C-A)/BRelative 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 - MS / MSD Recoveries



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507282 **Project ID:** 088210/13

**Lab Batch ID:** 967568 **QC- Sample ID:** 507282-001 S **Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 05/07/2015 **Date Prepared:** 05/06/2015 **Analyst:** ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	< 0.00107	0.107	0.101	94	0.107	0.101	94	0	70-130	35	
Toluene	< 0.00215	0.107	0.105	98	0.107	0.105	98	0	70-130	35	
Ethylbenzene	< 0.00107	0.107	0.109	102	0.107	0.109	102	0	71-129	35	
m,p-Xylenes	< 0.00215	0.215	0.217	101	0.215	0.218	101	0	70-135	35	
o-Xylene	< 0.00107	0.107	0.108	101	0.107	0.108	101	0	71-133	35	

**Lab Batch ID:** 967570 **QC- Sample ID:** 507282-001 S **Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 05/06/2015 **Date Prepared:** 05/06/2015 **Analyst:** ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<16.0	1070	1030	96	1070	1020	95	1	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<16.0	1070	1140	107	1070	1080	101	5	70-135	35	

Final 1.000



# **Sample Duplicate Recovery**



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507282

**Lab Batch #:** 967586 **Project ID:** 088210/13

 Date Analyzed:
 05/07/2015 12:13
 Date Prepared:
 05/07/2015
 Analyst:
 WRU

 QC- Sample ID:
 507282-001 D
 Batch #:
 1
 Matrix:
 Soil

| SAMPLE / SAMPLE DIDLICATE DECOVERY

Reporting Units: %	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	6.80	6.44	5	20	

**Lab Batch #:** 967586

 Date Analyzed:
 05/07/2015 12:13
 Date Prepared:
 05/07/2015
 Analyst:
 WRU

 QC- Sample ID:
 507282-011 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	9.80	9.95	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



# CHAIN OF CUSTODY RECORD Address: 1621 Trollian School Roll NE Sto 200, Albuquerque

Phone: 505-884-0672

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(See Reverse Side for Instructions)

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	Alwa May	RELINQUISHED BY	1 Day □ 2 Days □ 3 Days □ 1 Week	TAT Required in business days (use separate COCs for different TATs):	The state of	odin on Light Indiament a resident gla	anyoths yaparas		10	5-088210-13-050415-50-02	5-288210-13-050415-5P-0(	5-0882/0-13-050115-5P-03	-088210-13-DS0115-5P-02	5-088210-13-050115-58-01	5-088210-13-043015 SP-03	5-088210-13-043915-51-02	5-088210-13-043015-50-01	5-088210-13-042915-SP.O.	5-088210-13-042815-SP-01	SAMPLE IDENTIFICATION (Containers for each sample may be combined on one line)	Stave Perez Sparez	mistine Wichews	Project Location: Lea County, New Mexico	Vaca 24 Federal Om #34	Project No/ Phase/Task Code: 088210/13
	ChH	COMPANY	☐ 2 Week ☐ Other:	e COCs for differen	1 4. July 1	THE PARTY OF THE P		01/10	2 5/1/2	1/4/2	5/4/5	5/01/18	- 5/01/15	05/61/65	S/10E/B	2 4/30/15	1 4/2/15	1/29/	4/28/15	DATE (mm/dd//yy)	Sperez@craworld.com	cmathews @ craworld. com	xico	J+8	6 5
4	2 St		er:	tTATs):		4.	3		1450	05.2/	1242	1500	1310	1225	1650	1538	1535	1328	1549	TIME (hh:mm)	3	WOJ			
	21/2	DATE							<	-								_	0 8		Code ack of C G) or Co	10000	SAMPLE Type	Lab Contact:	Laboratory Name:
Sal	2,0/5	TIME	All Samples	Total		Y Va			<u> </u>					2							erved hloric Ad		CON	6	ry Name:
ω	2 1.	111	All Samples in Cooler must be on COC	Total Number of Containers:									10							Sodium (NaOH)	Acid (H Hydrox ol/Water	ide	CONTAINER QUANTITY PRESERVATION	Brooks	Labs-
	1	RECEIVED BY	ust be on CO	ontainers:	149			<							Lab Pa				X	VOC) EnCore	s 3x5-g,	1x25-g	JANTITY &		Messa
	**Arthurson of the Control of the Co	ED BY	(a)	Notes/ Sp		R		<											×××	Total C	ontainer  Note:  Sol	300 5689/4	A) (See !	Lab Quote No:	Lab Loca
50.				Notes/ Special Requirements:	j	P (Ha						i la					No.						ANALYSIS REQUESTED  e Back of COC for Definitio	e No:	Lab Location:
	WILCO	COMPANY		rements:														2		1			ANALYSIS REQUESTED See Back of COC for Definitions)		Texas
101							24						19							MS/MSI	D Reque	st	8)		
	SIIDG	- DATE				House I						DIENE	STEELE STEELE						HE CIRIL	COMMENTS/ SPECIAL INSTRUCTIONS:	S/S/15	Airbill No:	Carries:	Cooler No:	SSOW ID:
	10/4	TIME			3	5			713				AK.IAI	ž				7		ENTS/ TRUCTIONS:					
					-								Pag	e 20	of 2	1					Fina	al 1.000			

PINK - Shipper



# XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: Conestoga-Rovers & Associates-Albuqu

Date/ Time Received: 05/06/2015 10:14:00 AM

Work Order #: 507282

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

	Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?		3
#2 *Shipping container in good condition	?	Yes
#3 *Samples received on ice?		Yes
#4 *Custody Seals intact on shipping cor	ntainer/ cooler?	N/A
#5 Custody Seals intact on sample bottle	es?	N/A
#6 *Custody Seals Signed and dated?		N/A
#7 *Chain of Custody present?		Yes
#8 Sample instructions complete on Cha	in of Custody?	Yes
#9 Any missing/extra samples?		No
#10 Chain of Custody signed when relind	quished/ received?	Yes
#11 Chain of Custody agrees with sampl	e label(s)?	Yes
#12 Container label(s) legible and intact?	?	Yes
#13 Sample matrix/ properties agree with	n 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 indicate	ed test(s)?	Yes
#18 All samples received within hold time	e?	Yes
#19 Subcontract of sample(s)?		No
#20 VOC samples have zero headspace	•	N/A
#21 <2 for all samples preserved with HN samples for the analysis of HEM or HEM-analysts.		N/A
#22 >10 for all samples preserved with N	laAsO2+NaOH, ZnAc+NaOH?	N/A
* Must be completed for after-hours de Analyst:	PH Device/Lot#:	the refrigerator
Checklist completed by:  Checklist reviewed by:	Mury Moah  Kelsey Brooks	Date: 05/06/2015
Checklist reviewed by:	Julian Martinez	Date: <u>05/06/2015</u>

# **Analytical Report 507692**

for

# Conestoga-Rovers & Associates-Albuquerque, NM

Project Manager: Bernie Bockisch Vaca 24 Federal Com #3H 088210/13 14-MAY-15

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)





14-MAY-15

Project Manager: Bernie Bockisch

Conestoga-Rovers & Associates-Albuquerque, NM

6121 Indian School Rd. NE Suite 200

Albuquerque, NM 87110

Reference: XENCO Report No(s): 507692

Vaca 24 Federal Com #3H Project Address: Lea County,NM

### Bernie Bockisch:

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) 507692. 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. 507692 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.

**Kelsey Brooks** 

Project Manager

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# **Sample Cross Reference 507692**



# Conestoga-Rovers & Associates-Albuquerque, NM, Albuque

Vaca 24 Federal Com #3H

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
SO-088210-13-051115-SP-01	S	05-11-15 12:32		507692-001
SO-088210-13-051115-SP-02	S	05-11-15 13:49		507692-002
SO-088210-13-051115-SP-03	S	05-11-15 15:16		507692-003
SO-088210-13-051115-SP-04	S	05-11-15 15:53		507692-004
SO-088210-13-051115-SP-05	S	05-11-15 16:17		507692-005
SO-088210-13-051115-SP-06	S	05-11-15 17:05		507692-006
SO-088210-13-051115-SP-07	S	05-11-15 17:07		507692-007
SO-088210-13-051115-SP-08	S	05-11-15 17:09		507692-008



## **CASE NARRATIVE**



Client Name: Conestoga-Rovers & Associates-Albuquerque, NM

Project Name: Vaca 24 Federal Com #3H

 Project ID:
 088210/13
 Report Date:
 14-MAY-15

 Work Order Number(s):
 507692
 Date Received:
 05/13/2015



# Certificate of Analysis Summary 507692

## Conestoga-Rovers & Associates-Albuquerque, NM, Albuquerque, NM



**Project Id:** 088210/13

Project Name: Vaca 24 Federal Com #3H Contact: Bernie Bockisch

Project Location: Lea County,NM

**Date Received in Lab:** Wed May-13-15 11:00 am

**Report Date:** 14-MAY-15

Project Manager: Kelsey Brooks

										reisej Brook			
	Lab Id:	507692-0	001	507692-0	02	507692-0	003	507692-0	004	507692-0	005	507692-	006
Analysis Paguastad	Field Id:	SO-088210-13-05	1115-SP-0	SO-088210-13-05	1115-SP-0	O-088210-13-05	1115-SP-0	O-088210-13-05	1115-SP-0	O-088210-13-05	1115-SP-0	SO-088210-13-0	51115-SP-0
Analysis Requested	Depth:												
	Matrix:	SOIL	ı	SOIL		SOIL	,	SOIL		SOIL		SOIL	_
	Sampled:	May-11-15	12:32	May-11-15	13:49	May-11-15	15:16	May-11-15	15:53	May-11-15	16:17	May-11-15	17:05
BTEX by EPA 8021B	Extracted:	May-13-15	15:00	May-13-15	15:00	May-13-15	15:00	May-13-15 15:00		May-13-15	15:00	May-13-15	15:00
	Analyzed:	May-13-15	18:25	May-13-15	18:42	May-13-15	18:58	May-13-15	19:14	May-13-15	19:31	May-13-15	19:47
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00104	ND	0.00105	ND	0.00104	ND	0.00120	ND	0.00111	ND	0.00117
Toluene		ND	0.00209	ND	0.00210	ND	0.00208	ND	0.00239	ND	0.00222	ND	0.00235
Ethylbenzene		ND	0.00104	ND	0.00105	ND	0.00104	ND	0.00120	ND	0.00111	ND	0.00117
m,p-Xylenes		ND	0.00209	ND	0.00210	ND	0.00208	ND	0.00239	ND	0.00222	ND	0.00235
o-Xylene		ND	0.00104	ND	0.00105	ND	0.00104	ND	0.00120	ND	0.00111	ND	0.00117
Total Xylenes		ND	0.00104	ND	0.00105	ND	0.00104	ND	0.00120	ND	0.00111	ND	0.00117
Total BTEX		ND	0.00104	ND	0.00105	ND	0.00104	ND	0.00120	ND	0.00111	ND	0.00117
Inorganic Anions by EPA 300/300.1 Extracted		May-13-15 16:00		May-13-15 16:00		May-13-15	16:00	May-13-15	16:00	May-13-15	16:00	May-13-15	16:00
	Analyzed:	May-13-15	18:36	May-13-15	18:59	May-13-15	19:23	May-13-15	19:46	May-13-15	20:08	May-13-15	21:16
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		24.3	10.5	2.36	2.11	6.51	2.09	12300	481	6250	447	8880	470
Percent Moisture	Extracted:												
	Analyzed:	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		4.58	1.00	5.22	1.00	4.26	1.00	16.9	1.00	10.4	1.00	14.9	1.00
TPH By SW8015B Mod	Extracted:	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00
	Analyzed:	May-13-15	16:46	May-13-15	17:52	May-13-15	18:14	May-13-15	18:36	May-13-15	18:57	May-13-15	19:19
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		ND	15.7	ND	15.8	ND	15.6	ND	18.0	ND	16.7	ND	17.6
C10-C28 Diesel Range Hydrocarbons		ND	15.7	ND	15.8	ND	15.6	ND	18.0	ND	16.7	117	17.6
Total TPH		ND	15.7	ND	15.8	ND	15.6	ND	18.0	ND	16.7	117	17.6

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 liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager



# Certificate of Analysis Summary 507692

## Conestoga-Rovers & Associates-Albuquerque, NM, Albuquerque, NM



**Project Id:** 088210/13

Project Location: Lea County,NM

Contact: Bernie Bockisch

Project Name: Vaca 24 Federal Com #3H

**Date Received in Lab:** Wed May-13-15 11:00 am

**Report Date:** 14-MAY-15

**Project Manager:** Kelsey Brooks

Lab Id:   507692-007   507692-008   Field Id:   50-088210-13-051115-SP-0   S0-088210-13-051115-SP-0   Depth:   Matrix:   SOIL   SOIL	
Depth:   Matrix:   SOIL   So	
Matrix:   SOIL   SOIL   SOIL   SOIL   SOIL   SOIL   SOIL   SOIL   May-11-15 17:07   May-11-15 17:09	
BTEX by EPA 8021B	
BTEX by EPA 8021B	
Analyzed:   May-13-15 20:04   May-13-15 20:20     May-13-15 20:20     May-13-15 20:20     May-13-15 20:20     May-13-15 20:20     May-13-15 20:20     May-13-15 20:20   May-	
Analyzed:   May-13-15 20:04   May-13-15 20:20     May-13-15 20:20     May-13-15 20:20     May-13-15 20:20     May-13-15 20:20     May-13-15 20:20     May-13-15 20:20   May-	
Benzene	
ND   0.00115   ND   0.00104	
Ethylbenzene ND 0.00115 ND 0.00104 m,p-Xylenes ND 0.00231 ND 0.00208 o-Xylene ND 0.00115 ND 0.00104 Total Xylenes ND 0.00115 ND 0.00104 Total BTEX ND 0.00115 ND 0.00104 Inorganic Anions by EPA 300/300.1 Extracted: May-13-15 16:00 May-13-15 16:00	
ND   0.00231   ND   0.00208	
o-Xylene         ND         0.00115         ND         0.00104           Total Xylenes         ND         0.00115         ND         0.00104           Total BTEX         ND         0.00115         ND         0.00104           Inorganic Anions by EPA 300/300.1         Extracted:         May-13-15 16:00         May-13-15 16:00	
Total Xylenes	
Total BTEX ND 0.00115 ND 0.00104  Inorganic Anions by EPA 300/300.1 Extracted: May-13-15 16:00 May-13-15 16:00	
Inorganic Anions by EPA 300/300.1	
Analyzed: May-13-15 21:39 May-13-15 22:02	
Units/RL: mg/kg RL mg/kg RL	
Chloride 9030 463 13.1 2.09	
Percent Moisture Extracted:	
Analyzed: May-13-15 18:30 May-13-15 18:30	
Units/RL: % RL % RL	
Percent Moisture 13.5 1.00 4.40 1.00	
TPH By SW8015B Mod	
Analyzed: May-13-15 19:40 May-13-15 20:01	
Units/RL: mg/kg RL mg/kg RL	
C6-C10 Gasoline Range Hydrocarbons ND 17.3 ND 15.7	
C10-C28 Diesel Range Hydrocarbons 19.5 17.3 ND 15.7	-
Total TPH 19.5 17.3 ND 15.7	

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 liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager



# 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

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

PQL Practical Quantitation Limit MQL 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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9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
6017 Financial Drive, Norcross, GA 30071	(770) 449-8800	(770) 449-5477
3725 E. Atlanta Ave, Phoenix, AZ 85040	(602) 437-0330	



o-Terphenyl

# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders**: 507692, **Project ID**: 088210/13

**Lab Batch #:** 968082 **Sample:** 507692-001 / SMP **Batch:** 1 **Matrix:** Soil

Data Amalamada 05/12/15 16:46

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 16:46	SU	RROGATE RE	ECOVERY S	STUDY	
	ТРН В	y SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chloroocta	nne		126	99.9	126	70-135	
o-Terphenyl			58.7	50.0	117	70-135	

**Units:** mg/kg **Date Analyzed:** 05/13/15 17:52 SURROGATE RECOVERY STUDY **Amount** True Control TPH By SW8015B Mod Found Limits Flags Amount Recovery [A] [B] %R %R **Analytes** [D] 1-Chlorooctane 103 99.7 103 70-135

47.4

49.9

95

70-135

Units: mg/kg Date Analyzed: 05/13/15 18:14 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	99.8	105	70-135	
o-Terphenyl	47.9	49.9	96	70-135	

Lab Batch #: 968080Sample: 507692-001 / SMPBatch: 1Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 18:25	SURROGATE RECOVERY STUDY					
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1.4-Difluor	robenzene	Analytes	0.0303	0.0300	101	80-120		
4-Bromoflu	uorobenzene		0.0308	0.0300	103	80-120		

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 18:36	SURROGATE RECOVERY STUDY					
	TPH 1	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooct	ane		106	99.8	106	70-135		
o-Terpheny	1		49.6	49.9	99	70-135		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



o-Terphenyl

# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507692, **Project ID:** 088210/13

**Lab Batch #:** 968080 **Sample:** 507692-002 / SMP **Batch:** 1 **Matrix:** Soil

Data Amalamada 05/12/15 10:42

<b>Units:</b> mg/kg <b>Date Analyzed:</b> 05/13/15 18:42	SU	SURROGATE RECOVERY STUDY							
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
Analytes			[D]						
1,4-Difluorobenzene	0.0299	0.0300	100	80-120					
4-Bromofluorobenzene	0.0311	0.0300	104	80-120					

Lab Batch #: 968082Sample: 507692-005 / SMPBatch: 1Matrix: Soil

**Units:** mg/kg **Date Analyzed:** 05/13/15 18:57 SURROGATE RECOVERY STUDY **Amount** True Control TPH By SW8015B Mod Found Limits Flags Amount Recovery [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 109 99.8 109 70-135

50.8

49.9

102

70-135

Units: mg/kg Date Analyzed: 05/13/15 18:58 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0306	0.0300	102	80-120	
4-Bromofluorobenzene	0.0314	0.0300	105	80-120	

Lab Batch #: 968080 Sample: 507692-004 / SMP Batch: 1 Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 19:14	SURROGATE RECOVERY STUDY					
	вте	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
		Analytes			[D]			
1,4-Difluor	robenzene		0.0293	0.0300	98	80-120		
4-Bromoflu	uorobenzene		0.0317	0.0300	106	80-120		

<b>Units:</b>	mg/kg	<b>Date Analyzed:</b> 05/13/15 19:19	SURROGATE RECOVERY STUDY					
	TPH 1	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooc	tane	<del>-</del>	109	99.6	109	70-135		
o-Terpheny	1		51.4	49.8	103	70-135		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



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## Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507692, **Project ID:** 088210/13

**Lab Batch #:** 968080 **Sample:** 507692-005 / SMP **Batch:** 1 **Matrix:** Soil

Data Amalamada 05/12/15 10:21

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 19:31	SURROGATE RECOVERY STUDY						
BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]				
1,4-Difluorobenzene			0.0304	0.0300	101	80-120			
4-Bromofluor	robenzene		0.0321	0.0300	107	80-120			

**Lab Batch #:** 968082 **Sample:** 507692-007 / SMP **Batch:** 1 **Matrix:** Soil

**Units:** mg/kg Date Analyzed: 05/13/15 19:40 SURROGATE RECOVERY STUDY **Amount** True Control TPH By SW8015B Mod Found Limits Amount Recovery Flags [A] [B] %R %R [D]

Units: mg/kg Date Analyzed: 05/13/15 19:47 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0325	0.0300	108	80-120	

Lab Batch #: 968082 Sample: 507692-008 / SMP Batch: 1 Matrix: Soil

Units: Date Analyzed: 05/13/15 20:01 SURROGATE RECOVERY STUDY mg/kg Amount True Control TPH By SW8015B Mod Found Amount Recovery Limits **Flags** [B] %R %R [A] [D] **Analytes** 1-Chlorooctane 103 99.9 103 70-135 o-Terphenyl 47.1 50.0 94 70-135

**Units:** mg/kg Date Analyzed: 05/13/15 20:04 SURROGATE RECOVERY STUDY Amount True Control BTEX by EPA 8021B **Found** Amount Recovery Limits Flags [A] [B] %R %R [D]**Analytes** 1,4-Difluorobenzene 0.0294 0.0300 98 80-120 4-Bromofluorobenzene 0.0307 0.0300 102 80-120

Surrogate Recovery [D] = 100 \* A / B

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



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# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders**: 507692, **Project ID**: 088210/13

**Lab Batch #:** 968080 **Sample:** 507692-008 / SMP **Batch:** 1 **Matrix:** Soil

Data Amalamada 05/12/15 20:20

Units: mg/kg	Date Analyzed: 05/13/15 20:20	SURROGATE RECOVERY STUDY						
BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
An	alytes			[D]				
1,4-Difluorobenzene	0.0300	0.0300	100	80-120				
4-Bromofluorobenzene		0.0309	0.0300	103	80-120			

Lab Batch #: 968082 Sample: 692539-1-BLK / BLK Batch: 1 Matrix: Solid

Units: mg/kg Date Analyzed: 05/13/15 15:42 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Amount Found Amount Recovery Limits Fla

Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 100 116 70-135 116 o-Terphenyl 55.5 50.0 111 70-135

Lab Batch #: 968080 Sample: 692535-1-BLK / BLK Batch: 1 Matrix: Solid

Units: mg/kg Date Analyzed: 05/13/15 16:46 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	80-120	
4-Bromofluorobenzene	0.0297	0.0300	99	80-120	

Lab Batch #: 968082 Sample: 692539-1-BKS / BKS Batch: 1 Matrix: Solid

Units: Date Analyzed: 05/13/15 16:03 mg/kg SURROGATE RECOVERY STUDY Amount True Control TPH By SW8015B Mod Found Amount Recovery Limits **Flags** [B] %R %R [A] [D] **Analytes** 1-Chlorooctane 130 130 100 70-135

60.6

50.0

Lab Batch #: 968080Sample: 692535-1-BKS / BKSBatch: 1Matrix: Solid

**Units:** mg/kg Date Analyzed: 05/13/15 17:03 SURROGATE RECOVERY STUDY Amount True Control BTEX by EPA 8021B **Found** Amount Recovery Limits Flags [A] [B] %R %R [D]**Analytes** 1,4-Difluorobenzene 0.0322 0.0300 107 80-120 4-Bromofluorobenzene 0.0292 0.0300 97 80-120

o-Terphenyl

Surrogate Recovery [D] = 100 \* A / B

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

121

70-135

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders**: 507692, **Project ID**: 088210/13

Lab Batch #: 968082Sample: 692539-1-BSD / BSDBatch: 1Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 16:24	SURROGATE RECOVERY STUDY				
	TPH 1	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooct	tane		128	100	128	70-135	
o-Terpheny	1		62.2	50.0	124	70-135	

Lab Batch #: 968080 Sample: 692535-1-BSD / BSD Batch: 1 Matrix: Solid

**Units:** mg/kg Date Analyzed: 05/13/15 17:19 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Flags Found Recovery Limits Amount [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0322 0.0300 107 80-120 4-Bromofluorobenzene 0.0295 0.0300 98 80-120

Units: mg/kg Date Analyzed: 05/13/15 17:08 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	100	114	70-135	
o-Terphenyl	54.7	50.0	109	70-135	

**Lab Batch #:** 968080 **Sample:** 507692-001 S / MS **Batch:** 1 **Matrix:** Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 17:35	SU	RROGATE RE	ECOVERY S	STUDY	
BTEX 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	orobenzene		0.0302	0.0300	101	80-120	

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 17:30	SURROGATE RECOVERY STUDY								
	TPH 1	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1-Chlorooct	ane		124	99.9	124	70-135					
o-Terpheny	1		41.4	50.0	83	70-135					

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507692, **Project ID:** 088210/13

**Lab Batch #:** 968080 **Sample:** 507692-001 SD / MSD **Batch:** 1 **Matrix:** Soil

**Units: Date Analyzed:** 05/13/15 17:52 mg/kg SURROGATE RECOVERY STUDY Amount True Control BTEX by EPA 8021B Recovery Found Amount Limits Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0320 0.0300 107 80-120 4-Bromofluorobenzene 0.0311 0.0300 104 80-120

Surrogate Recovery [D] = 100 \* A / B

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



## **BS / BSD Recoveries**



Project Name: Vaca 24 Federal Com #3H

Work Order #: 507692 Project ID: 088210/13

Analyst: ARM Date Prepared: 05/13/2015 Date Analyzed: 05/13/2015

Lab Batch ID: 968080Sample: 692535-1-BKSBatch #: 1Matrix: Solid

# Units: mg/kg BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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	0.0972	97	0.100	0.0975	98	0	70-130	35	
Toluene	< 0.00200	0.100	0.101	101	0.100	0.102	102	1	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.106	106	0.100	0.108	108	2	71-129	35	
m,p-Xylenes	< 0.00200	0.200	0.213	107	0.200	0.216	108	1	70-135	35	
o-Xylene	< 0.00100	0.100	0.104	104	0.100	0.106	106	2	71-133	35	

Analyst: JUM Date Prepared: 05/13/2015 Date Analyzed: 05/13/2015

Lab Batch ID: 968165 Sample: 692516-1-BKS Batch #: 1 Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1  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
Chloride	<2.00	50.0	47.9	96	50.0	47.8	96	0	90-110	20	

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



mg/kg

**Units:** 

# **BS / BSD Recoveries**

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY



Project Name: Vaca 24 Federal Com #3H

Work Order #: 507692 Project ID: 088210/13

Analyst: ARM Date Prepared: 05/13/2015 Date Analyzed: 05/13/2015

 Lab Batch ID: 968082
 Sample: 692539-1-BKS
 Batch #: 1
 Matrix: Solid

		DESIGNATION OF THE PROPERTY RECOVERY STORY									
TPH By SW8015B Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1050	105	1000	1090	109	4	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	1060	106	1000	1020	102	4	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



#### Form 3 - MS Recoveries



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507692

**Lab Batch #:** 968165 **Project ID:** 088210/13

 Date Analyzed:
 05/13/2015
 Date Prepared: 05/13/2015
 Analyst: JUM

 QC- Sample ID:
 507604-001 S
 Batch #: 1
 Matrix: Soil

Reporting Units: mg/kg

Reporting Units: mg/kg	MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	<13.0	326	323	99	80-120	

**Lab Batch #:** 968165

 Date Analyzed:
 05/13/2015
 Date Prepared: 05/13/2015
 Analyst: JUM

 QC- Sample ID:
 507695-002 S
 Batch #: 1
 Matrix: Soil

**Reporting Units:** mg/kg

MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
[A]	[B]				
13.3	55.1	71.7	106	80-120	
	Parent Sample Result [A]	Parent Sample Result Added [A] [B]	Parent Sample Result Added [A] Spiked Sample Result [C]	Parent Sample Result [A] Spiked Sample Result [C] Spiked Sample Result [C] [D]	Sample Spike Result   %R   Limits   %R   [C]   [D]   %R

Matrix Spike Percent Recovery [D] = 100\*(C-A)/BRelative 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 - MS / MSD Recoveries



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507692 **Project ID:** 088210/13

**Lab Batch ID:** 968080 **QC- Sample ID:** 507692-001 S **Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 05/13/2015 **Date Prepared:** 05/13/2015 **Analyst:** ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	< 0.00105	0.105	0.0994	95	0.105	0.101	96	2	70-130	35	
Toluene	< 0.00209	0.105	0.104	99	0.105	0.105	100	1	70-130	35	
Ethylbenzene	< 0.00105	0.105	0.109	104	0.105	0.111	106	2	71-129	35	
m,p-Xylenes	< 0.00209	0.209	0.219	105	0.209	0.222	106	1	70-135	35	
o-Xylene	< 0.00105	0.105	0.108	103	0.105	0.110	105	2	71-133	35	

**Lab Batch ID:** 968082 **QC- Sample ID:** 507692-001 S **Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 05/13/2015 **Date Prepared:** 05/13/2015 **Analyst:** ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.7	1050	1130	108	1050	1170	111	3	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.7	1050	1050	100	1050	1250	119	17	70-135	35	



# **Sample Duplicate Recovery**



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507692

**Lab Batch #:** 968107 **Project ID:** 088210/13

 Date Analyzed:
 05/13/2015 18:30
 Date Prepared:
 05/13/2015
 Analyst: WRU

 QC- Sample ID:
 507692-001 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE/SAMPLE DUPLICATE RECOVERY									
	Parent Sample Result [A]	Duplicate Result	RPD	Control Limits %RPD	Flag					
Analyte		[B]								
Percent Moisture	4.58	4.62	1	20						

**Lab Batch #:** 968107

 Date Analyzed:
 05/13/2015 18:30
 Date Prepared:
 05/13/2015
 Analyst: WRU

 QC- Sample ID:
 507695-003 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte		[ <b>D</b> ]			
Percent Moisture	3.30	3.30	0	20	



# Phone: J95-

(See Reverse Side for Instructions)

Final 1.000

	The House of the Control of the Cont	ys 🗆 1 Week 🖂	uired in business days (use separate C	and the state of the state of the state of			5-088210-13-051115-51-08	5-088210-13-051115-SP-07	5-088210-13-051115-SP-06	5-088210-15-05115-51-05	5-088210-13-051115-51-04	S-088219-12-051115-59-03	5-088210-13-05/115-8-02	5-088210-13-051115-56-01	SAMPLE IDENTIFICATION  (Containers for each sample may be combined on one line)	ampler(s): Specez Specez	e Bochisch L	roject Location:	roject Name: Con #34	roject MC Phase Task Code:
	RAPANY	2 Week U Other:	Cs for different			9	4					100 mm		気三万	DATE (mm/ddif/yy)	Sperez gamoril.com	bochischemusticon			
	\$12/15	648	TATS):		To Hand		1709 V	1707 1	705	1617	1553	1516	1349 1	232 S)	(hh:mm) Matrix (see ba			SAMPLE	Lab	Labo
, io	5:30 pm 1.	oles in Cooler must be	Total Number of Containers				<							0	Unpreso Hydroci Nitric A Sulfuric Sodium (NaOH) Methan- VOC)	erved  hloric Aci cid (HNO: Acid (H <sub>2</sub> : Hydroxic ol/Water s 3x5-g, 1	d (HCI) s) SO <sub>4</sub> )	6	Lab Contact:	Xenco - Odessa
	ECHWED BY SOMPANY	0	3											ス. ズ. ベ.	Other: Total Co	8013 802	5	& ANALYSIS REQUESTED (See Back of COC for Definitions)	Lab Quote No:	Lab Location:
	S I IME											Part of the second seco	i		COMMENTS/ SPECIAL INSTRUCTIONS	Date Shipped:	Airbill No:	ions) carrier tedex	Cooler No:	SSOWID:

Page 19 of 20

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT—ALL FIELDS MUST BE COMPLETED ACCURATELY

YELLOW — Receiving Laboratory Copy PINK - Shipper

Distribution:

WHITE - Fully Executed Copy (CRA)



Work Order #: 507692

# **XENCO Laboratories** Prelogin/Nonconformance Report- Sample Log-In



Client: Conestoga-Rovers & Associates-Albuqu

Date/ Time Received: 05/13/2015 11:00:00 AM

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

**Temperature Measuring device used:** 

	Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?		3
#2 *Shipping container in good condition	?	Yes
#3 *Samples received on ice?		Yes
#4 *Custody Seals intact on shipping con	tainer/ cooler?	N/A
#5 Custody Seals intact on sample bottle	s?	N/A
#6 *Custody Seals Signed and dated?		N/A
#7 *Chain of Custody present?		Yes
#8 Sample instructions complete on Cha	in of Custody?	Yes
#9 Any missing/extra samples?		No
#10 Chain of Custody signed when relind	uished/ received?	Yes
#11 Chain of Custody agrees with sample	e 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 indicate	ed test(s)?	Yes
#18 All samples received within hold time	9?	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 HN samples for the analysis of HEM or HEM-		N/A
analysts. #22 >10 for all samples preserved with N	aAsO2+NaOH, ZnAc+NaOH?	N/A
* Must be completed for after-hours de	livery of samples prior to placing in	the refrigerator
Analyst:	PH Device/Lot#:	
Checklist completed by: Checklist reviewed by:	Kelsey Brooks	Date: <u>05/13/2015</u>
		Date: 05/13/2015

Julian Martinez

Date: 05/13/2015

# **Analytical Report 507695**

for

# Conestoga-Rovers & Associates-Albuquerque, NM

Project Manager: Bernie Bockisch Vaca 24 Federal Com #3H 088210/13 14-MAY-15

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)





14-MAY-15

Project Manager: Bernie Bockisch

Conestoga-Rovers & Associates-Albuquerque, NM

6121 Indian School Rd. NE Suite 200

Albuquerque, NM 87110

Reference: XENCO Report No(s): 507695

Vaca 24 Federal Com #3H Project Address: Lea County,NM

#### Bernie Bockisch:

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) 507695. 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. 507695 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.

**Kelsey Brooks** 

Project Manager

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# **Sample Cross Reference 507695**



# Conestoga-Rovers & Associates-Albuquerque, NM, Albuque

Vaca 24 Federal Com #3H

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
SO-088210-13-050715-SP-01	S	05-07-15 10:55		507695-001
SO-088210-13-050715-SP-02	S	05-07-15 12:33		507695-002
SO-088210-13-050715-SP-03	S	05-07-15 13:43		507695-003
SO-088210-13-050715-SP-04	S	05-07-15 14:13		507695-004
SO-088210-13-050815-SP-01	S	05-08-15 13:48		507695-005
SO-088210-13-050815-SP-02	S	05-08-15 14:57		507695-006
SO-088210-13-050815-SP-03	S	05-08-15 15:30		507695-007
SO-088210-13-050815-SP-04	S	05-08-15 16:05		507695-008



#### **CASE NARRATIVE**



Client Name: Conestoga-Rovers & Associates-Albuquerque, NM

Project Name: Vaca 24 Federal Com #3H

 Project ID:
 088210/13
 Report Date:
 14-MAY-15

 Work Order Number(s):
 507695
 Date Received:
 05/13/2015



Project Location: Lea County,NM

# **Certificate of Analysis Summary 507695**

#### Conestoga-Rovers & Associates-Albuquerque, NM, Albuquerque, NM



Project Id: 088210/13 Project Name: Vaca 24 Federal Com #3H

Contact: Bernie Bockisch Date Received in Lab: Wed May-13-15 11:00 am

**Report Date:** 14-MAY-15

								Project Ma	nager:	Kelsey Brook	S		
	Lab Id:	507695-0	001	507695-0	002	507695-	003	507695-0	004	507695-0	005	507695-	006
Analusia Daguagtad	Field Id:	SO-088210-13-05	0715-SP-0	SO-088210-13-050715-SP-0		O-088210-13-050715-SP-0		O-088210-13-050715-SP-0		SO-088210-13-050815-SP-0		O-088210-13-050815-5	
Analysis Requested	Depth:												
	Matrix:	SOIL		SOIL		SOIL	SOIL		SOIL		SOIL		
	Sampled:	May-07-15	10:55	May-07-15	12:33	May-07-15	13:43	May-07-15	14:13	May-08-15	13:48	May-08-15	14:57
BTEX by EPA 8021B	Extracted:	May-13-15	May-13-15 15:00		15:00	May-13-15	15:00	May-13-15	15:00	May-13-15	15:00	May-13-15	15:00
	Analyzed:	May-13-15	20:36	May-13-15	20:53	May-13-15	21:41	May-13-15	21:55	May-13-15	22:12	May-13-15	22:28
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00106	ND	0.00110	ND	0.00103	ND	0.00104	ND	0.00103	ND	0.00105
Toluene		ND	0.00212	ND	0.00219	ND	0.00206	ND	0.00208	ND	0.00206	ND	0.00210
Ethylbenzene		ND	0.00106	ND	0.00110	ND	0.00103	ND	0.00104	ND	0.00103	ND	0.00105
m,p-Xylenes		ND	0.00212	ND	0.00219	ND	0.00206	ND	0.00208	ND ND	0.00206	ND	0.00210
o-Xylene		ND	0.00106	ND	0.00110	ND	0.00103	ND	· · · · · · · · · · · · · · · · · · ·		0.00103	ND	0.00105
Total Xylenes		ND	0.00106	ND	0.00110	ND	0.00103	ND	0.00104	ND			0.00105
Total BTEX		ND	0.00106	ND	0.00110	ND	0.00103	ND	0.00104	ND	0.00103	ND	0.00105
Inorganic Anions by EPA 300/300.1	Extracted:	May-13-15	16:00	May-13-15	16:00	May-13-15	16:00	May-13-15	16:00	May-13-15	16:00	May-13-15	16:00
	Analyzed:	May-13-15 22:24		May-13-15	22:47	May-13-15	23:32	May-13-15	23:55	May-14-15	00:18	May-14-15	00:40
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		191	10.6	13.3	2.21	2.62	2.07	15.6	2.08	5.07	2.07	6.66	2.10
Percent Moisture	Extracted:												
	Analyzed:	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		5.81	1.00	9.33	1.00	3.30	1.00	4.07	1.00	3.30	1.00	4.95	1.00
TPH By SW8015B Mod	Extracted:	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00
	Analyzed:	May-13-15	20:23	May-13-15	20:45	May-13-15	21:51	May-13-15	22:14	May-13-15	22:36	May-13-15	22:58
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		ND	15.9	ND	16.5	ND	15.5	ND	15.6	ND	15.5	ND	15.7
C10-C28 Diesel Range Hydrocarbons		ND	15.9	ND	16.5	ND	15.5	ND	15.6	ND	15.5	ND	15.7
Total TPH		ND	15.9	ND	16.5	ND	15.5	ND	15.6	ND	15.5	ND	15.7

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 liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager



# **Certificate of Analysis Summary 507695**

#### Conestoga-Rovers & Associates-Albuquerque, NM, Albuquerque, NM



**Project Id:** 088210/13

Project Location: Lea County,NM

Contact: Bernie Bockisch

Project Name: Vaca 24 Federal Com #3H

Date Received in Lab: Wed May-13-15 11:00 am

**Report Date:** 14-MAY-15

**Project Manager:** Kelsey Brooks

						Froject Manager:	Reisey Blooks	
Lab Id:	507695-0	007	507695-0	08				
Field Id:	O-088210-13-05	0815-SP-0	O-088210-13-050	0815-SP-0				
Depth:								
Matrix:	SOIL		SOIL					
Sampled:	May-08-15	15:30	May-08-15 1	16:05				
Extracted:	-		-					
			-					
	1		-					
Unus/KL:								
		0.00108						
		0.00217						
		0.00108						
	ND	0.00108	ND	0.00116				
	ND	0.00108	ND	0.00116				
Extracted:	May-13-15	16:00	May-13-15 1	16:00				
Analyzed:	May-14-15	01:48	May-14-15 (	02:11				
Units/RL:	mg/kg	RL	mg/kg	RL				
	51.0	10.9	31.8	11.6				
Extracted:								
Analyzed:	May-13-15	18:30	May-13-15 1	18:30				
Units/RL:	%	RL	%	RL				
'	8.24	1.00	13.7	1.00				
Extracted:	May-13-15	14:00	May-13-15 1	14:00				
Analyzed:	1		-					
Units/RL:	_	RL		RL				
-	ND	16.3	ND	17.4				
	ND	16.3	ND	17.4				
	ND	16.3	ND	17.4				
	Field Id: Depth: Matrix: Sampled: Extracted: Analyzed: Units/RL:  Extracted: Analyzed: Units/RL:  Extracted: Analyzed: Units/RL:  Extracted: Analyzed: Analyzed: Analyzed:	### Field Id: SO-088210-13-050   Depth:   Matrix: SOIL   Sampled: May-08-15    Extracted: May-13-15    Analyzed: May-13-15    Units/RL: mg/kg   ND   ND   ND   ND   ND   ND   ND   N	Field Id: SO-088210-13-050815-SP-0           Depth:         Matrix:         SOIL           Sampled:         May-08-15 15:30           Extracted:         May-13-15 15:00           Analyzed:         May-13-15 22:45           Units/RL:         mg/kg         RL           ND         0.00108           ND         0.00217           ND         0.00108           ND         0.00108           ND         0.00108           ND         0.00108           ND         0.00108           Extracted:         May-13-15 16:00           Analyzed:         May-14-15 01:48           Units/RL:         mg/kg         RL           Analyzed:         May-13-15 18:30           Units/RL:         %         RL           8.24         1.00           Analyzed:         May-13-15 14:00           Analyzed:         May-13-15 23:20           Units/RL:         mg/kg         RL           ND         16.3           ND         16.3	Field Id: SO-088210-13-050815-SP-08O-088210-13-0508           Depth:         Matrix:         SOIL         May-08-15 12         May-08-15 12         May-08-15 12         May-13-15 13         May-13-15	Field Id: NO-088210-13-050815-SP-0 SO-088210-13-050815-SP-0 Depth:           Matrix:         SOIL         May-08-15 16:05         May-13-15 16:00         May-13-15 15:00         May-13-15 23:01         May-13-15 23:01         May-13-15 23:01         May-13-15 23:01         May-13-15 23:01         May-10-116         ND 0.00116         ND 0.00217         ND 0.00231         ND 0.00231         ND 0.00231         ND 0.00231         ND 0.00231         ND 0.00116         ND 0.00116	Field Id:   SO-088210-13-050815-SP-08   O-088210-13-050815-SP-08   O-088210-13-15-15:00   O-08	Lab Id:   507695-007   507695-008     Field Id:   50-088210-13-050815-SP-0   SO-088210-13-050815-SP-0     Depth:   Matrix:   SOIL   SOIL   SOIL     Sampled:   May-08-15 15:30   May-08-15 16:05     Extracted:   May-13-15 15:00   May-13-15 15:00     Analyzed:   May-13-15 22:45   May-13-15 23:01     Units/RL:   mg/kg   RL   mg/kg   RL     ND	Field Id:   SO-088210-13-050815-SP-08O-088210-13-050815-SP-0   Depth:   Matrix:   SOIL   SO

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 liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager



# 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

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

PQL Practical Quantitation Limit MQL 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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5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
6017 Financial Drive, Norcross, GA 30071	(770) 449-8800	(770) 449-5477
3725 E. Atlanta Ave, Phoenix, AZ 85040	(602) 437-0330	



T T-- 24 -- -

# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

Work Orders: 507695, **Project ID:** 088210/13

Lab Batch #: 968082 Matrix: Soil Sample: 507695-001 / SMP Batch:

Data Amalamada 05/12/15 20:22

Units: mg/kg	SU SU	SURROGATE RECOVERY STUDY					
TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
Analytes			[D]				
1-Chlorooctane	107	99.8	107	70-135			
o-Terphenyl	49.4	49.9	99	70-135			

**Lab Batch #:** 968080 Sample: 507695-001 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/13/15 20:36 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0307 0.0300 102 80-120 4-Bromofluorobenzene

0.0316

0.0300

105

80-120

Lab Batch #: 968082 Sample: 507695-002 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/13/15 20:45 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	99.9	122	70-135	
o-Terphenyl	55.7	50.0	111	70-135	

Sample: 507695-002 / SMP **Lab Batch #:** 968080 Batch: Matrix: Soil

/kg	<b>Date Analyzed:</b> 05/13/15 20:53	SURROGATE RECOVERY STUDY						
	•	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
	marytes	0.0200	0.0200		00.120			
		0.000		1				
		BTEX by EPA 8021B  Analytes	BTEX by EPA 8021B  Amount Found [A]  Analytes  e 0.0298	BTEX by EPA 8021B	BTEX by EPA 8021B	BTEX by EPA 8021B		

Batch: Lab Batch #: 968080 **Sample:** 507695-003 / SMP Matrix: Soil

<b>Units:</b>	mg/kg	<b>Date Analyzed:</b> 05/13/15 21:41	SURROGATE RECOVERY STUDY					
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluor	robenzene	•	0.0300	0.0300	100	80-120		
4-Bromoflu	uorobenzene		0.0315	0.0300	105	80-120		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

Work Orders: 507695, **Project ID:** 088210/13

Lab Batch #: 968082 Matrix: Soil Sample: 507695-003 / SMP Batch:

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 21:51	SURROGATE RECOVERY STUDY					
	TPH :	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chloroocta	ane		126	99.9	126	70-135		
o-Terphenyl			58.5	50.0	117	70-135		

**Lab Batch #:** 968080 Sample: 507695-004 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/13/15 21:55 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0300 0.0300 100 80-120 4-Bromofluorobenzene 0.0313 0.0300 104 80-120

Lab Batch #: 968080 Sample: 507695-005 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/13/15 22:12 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0318	0.0300	106	80-120	

Sample: 507695-004 / SMP **Lab Batch #:** 968082 Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 22:14	SURROGATE RECOVERY STUDY					
	TPH I	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooc	etane		107	99.7	107	70-135		
o-Terpheny	/1		50.2	49.9	101	70-135		

Lab Batch #: 968080 **Sample:** 507695-006 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 22:28	SURROGATE RECOVERY STUDY					
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluorober	nzene	111111111111111111111111111111111111111	0.0308	0.0300	103	80-120		
4-Bromofluoro	benzene		0.0321	0.0300	107	80-120		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



T T-- 24 -- -

# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507695, **Project ID:** 088210/13

**Lab Batch #:** 968082 **Sample:** 507695-005 / SMP **Batch:** 1 **Matrix:** Soil

Data Amalamada 05/12/15 00:20

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 22:36	SU	RROGATE RE	ECOVERY S	STUDY	
	ТРН Ву	SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	A	analytes			[D]		
1-Chlorooctane	:		103	99.8	103	70-135	
o-Terphenyl			47.1	49.9	94	70-135	

**Units:** mg/kg **Date Analyzed:** 05/13/15 22:45 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0253 0.0300 84 80-120 4-Bromofluorobenzene 0.0290 0.0300 97 80-120

Units: mg/kg Date Analyzed: 05/13/15 22:58 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	99.8	110	70-135	
o-Terphenyl	49.7	49.9	100	70-135	

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 23:01	SURROGATE RECOVERY STUDY						
	вте	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
		Analytes			[D]				
1,4-Difluor	robenzene		0.0326	0.0300	109	80-120			
4-Bromoflu	uorobenzene		0.0274	0.0300	91	80-120			

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 23:20	SU	RROGATE RE	ECOVERY S	STUDY	
TPH By SW8015B Mod  Analytes			Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	ane		113	99.7	113	70-135	
o-Terphenyl			52.1	49.9	104	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



o-Terphenyl

# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

Work Orders: 507695, **Project ID:** 088210/13

Lab Batch #: 968082 Matrix: Soil Sample: 507695-008 / SMP Batch:

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 23:41	SU	RROGATE RE	ECOVERY S	STUDY	
TPH By SW8015B Mod  Analytes			Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chloroocta	ane	Timing tes	107	99.9	107	70-135	
o-Terphenyl			50.4	50.0	101	70-135	

**Sample:** 692539-1-BLK / BLK **Lab Batch #:** 968082 Batch: 1 Matrix: Solid

**Units:** mg/kg **Date Analyzed:** 05/13/15 15:42 SURROGATE RECOVERY STUDY **Amount** True Control TPH By SW8015B Mod Flags Found Limits Amount Recovery [A] [B] %R %R **Analytes** [D] 1-Chlorooctane 116 100 116 70-135

55.5

50.0

111

70-135

Lab Batch #: 968080 Sample: 692535-1-BLK / BLK Matrix: Solid Batch: 1

**Units:** mg/kg Date Analyzed: 05/13/15 16:46 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	80-120	
4-Bromofluorobenzene	0.0297	0.0300	99	80-120	

Sample: 692539-1-BKS / BKS Matrix: Solid **Lab Batch #:** 968082 Batch: 1

**Units:** mg/kg Date Analyzed: 05/13/15 16:03 SURROGATE RECOVERY STUDY Amount True Control TPH By SW8015B Mod Recovery Found Amount Limits Flags [B] %R %R [A] [D] **Analytes** 1-Chlorooctane 100 130 70-135 130 o-Terphenyl 50.0 121 70-135 60.6

Lab Batch #: 968080 Sample: 692535-1-BKS / BKS Batch: Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 17:03	SURROGATE RECOVERY STUDY				
BTEX by EPA 8021B			Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluorobenzene			0.0322	0.0300	107	80-120	
4-Bromofluorobenzene			0.0292	0.0300	97	80-120	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

 Work Orders:
 507695,
 Project ID:
 088210/13

 Lab Batch #:
 968082
 Sample:
 692539-1-BSD / BSD
 Batch:
 1
 Matrix:
 Solid

Units: mg/kg Date Analyzed: 05/13/15 16:24 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	128	100	128	70-135	
o-Terphenyl	62.2	50.0	124	70-135	

Lab Batch #: 968080 Sample: 692535-1-BSD / BSD Batch: 1 Matrix: Solid

**Units:** mg/kg Date Analyzed: 05/13/15 17:19 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Flags Found Recovery Limits Amount [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0322 0.0300 107 80-120 4-Bromofluorobenzene 0.0295 0.0300 80-120 98

Units: mg/kg Date Analyzed: 05/13/15 17:08 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	100	114	70-135	
o-Terphenyl	54.7	50.0	109	70-135	

**Lab Batch #:** 968080 **Sample:** 507692-001 S / MS **Batch:** 1 **Matrix:** Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 17:35	SU	RROGATE RE	ECOVERY S	STUDY	
BTEX by EPA 8021B  Analytes			Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene			0.0322	0.0300	107	80-120	
4-Bromofluorobenzene			0.0302	0.0300	101	80-120	

Units:	mg/kg	<b>Date Analyzed:</b> 05/13/15 17:30	SU	RROGATE RE	ECOVERY S	STUDY	
TPH By SW8015B Mod  Analytes			Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		Allalytes			[2]		
1-Chlorooctane			124	99.9	124	70-135	
o-Terphenyl			41.4	50.0	83	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507695, **Project ID:** 088210/13

**Lab Batch #:** 968080 **Sample:** 507692-001 SD / MSD **Batch:** 1 **Matrix:** Soil

**Units: Date Analyzed:** 05/13/15 17:52 mg/kg SURROGATE RECOVERY STUDY Amount True Control BTEX by EPA 8021B Recovery Found Amount Limits Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0320 0.0300 107 80-120 4-Bromofluorobenzene 0.0311 0.0300 104 80-120

Surrogate Recovery [D] = 100 \* A / B

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



#### **BS / BSD Recoveries**



Project Name: Vaca 24 Federal Com #3H

Work Order #: 507695 Project ID: 088210/13

Analyst: ARM Date Prepared: 05/13/2015 Date Analyzed: 05/13/2015

Lab Batch ID: 968080Sample: 692535-1-BKSBatch #: 1Matrix: Solid

Units:	mg/kg	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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	0.0972	97	0.100	0.0975	98	0	70-130	35	
Toluene	< 0.00200	0.100	0.101	101	0.100	0.102	102	1	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.106	106	0.100	0.108	108	2	71-129	35	
m,p-Xylenes	< 0.00200	0.200	0.213	107	0.200	0.216	108	1	70-135	35	
o-Xylene	< 0.00100	0.100	0.104	104	0.100	0.106	106	2	71-133	35	

Analyst: JUM Date Prepared: 05/13/2015 Date Analyzed: 05/13/2015

Lab Batch ID: 968165 Sample: 692516-1-BKS Batch #: 1 Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1  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
Chloride	<2.00	50.0	47.9	96	50.0	47.8	96	0	90-110	20	

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



### **BS / BSD Recoveries**



Project Name: Vaca 24 Federal Com #3H

Work Order #: 507695 Project ID: 088210/13

 Analyst:
 ARM
 Date Prepared: 05/13/2015
 Date Analyzed: 05/13/2015

Lab Batch ID: 968082Sample: 692539-1-BKSBatch #: 1Matrix: Solid

Units:	mg/kg	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B 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 %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1050	105	1000	1090	109	4	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	1060	106	1000	1020	102	4	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



#### Form 3 - MS Recoveries



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507695

**Lab Batch #:** 968165 **Project ID:** 088210/13

 Date Analyzed:
 05/13/2015
 Date Prepared:
 05/13/2015
 Analyst:
 JUM

 QC- Sample ID:
 507604-001 S
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: mg/kg

MATRIX / MATRIX SPIKE RECOVERY STUDY

	.,					
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]				
Chloride	<13.0	326	323	99	80-120	

**Lab Batch #:** 968165

 Date Analyzed:
 05/13/2015
 Date Prepared: 05/13/2015
 Analyst: JUM

 QC- Sample ID:
 507695-002 S
 Batch #: 1
 Matrix: Soil

Reporting Units: mg/kg MATRIX / MATRIX SPIKE RECOVERY STUDY **Parent** Spiked Sample Control **Inorganic Anions by EPA 300** Sample Spike Result %R Limits Flag Result Added [D] %R [C] [A] [B] **Analytes** Chloride 13.3 55.1 71.7 106 80-120

Matrix Spike Percent Recovery [D] = 100\*(C-A)/BRelative 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 - MS / MSD Recoveries



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507695 **Project ID:** 088210/13

**Lab Batch ID:** 968080 **QC- Sample ID:** 507692-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 05/13/2015 Date Prepared: 05/13/2015 Analyst: ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
			0.0004			0.101		2	70.120	25	
Benzene	< 0.00105	0.105	0.0994	95	0.105	0.101	96	2	70-130	35	
Toluene	< 0.00209	0.105	0.104	99	0.105	0.105	100	1	70-130	35	
Ethylbenzene	< 0.00105	0.105	0.109	104	0.105	0.111	106	2	71-129	35	
m,p-Xylenes	< 0.00209	0.209	0.219	105	0.209	0.222	106	1	70-135	35	
o-Xylene	< 0.00105	0.105	0.108	103	0.105	0.110	105	2	71-133	35	

**Lab Batch ID:** 968082 **QC- Sample ID:** 507692-001 S **Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 05/13/2015 **Date Prepared:** 05/13/2015 **Analyst:** ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.7	1050	1130	108	1050	1170	111	3	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.7	1050	1050	100	1050	1250	119	17	70-135	35	

Final 1.000



# **Sample Duplicate Recovery**



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507695

**Lab Batch #:** 968107 **Project ID:** 088210/13

 Date Analyzed:
 05/13/2015 18:30
 Date Prepared:
 05/13/2015
 Analyst: WRU

 QC- Sample ID:
 507692-001 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
	Parent Sample Result [A]	Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Percent Moisture	4.58	4.62	1	20	

**Lab Batch #:** 968107

 Date Analyzed:
 05/13/2015 18:30
 Date Prepared:
 05/13/2015
 Analyst: WRU

 QC- Sample ID:
 507695-003 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE	/ SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
1					
Percent Moisture	3.30	3.30	0	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



# CHAIN OF CUSTO

Phone: 505 (84-0672

(See Reverse Side for Instructions,

Sampler(s): Hove Por ot Project No/ Phase/Task Code 788219/ Project Name: Youch 24 Federal Com #34 Chemistry Contact: 1 Day 2 Days 3 Days 1 Week 2 Week Other: 24 W TAIT Required in business days (use separate COCs for different TATs). Project Location: 5-088210-13-050815-51-03 5-088210-13-050815-51-050 OSTOR/15/1348 5-088210-13-050715-5P-04 5-088210-13-050715-5P-03 5-088210-13-050715-58-01 5-08210-13-050815-SP- DE 5-088210-13-050715-51-02 SAMPLE IDENTIFICATION -92-218050-13-050815-SP-Spochisch acramyara 5501151/20/20 SHSI Matrix Code Laboratory Name: SAMPLE (see back of COC) TYPE elsey Brooks Grab (G) or Comp (C) All Samples in Cooler must be an COC Unpreserved Hydrochloric Acid (HCI) CONTAINER QUANTITY & Total Number of Containers: Nitric Acid (HNO<sub>3</sub>) PRESERVATION Sodium Hydroxide (NaOH) Methanol/Water (Soil VOC) EnCores 3x5-g, 1x25-g RECEIVED BY Notes/ Special Requirements: Lab Quote No. Lab Location: Donsa (See Back of COC for Definitions) ANALYSIS REQUESTED COMPANY MS/MSD Request Date Shipped: SSOW ID: SPECIAL INSTRUCTIONS: Carrie Cooler No. DATE COMMENTS/ TIME Page 19 of 20 Final 1.000

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT—ALL FIELDS MUST BE COMPLETED ACCURATELY

WHITE - Fully Executed Copy (CRA)

Distribution:

YELLOW — Receiving Laboratory Copy

PINK - Shipper

GOLDENROD - Sampling Crew

CRA Form: COC-10B (20110804)



# XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: Conestoga-Rovers & Associates-Albuqu

Date/ Time Received: 05/13/2015 11:00:00 AM

Work Order #: 507695

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

	Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?		3
#2 *Shipping container in good condition	?	Yes
#3 *Samples received on ice?		Yes
#4 *Custody Seals intact on shipping cor	ntainer/ cooler?	N/A
#5 Custody Seals intact on sample bottle	es?	N/A
#6 *Custody Seals Signed and dated?		N/A
#7 *Chain of Custody present?		Yes
#8 Sample instructions complete on Cha	in of Custody?	Yes
#9 Any missing/extra samples?		No
#10 Chain of Custody signed when reline	quished/ received?	Yes
#11 Chain of Custody agrees with sample	le label(s)?	Yes
#12 Container label(s) legible and intact	?	Yes
#13 Sample matrix/ properties agree with	n 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 indicat	ed test(s)?	Yes
#18 All samples received within hold time	e?	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 HI samples for the analysis of HEM or HEM analysts.		N/A
#22 >10 for all samples preserved with N	NaAsO2+NaOH, ZnAc+NaOH?	N/A
* Must be completed for after-hours de	-	the refrigerator
Analyst:	PH Device/Lot#:	
Checklist completed by:  Checklist reviewed by:	Mmv Moah Kelsey Brooks	Date: 05/13/2015
Checklist reviewed by:	How .	Date: 05/13/2015
	Julian Martinez	

Julian Martinez

# **Analytical Report 507703**

for

# Conestoga-Rovers & Associates-Albuquerque, NM

Project Manager: Bernie Bockisch Vaca 24 Federal Com #3H 088210/13 14-MAY-15

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)





14-MAY-15

Project Manager: Bernie Bockisch

Conestoga-Rovers & Associates-Albuquerque, NM

6121 Indian School Rd. NE Suite 200

Albuquerque, NM 87110

Reference: XENCO Report No(s): 507703

Vaca 24 Federal Com #3H Project Address: Lea County,NM

#### Bernie Bockisch:

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) 507703. 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. 507703 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.

**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 507703**



# Conestoga-Rovers & Associates-Albuquerque, NM, Albuque

Vaca 24 Federal Com #3H

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
SO-088210-13-051215-SP-01	S	05-12-15 09:15		507703-001
SO-088210-13-051215-SP-02	S	05-12-15 09:26		507703-002
SO-088210-13-051215-SP-03	S	05-12-15 10:09		507703-003
SO-088210-13-051215-SP-04	S	05-12-15 10:14		507703-004
SO-088210-13-051215-SP-05	S	05-12-15 10:17		507703-005
SO-088210-13-051215-SP-06	S	05-12-15 12:08		507703-006
SO-088210-13-051215-SP-07	S	05-12-15 13:08		507703-007
SO-088210-13-051215-SP-08	S	05-12-15 13:48		507703-008
SO-088210-13-051215-SP-09	S	05-12-15 14:20		507703-009
SO-088210-13-051215-SP-10	S	05-12-15 14:22		507703-010



#### **CASE NARRATIVE**



Client Name: Conestoga-Rovers & Associates-Albuquerque, NM

Project Name: Vaca 24 Federal Com #3H

 Project ID:
 088210/13
 Report Date:
 14-MAY-15

 Work Order Number(s):
 507703
 Date Received:
 05/13/2015



Project Location: Lea County,NM

# Certificate of Analysis Summary 507703

#### Conestoga-Rovers & Associates-Albuquerque, NM, Albuquerque, NM



Project Name: Vaca 24 Federal Com #3H **Project Id:** 088210/13

**Date Received in Lab:** Wed May-13-15 11:00 am Contact: Bernie Bockisch

**Report Date:** 14-MAY-15

					Project Manager:	Kelsey Brooks	
	Lab Id:	507703-001	507703-002	507703-003	507703-004	507703-005	507703-006
Analysis Paguested	Field Id:	SO-088210-13-051215-SP-0	O-088210-13-051215-SP-0	SO-088210-13-051215-SP-0	SO-088210-13-051215-SP-0	SO-088210-13-051215-SP-0	SO-088210-13-051215-SP
Analysis Requested	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

Analysis Requested	Field Id:	SO-088210-13-05	51215-SP-0	SO-088210-13-05	1215-SP-0	SO-088210-13-05	1215-SP-0	SO-088210-13-05	1215-SP-0	O-088210-13-05	1215-SP-0	SO-088210-13-05	51215-SP-0
Tanady sas and quessen	Depth:												
	Matrix:	SOIL	,	SOIL		SOIL	,	SOIL		SOIL	,	SOIL	
	Sampled:	May-12-15	09:15	May-12-15	09:26	May-12-15	10:09	May-12-15	10:14	May-12-15	10:17	May-12-15	12:08
BTEX by EPA 8021B	Extracted:	May-13-15	15:00	May-13-15	15:00	May-13-15	15:00	May-13-15	15:00	May-13-15	15:00	May-13-15	15:00
	Analyzed:	May-14-15	02:15	May-14-15	02:32	May-14-15	02:48	May-14-15	03:04	May-14-15	03:21	May-14-15	03:37
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00103	ND	0.00106	ND	0.00114	ND	0.00106	ND	0.00101	ND	0.00104
Toluene		ND	0.00207	ND	0.00212	ND	0.00227	ND	0.00212	ND	0.00201	ND	0.00208
Ethylbenzene		ND	0.00103	ND	0.00106	ND	0.00114	ND	0.00106	ND	0.00101	ND	0.00104
m,p-Xylenes		ND	0.00207	ND	0.00212	ND	0.00227	ND	0.00212	ND	0.00201	ND	0.00208
o-Xylene		ND	0.00103	ND	0.00106	ND	0.00114	ND	0.00106	ND	0.00101	ND	0.00104
Total Xylenes		ND	0.00103	ND	0.00106	ND	0.00114	ND	0.00106	ND	0.00101	ND	0.00104
Total BTEX		ND	0.00103	ND	0.00106	ND	0.00114	ND	0.00106	ND	0.00101	ND	0.00104
Inorganic Anions by EPA 300/300.1	Extracted:	May-13-15	16:00	May-13-15	16:00	May-13-15	16:00	May-13-15	18:00	May-13-15	18:00	May-13-15	18:00
	Analyzed:	May-14-15	02:34	May-14-15	02:56	May-14-15	03:19	May-14-15	05:35	May-14-15	06:20	May-14-15	06:43
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		735	41.4	4370	426	10000	457	810	106	18.6	2.02	31.9	10.4
Percent Moisture	Extracted:												
	Analyzed:	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30	May-13-15	18:30
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		3.43	1.00	6.21	1.00	12.4	1.00	5.82	1.00	1.11	1.00	4.01	1.00
TPH By SW8015B Mod	Extracted:	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00	May-13-15	14:00
	Analyzed:	May-14-15	01:48	May-14-15	02:51	May-14-15	03:13	May-14-15	03:35	May-14-15	03:55	May-14-15	04:16
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		ND	15.5	ND	15.9	ND	17.1	ND	15.9	ND	15.2	ND	15.6
C10-C28 Diesel Range Hydrocarbons		ND	15.5	ND	15.9	ND	17.1	ND	15.9	ND	15.2	ND	15.6
Total TPH		ND	15.5	ND	15.9	ND	17.1	ND	15.9	ND	15.2	ND	15.6

Page 5 of 20

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 liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks

Project Manager



# **Certificate of Analysis Summary 507703**

#### Conestoga-Rovers & Associates-Albuquerque, NM, Albuquerque, NM



**Project Id:** 088210/13

Contact: Bernie Bockisch

Project Name: Vaca 24 Federal Com #3H

Project Location: Lea County,NM

**Date Received in Lab:** Wed May-13-15 11:00 am

**Report Date:** 14-MAY-15

**Project Manager:** Kelsey Brooks

Analysis Requested		507703-0 O-088210-13-05		507703-00	08	507703-0	009	507703-0	010	
Analysis Requested		O-088210-13-05							/10	
Anaiysis Kequesiea			51215-SP-0	SO-088210-13-051	215-SP-0	SO-088210-13-05	1215-SP-0	SO-088210-13-05	1215-SP-1	
	Depth:									
	Matrix:	SOIL	,	SOIL		SOIL		SOIL		
	Sampled:	May-12-15	13:08	May-12-15 1	3:48	May-12-15	14:20	May-12-15	14:22	
BTEX by EPA 8021B	Extracted:	May-13-15	15:00	May-13-15 1	5:00	May-13-15	15:00	May-13-15	15:00	
1	Analyzed:	•				•	May-13-15 15:00 May-14-15 04:27		04:43	
	Units/RL:	•	RL	May-14-15 0	RL	•	RL	•	RL	
Benzene	Unus/KL:	mg/kg ND	0.00105	mg/kg ND	0.00103	mg/kg ND	0.00104	mg/kg ND	0.00103	
Toluene		ND	0.00209		0.00205	ND	0.00207	ND	0.00206	
Ethylbenzene		ND	0.00105		0.00103	ND	0.00104	ND	0.00103	
m,p-Xylenes		ND	0.00209	ND	0.00205	ND	0.00207	ND	0.00206	
o-Xylene		ND	0.00105	ND	0.00103	ND	0.00104	ND	0.00103	
Total Xylenes		ND	0.00105	ND	0.00103	ND	0.00104	ND	0.00103	
Total BTEX		ND	ND 0.00105		0.00103	ND	0.00104	ND	0.00103	
Inorganic Anions by EPA 300/300.1	Extracted:	May-13-15	May-13-15 18:00 M		May-13-15 18:00		18:00	May-13-15	18:00	
	Analyzed:	May-14-15	07:05	May-14-15 0	7:28	May-14-15	07:51	May-14-15	08:59	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Chloride		11.7	2.09	2.87	2.06	ND	2.09	2.60	2.07	
Percent Moisture	Extracted:									
	Analyzed:	May-13-15	18:30	May-13-15 1	8:30	May-13-15	18:30	May-13-15	18:30	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	
Percent Moisture		4.43	1.00	2.76	1.00	4.10	1.00	3.44	1.00	
TPH By SW8015B Mod	Extracted:	May-13-15	14:00	May-13-15 1	4:00	May-13-15	14:00	May-13-15	14:00	
	Analyzed:	May-14-15	04:37	May-14-15 0	)4:59	May-14-15	05:21	May-14-15	05:43	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
C6-C10 Gasoline Range Hydrocarbons		ND	15.7	ND	15.4	ND	15.6	ND	15.5	
C10-C28 Diesel Range Hydrocarbons		ND	15.7	ND	15.4	ND	15.6	ND	15.5	
Total TPH		ND	15.7	ND	15.4	ND	15.6	ND	15.5	

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 liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager



# 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

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

PQL Practical Quantitation Limit MQL 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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5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
6017 Financial Drive, Norcross, GA 30071	(770) 449-8800	(770) 449-5477
3725 E. Atlanta Ave, Phoenix, AZ 85040	(602) 437-0330	



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507703, **Project ID:** 088210/13

**Lab Batch #:** 968083 **Sample:** 507703-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg Date Analyzed: 05/14/15 01:48 SURROGATE RECOVERY STUDY							
	ТРН Е	sy SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chloroocta	ane		107	99.8	107	70-135	
o-Terphenyl			47.6	49.9	95	70-135	

Lab Batch #: 968081 Sample: 507703-001 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg **Date Analyzed:** 05/14/15 02:15 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0304 0.0300 101 80-120 4-Bromofluorobenzene 0.0312 0.0300 104 80-120

Units: mg/kg Date Analyzed: 05/14/15 02:32 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0315	0.0300	105	80-120	

Lab Batch #: 968081 Sample: 507703-003 / SMP Batch: 1 Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/14/15 02:48	SURROGATE RECOVERY STUDY					
	вте	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
		Analytes			[2]			
1,4-Difluor	robenzene		0.0291	0.0300	97	80-120		
4-Bromoflu	uorobenzene		0.0343	0.0300	114	80-120		

<b>Units:</b>	mg/kg	<b>Date Analyzed:</b> 05/14/15 02:51	SURROGATE RECOVERY STUDY				
	TPH 1	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	tane		101	99.7	101	70-135	
o-Terpheny	1		46.0	49.9	92	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507703, **Project ID:** 088210/13

**Lab Batch #:** 968081 **Sample:** 507703-004 / SMP **Batch:** 1 **Matrix:** Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/14/15 03:04	SURROGATE RECOVERY STUDY				
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorob	penzene	Timury ees	0.0304	0.0300	101	80-120	
4-Bromofluoi	robenzene		0.0313	0.0300	104	80-120	

Lab Batch #: 968083Sample: 507703-003 / SMPBatch: 1Matrix: Soil

Units: mg/kg Date Analyzed: 05/14/15 03:13 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.8	104	70-135	
o-Terphenyl	47.6	49.9	95	70-135	

 Lab Batch #: 968081
 Sample: 507703-005 / SMP
 Batch: 1
 Matrix: Soil

Units: mg/kg Date Analyzed: 05/14/15 03:21 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0314	0.0300	105	80-120	

Lab Batch #: 968083 Sample: 507703-004 / SMP Batch: 1 Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/14/15 03:35	SURROGATE RECOVERY STUDY					
	TPH I	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooc	ctane	•	106	99.6	106	70-135		
o-Terpheny	yl		48.1	49.8	97	70-135		

<b>Units:</b>	mg/kg	<b>Date Analyzed:</b> 05/14/15 03:37	SURROGATE RECOVERY STUDY				
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluor	robenzene		0.0295	0.0300	98	80-120	
4-Bromoflu	uorobenzene		0.0305	0.0300	102	80-120	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



T T-- 24 -- -

o-Terphenyl

# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507703, **Project ID:** 088210/13

**Lab Batch #:** 968081 **Sample:** 507703-007 / SMP **Batch:** 1 **Matrix:** Soil

Data Amalamada 05/14/15 02.54

Units: mg/	Units: mg/kg Date Analyzed: 05/14/15 03:54 SURROGATE RECOVERY STUDY						
	BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
	Analytes			[D]			
1,4-Difluorobenzene		0.0296	0.0300	99	80-120		
4-Bromofluorobenze	ene	0.0312	0.0300	104	80-120		

Lab Batch #: 968083Sample: 507703-005 / SMPBatch: 1Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/14/15 03:55 SURROGATE RECOVERY STUDY **Amount** True Control TPH By SW8015B Mod Found Limits Flags Amount Recovery [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 98.2 100 98 70-135

43.4

50.0

70-135

87

Units: mg/kg Date Analyzed: 05/14/15 04:10 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0318	0.0300	106	80-120	

Lab Batch #: 968083 Sample: 507703-006 / SMP Batch: 1 Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/14/15 04:16	SURROGATE RECOVERY STUDY						
	TPH I	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooc	ctane	•	111	99.9	111	70-135			
o-Terphenyl			51.1	50.0	102	70-135			

Units:	mg/kg	<b>Date Analyzed:</b> 05/14/15 04:27	SURROGATE RECOVERY STUDY					
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluorobenzene			0.0296	0.0300	99	80-120		
4-Bromoflu	iorobenzene		0.0311	0.0300	104	80-120		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



T T-- 24 -- -

# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

Work Orders: 507703, **Project ID:** 088210/13

Lab Batch #: 968083 Matrix: Soil Sample: 507703-007 / SMP Batch:

Data Amalamada 05/14/15 04:27

Units: mg/kg Date Analyzed: 05/14/15 04:3/ SURROGATE RECOVERY STU							
TPH By SW8015B Mod			Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			. ,	[D]		
1-Chlorooctane			106	99.9	106	70-135	
o-Terphenyl			49.2	50.0	98	70-135	

**Lab Batch #:** 968081 **Sample:** 507703-010 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/14/15 04:43 SURROGATE RECOVERY STUDY BTEX by EPA 8021B **Amount** True Control Flags Found Limits Amount Recovery [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0300 0.0300 100 80-120 4-Bromofluorobenzene

0.0316

0.0300

105

80-120

Lab Batch #: 968083 Sample: 507703-008 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/14/15 04:59 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	125	99.8	125	70-135	
o-Terphenyl	57.3	49.9	115	70-135	

Sample: 507703-009 / SMP **Lab Batch #:** 968083 Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/14/15 05:21	SURROGATE RECOVERY STUDY						
TPH By SW8015B Mod  Analytes			Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooct	ane		130	99.9	130	70-135			
o-Terphenyl			59.9	50.0	120	70-135			

Batch: **Lab Batch #:** 968083 **Sample:** 507703-010 / SMP Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/14/15 05:43	SURROGATE RECOVERY STUDY					
TPH By SW8015B Mod  Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooct	ane		110	100	110	70-135		
o-Terphenyl			50.1	50.0	100	70-135		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

Work Orders: 507703, **Project ID:** 088210/13

Lab Batch #: 968081 Matrix: Solid **Sample:** 692536-1-BLK / BLK Batch:

Units: mg/kg	<b>Date Analyzed:</b> 05/14/15 00:40	SU	RROGATE RE	ECOVERY S	STUDY	
	oy EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
A	nalytes			[D]		
1,4-Difluorobenzene		0.0287	0.0300	96	80-120	
4-Bromofluorobenzene		0.0299	0.0300	100	80-120	

**Lab Batch #:** 968083 **Sample:** 692540-1-BLK / BLK Batch: Matrix: Solid

**Units:** mg/kg Date Analyzed: 05/14/15 00:44 SURROGATE RECOVERY STUDY **Amount** True Control TPH By SW8015B Mod Found Limits Flags Amount Recovery [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 111 100 111 70-135 o-Terphenyl 52.7 50.0 105 70-135

Lab Batch #: 968081 Sample: 692536-1-BKS / BKS Matrix: Solid Batch:

**Units:** mg/kg Date Analyzed: 05/14/15 00:55 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0307	0.0300	102	80-120	
4-Bromofluorobenzene	0.0306	0.0300	102	80-120	

Sample: 692540-1-BKS / BKS Matrix: Solid **Lab Batch #: 968083** Batch:

**Units:** mg/kg Date Analyzed: 05/14/15 01:06 SURROGATE RECOVERY STUDY Amount True Control TPH By SW8015B Mod Recovery Found Amount Limits Flags [B] %R %R [A] [D] **Analytes** 1-Chlorooctane 100 125 70-135 125 o-Terphenyl 50.0 117 70-135 58.5

Lab Batch #: 968081 Sample: 692536-1-BSD / BSD Batch: Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 05/14/15 01:11	SU	RROGATE RI	ECOVERY S	STUDY	
	ВТЕ	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluorol	benzene		0.0315	0.0300	105	80-120	
4-Bromofluo	robenzene		0.0303	0.0300	101	80-120	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

Work Orders: 507703, Project ID: 088210/13

Lab Batch #: 968083Sample: 692540-1-BSD / BSDBatch: 1Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 05/14/15 01:28	SURROGATE RECOVERY STUDY									
	TPH 1	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags					
		Analytes			[D]							
1-Chlorooct	ane		128	100	128	70-135						
o-Terphenyl	1		58.8	50.0	118	70-135						

**Units:** mg/kg Date Analyzed: 05/14/15 01:27 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Flags Amount Recovery [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0316 0.0300 105 80-120 4-Bromofluorobenzene 0.0303 0.0300 101 80-120

Units: mg/kg Date Analyzed: 05/14/15 02:09 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	120	99.8	120	70-135	
o-Terphenyl	55.6	49.9	111	70-135	

Units:	mg/kg	<b>Date Analyzed:</b> 05/14/15 01:42	SU	RROGATE RE	ECOVERY S	STUDY	
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluore	obenzene		0.0318	0.0300	106	80-120	
4-Bromoflu	orobenzene		0.0315	0.0300	105	80-120	

Units:	mg/kg	<b>Date Analyzed:</b> 05/14/15 02:30	SU	RROGATE RE	ECOVERY S	STUDY	
	TPH 1	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	ane		123	99.9	123	70-135	
o-Terpheny	1		62.8	50.0	126	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



#### **BS / BSD Recoveries**



Project Name: Vaca 24 Federal Com #3H

Work Order #: 507703 Project ID: 088210/13

Analyst: ARM Date Prepared: 05/13/2015 Date Analyzed: 05/14/2015

 Lab Batch ID: 968081
 Sample: 692536-1-BKS
 Batch #: 1
 Matrix: Solid

Units:	mg/kg	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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	0.0924	92	0.100	0.0946	95	2	70-130	35	
Toluene	< 0.00200	0.100	0.0955	96	0.100	0.0989	99	3	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.0989	99	0.100	0.106	106	7	71-129	35	
m,p-Xylenes	< 0.00200	0.200	0.196	98	0.200	0.211	106	7	70-135	35	
o-Xylene	< 0.00100	0.100	0.0997	100	0.100	0.106	106	6	71-133	35	

Analyst: JUM Date Prepared: 05/13/2015 Date Analyzed: 05/13/2015

Lab Batch ID: 968165 Sample: 692516-1-BKS Batch #: 1 Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1  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
Chloride	<2.00	50.0	47.9	96	50.0	47.8	96	0	90-110	20	

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



#### **BS / BSD Recoveries**



Project Name: Vaca 24 Federal Com #3H

Work Order #: 507703 Project ID: 088210/13

Analyst: JUM Date Prepared: 05/13/2015 Date Analyzed: 05/14/2015

Lab Batch ID:968166Sample:692517-1-BKSBatch #:1Matrix:Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1  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
Chloride	< 2.00	50.0	50.1	100	50.0	50.0	100	0	90-110	20	

**Analyst:** ARM **Date Prepared:** 05/13/2015 **Date Analyzed:** 05/14/2015

**Lab Batch ID:** 968083 **Sample:** 692540-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes			,1		[2]		[ , ]				
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1050	105	1000	1100	110	5	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	1030	103	1000	1040	104	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



#### Form 3 - MS Recoveries





Work Order #: 507703

**Project ID:** 088210/13 Lab Batch #: 968165

**Date Analyzed:** 05/13/2015 **Date Prepared:** 05/13/2015 Analyst: JUM **QC- Sample ID:** 507604-001 S Batch #: Matrix: Soil

Reporting Units: mg/kg	MATE	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	<13.0	326	323	99	80-120	

Lab Batch #: 968165

**Date Analyzed:** 05/13/2015 **Date Prepared:** 05/13/2015 Analyst: JUM **QC- Sample ID:** 507695-002 S Batch #: Matrix: Soil

Reporting Units: mg/kg	MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	13.3	55.1	71.7	106	80-120	

Lab Batch #: 968166

**Date Analyzed:** 05/14/2015 **Date Prepared:** 05/13/2015 Analyst: JUM **QC- Sample ID:** 507414-002 S **Batch #:** 1 Matrix: Soil

Reporting Units: mg/kg

MATRIX	/ MATRIX SPIKE	RECOVERY STUDY

Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	145	544	703	103	80-120	

Lab Batch #: 968166

**Date Analyzed:** 05/14/2015 **Date Prepared:** 05/13/2015 Analyst: JUM **QC- Sample ID:** 507703-004 S Batch #: 1 Matrix: Soil

Reporting Units: mg/kg

	MATRIX / MATRIX SPIKE RECOVERY STUDY	
--	--------------------------------------	--

Final 1.000

Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	810	2650	3360	96	80-120	

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 - MS / MSD Recoveries



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507703 **Project ID:** 088210/13

**Lab Batch ID:** 968081 **QC- Sample ID:** 507703-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 05/14/2015 Date Prepared: 05/13/2015 Analyst: ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	< 0.00104	0.104	0.0927	89	0.103	0.0944	92	2	70-130	35	
Toluene	< 0.00207	0.104	0.0976	94	0.103	0.0990	96	1	70-130	35	
Ethylbenzene	< 0.00104	0.104	0.104	100	0.103	0.106	103	2	71-129	35	
m,p-Xylenes	< 0.00207	0.207	0.208	100	0.207	0.210	101	1	70-135	35	
o-Xylene	< 0.00104	0.104	0.104	100	0.103	0.106	103	2	71-133	35	

**Lab Batch ID:** 968083 **QC- Sample ID:** 507703-001 S **Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 05/14/2015 **Date Prepared:** 05/13/2015 **Analyst:** ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.5	1030	1140	111	1030	1140	111	0	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.5	1030	1060	103	1030	1180	115	11	70-135	35	

Final 1.000



# **Sample Duplicate Recovery**



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507703

**Lab Batch #:** 968107 **Project ID:** 088210/13

 Date Analyzed:
 05/13/2015 18:30
 Date Prepared:
 05/13/2015
 Analyst:
 WRU

 QC- Sample ID:
 507692-001 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
	Parent Sample Result [A]	Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Percent Moisture	4.58	4.62	1	20	

**Lab Batch #:** 968107

 Date Analyzed:
 05/13/2015 18:30
 Date Prepared:
 05/13/2015
 Analyst:
 WRU

 QC- Sample ID:
 507695-003 D
 Batch #:
 1
 Matrix:
 Soil

SAMPLE / SAMPLE DUPLICATE RECOVERY **Reporting Units: % Percent Moisture** Parent Sample Sample Control RPD Result **Duplicate** Limits Flag Result %RPD [A] [B] Analyte Percent Moisture 3.30 3.30 20

Lab Batch #: 968109

 Date Analyzed:
 05/13/2015 18:30
 Date Prepared:
 05/13/2015
 Analyst:
 WRU

 QC- Sample ID:
 507703-005 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE A	SAMPLE	DUPLIC	ATE REC	OVERY
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte		[D]			
Percent Moisture	1.11	1.06	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



Address: 162 Phone: INE Str 200, All Suguestine, NA 87110

(See Reverse Side for Instructions)

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	COMMENTS/ SPECIAL INSTRUCTIONS:	MS/MS	+		B12	Total C	EnCore Other:	(NaOH) Methan VOC)	Sodium		Unpres	(see ba	Matrix	DATE I	0	on one line)	<b>4 TION</b> nay be combined	SAMPLE IDENTIFICATION  (Containers for each sample may be combined	SAMPLI (Containers	Item
Final	Date Shipped:	D Reques			X 801	ontainers	s 3x5-g, 1	ol/Water	Acid (H <sub>2</sub>	hloric Aci		G) or Cor	S Code	Sperez Occawardian code code of co	perez	c A	bur arez	Service	Sampler(s):	S
1.000		t			21	/Sample	1x25-g	(Soil	0 1886			np (C)	anodela.	isch @a	bock		nie Bocu	505 280-05 72 Bernie Bowlisch	Chemistry Contact:	80
	red ex	ED tions)	ANALYSIS REQUESTED  e Back of COC for Definitio	YSIS R	ANALYSIS REQUESTED (See Back of COC for Definitions)		TY®	CONTAINER QUANTIT	NER O	CONTA		SAMPLE TYPE	S		3	ハイナハ	en lounty, NM	tion:	Project Location:	Pr
	Cooler No:			0;	Lab Quote No:	ğ			Ċ	Shook		Lab Contact:	L		F84	il (m#	29 federal	Veca.	Project Name:	Pr
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GOLDENROD — Sampling Crew



# XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: Conestoga-Rovers & Associates-Albuque

Date/ Time Received: 05/13/2015 11:00:00 AM

Work Order #: 507703

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

	Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?		3
#2 *Shipping container in good condition	?	Yes
#3 *Samples received on ice?		Yes
#4 *Custody Seals intact on shipping cor	ntainer/ cooler?	N/A
#5 Custody Seals intact on sample bottle	es?	N/A
#6 *Custody Seals Signed and dated?		N/A
#7 *Chain of Custody present?		Yes
#8 Sample instructions complete on Cha	in of Custody?	Yes
#9 Any missing/extra samples?		No
#10 Chain of Custody signed when relind	quished/ received?	Yes
#11 Chain of Custody agrees with sampl	e label(s)?	Yes
#12 Container label(s) legible and intact?	?	Yes
#13 Sample matrix/ properties agree with	n 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 indicate	ed test(s)?	Yes
#18 All samples received within hold time	e?	Yes
#19 Subcontract of sample(s)?		No
#20 VOC samples have zero headspace	•	N/A
#21 <2 for all samples preserved with HN samples for the analysis of HEM or HEM-analysts.		N/A
#22 >10 for all samples preserved with N	laAsO2+NaOH, ZnAc+NaOH?	N/A
* Must be completed for after-hours de Analyst:	PH Device/Lot#:	the refrigerator
Checklist completed by:  Checklist reviewed by:	Mury Moah  Kelsey Brooks	Date: 05/13/2015
Checklist reviewed by:	Julian Martinez	Date: <u>05/13/2015</u>

# **Analytical Report 507902**

for

# Conestoga-Rovers & Associates-Albuquerque, NM

Project Manager: Bernie Bockisch Vaca 24 Federal Com #3H 088210/13 18-MAY-15

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)





18-MAY-15

Project Manager: Bernie Bockisch

Conestoga-Rovers & Associates-Albuquerque, NM

6121 Indian School Rd. NE Suite 200

Albuquerque, NM 87110

Reference: XENCO Report No(s): 507902

Vaca 24 Federal Com #3H Project Address: Lea County,NM

#### Bernie Bockisch:

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) 507902. 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. 507902 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.

**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 507902**



# Conestoga-Rovers & Associates-Albuquerque, NM, Albuque

Vaca 24 Federal Com #3H

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
SO-088210-051315-SP-01	S	05-13-15 13:14		507902-001
SO-088210-051315-SP-02	S	05-13-15 13:27		507902-002
SO-088210-051315-SP-03	S	05-13-15 13:41		507902-003
SO-088210-051315-SP-04	S	05-13-15 15:34		507902-004
SO-088210-051315-SP-05	S	05-13-15 15:37		507902-005
SO-088210-051315-SP-06	S	05-13-15 15:38		507902-006
SO-088210-051315-SP-07	S	05-13-15 15:39		507902-007
SO-088210-051315-SP-08	S	05-13-15 15:42		507902-008



#### **CASE NARRATIVE**



Client Name: Conestoga-Rovers & Associates-Albuquerque, NM

Project Name: Vaca 24 Federal Com #3H

 Project ID:
 088210/13
 Report Date:
 18-MAY-15

 Work Order Number(s):
 507902
 Date Received:
 05/15/2015



Contact: Bernie Bockisch

Project Location: Lea County,NM

# **Certificate of Analysis Summary 507902**

#### Conestoga-Rovers & Associates-Albuquerque, NM, Albuquerque, NM



Project Id: 088210/13 Project Name: Vaca 24 Federal Com #3H

Date Received in Lab: Fri May-15-15 10:30 am

**Report Date:** 18-MAY-15

Project Manager: Kelsey Brooks

								I Toject Mia	mager.	Keisey Diook	.0		
	Lab Id:	507902-0	001	507902-0	002	507902-0	003	507902-0	004	507902-0	005	507902-0	006
Amalusia Dogusatod	Field Id:	SO-088210-051	315-SP-01	SO-088210-0513	315-SP-02	SO-088210-051	315-SP-03	SO-088210-051	315-SP-04	SO-088210-0513	315-SP-05	SO-088210-051	315-SP-06
Analysis Requested	Depth:												
	Matrix:	SOIL	,	SOIL		SOIL		SOIL	,	SOIL		SOIL	
	Sampled:	May-13-15	13:14	May-13-15	13:27	May-13-15	13:41	May-13-15	15:34	May-13-15	15:37	May-13-15	15:38
BTEX by EPA 8021B	Extracted:	May-15-15	17:00	May-15-15	17:00	May-15-15	17:00	May-15-15	17:00	May-15-15	17:00	May-15-15	17:00
	Analyzed:	May-15-15		May-15-15		May-15-15		May-15-15		May-15-15		May-15-15	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene	Onus/KL.	ND	0.00109	ND	0.00107	ND	0.00105	ND	0.00109	ND	0.00110	ND	0.00111
Toluene		ND	0.00217	ND	0.00213	ND	0.00210	ND	0.00217	ND	0.00219	ND	0.00222
Ethylbenzene		ND	0.00109	ND	0.00107	ND	0.00105	ND	0.00109	ND	0.00110	ND	0.00111
m,p-Xylenes		ND	0.00217	ND	0.00213	ND	0.00210	ND	0.00217	ND	0.00219	0.00219 ND 0	
o-Xylene		ND	0.00109	ND	0.00107	ND	0.00105	ND	0.00109	ND	0.00110	ND	0.00111
Total Xylenes		ND	0.00109	ND	0.00107	ND	0.00105	ND	0.00109	ND	0.00110	00110 ND 0.001	
Total BTEX		ND	0.00109	ND	0.00107	ND	0.00105	ND	0.00109	ND	0.00110	ND	0.00111
Inorganic Anions by EPA 300/300.1	Extracted:	May-17-15	10:00	May-17-15	10:00	May-17-15	10:00	May-17-15 10:00		May-17-15 10:00		May-17-15 10:00	
	Analyzed:	May-17-15	22:43	May-17-15	23:28	May-17-15	5 23:51 May-18-15 00:14		00:14	May-18-15 00:36		May-18-15 00:59	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		3.60	2.18	9.52	2.15	10.9	2.10	5.85	2.17	6200	440	1320	111
Percent Moisture	Extracted:												
	Analyzed:	May-15-15	18:00	May-15-15	18:00	May-15-15	18:00	May-15-15	18:00	May-15-15	18:00	May-15-15	18:00
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		8.17	1.00	6.86	1.00	4.80	1.00	8.00	1.00	9.17	1.00	10.3	1.00
TPH By SW8015B Mod	Extracted:	May-15-15	17:00	May-15-15	17:00	May-15-15	17:00	May-15-15	17:00	May-15-15	17:00	May-15-15	17:00
Analyzed: May-15-15 19:36 May-1		May-15-15	20:39	May-15-15	20:59	May-15-15	21:22	May-15-15	21:45	May-15-15	22:07		
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		ND	16.3	ND	16.1	ND	15.7	ND	16.3	ND	16.5	ND	16.7
C10-C28 Diesel Range Hydrocarbons		ND	16.3	ND	16.1	ND	15.7	ND	16.3	ND	16.5	6.5 ND 16.7	
Total TPH		ND	16.3	ND	16.1	ND	15.7	ND	16.3	ND	16.5	ND	16.7

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 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

Kelsey Brooks Project Manager



# Certificate of Analysis Summary 507902

#### Conestoga-Rovers & Associates-Albuquerque, NM, Albuquerque, NM



**Project Id:** 088210/13

Project Location: Lea County,NM

Contact: Bernie Bockisch

Project Name: Vaca 24 Federal Com #3H

**Date Received in Lab:** Fri May-15-15 10:30 am **Report Date:** 18-MAY-15

**Project Manager:** Kelsey Brooks

Lab Ist							Project Manager:	Reisey Brooks	
Marix:   SOIL		Lab Id:	507902-00	7	507902-00	8			
Mayrix   SOIL   SOIL   SOIL   SOIL   SOIL   SOIL   SOIL   Soil   May-13-15 15:39   May-13-15 15:42   SOIL   May-13-15 15:42   SOIL   May-13-15 15:42   SOIL   May-15-15 17:00   May-15-15 27:00   May-15-15 23:11   mg/kg   RL   mg/kg   RL   mg/kg   RL   Mayrix   SOIL   SOIL   Mayrix   S	Analusia Damental	Field Id:	SO-088210-05131	5-SP-07	SO-088210-05131	5-SP-08			
Sampled:   May-13-15 15:39   May-13-15 15:42	Analysis Kequestea	Depth:							
BTEX by EPA 8021B		Matrix:	SOIL		SOIL				
May-15-15 22:54   May-15-15 23:11   mg/kg   RL   mg/kg		Sampled:	May-13-15 15	5:39	May-13-15 15	5:42			
May-15-15 22:54   May-15-15 23:11   mg/kg   RL   mg/kg	RTEX by EPA 8021B	Extracted	May 15 15 1	7:00	May 15 15 1	7:00			
No	BIEN by El 11 0021B		1		-				
Benzene									
Toluene	D	Units/RL:							
Ethylbenzene									
Mp									
O-Xylene  ND 0.00115 ND 0.00115  Total Xylenes  ND 0.00115 ND 0.00115  Total BTEX  ND 0.00115 ND 0.00115  Inorganic Anions by EPA 300/300.1  Extracted: May-17-15 10:00 May-17-15 10:00  Analyzed: May-18-15 02:07 May-18-15 02:30  Units/RL: mg/kg RL mg/kg RL  Chloride  Percent Moisture  Extracted: Analyzed: May-15-15 18:00 May-15-15 18:00  Units/RL: % RL  Percent Moisture  TPH By SW8015B Mod  Extracted: May-15-15 17:00 May-15-15 17:00  Analyzed: May-15-15 17:00 May-15-15 17:00  May-15-15 17:00 May-15-15 17:00 May-15-15 17:00  May-15-15 17:00 May-15-15 17:00 May-15-15 17:00 May-15-15 17:00 M									
Total Xylenes					-				
Total BTEX	•								
Inorganic Anions by EPA 300/300.1   Extracted:	-								
Analyzed: May-18-15 02:07 May-18-15 02:30 Units/RL: mg/kg RL mg/kg RL  Chloride			ND (	0.00115	ND (	0.00115			
Chloride	Inorganic Anions by EPA 300/300.1	Extracted:	May-17-15 10	0:00	May-17-15 10	0:00			
Chloride		Analyzed:	May-18-15 02	2:07	May-18-15 02	2:30			
Percent Moisture		Units/RL:	mg/kg	RL	mg/kg	RL			
Analyzed: May-15-15 18:00 May-15-15 18:00 Percent Moisture  TPH By SW8015B Mod  Extracted: May-15-15 17:00 May-15-15 17:00 May-15-15 17:00 May-15-15 22:28 May-15-15 22:49  Units/RL: mg/kg RL mg/kg RL	Chloride		1800	116	1160	116			
Units/RL:	Percent Moisture	Extracted:							
Percent Moisture 13.7 1.00 13.5 1.00  TPH By SW8015B Mod Extracted: May-15-15 17:00 May-15-15 17:00  Analyzed: May-15-15 22:28 May-15-15 22:49  Units/RL: mg/kg RL mg/kg RL		Analyzed:	May-15-15 18	8:00	May-15-15 18	8:00			
TPH By SW8015B Mod         Extracted:         May-15-15 17:00         May-15-15 17:00           Analyzed:         May-15-15 22:28         May-15-15 22:49           Units/RL:         mg/kg         RL         mg/kg         RL		Units/RL:	%	RL	%	RL			
Analyzed:         May-15-15 22:28         May-15-15 22:49           Units/RL:         mg/kg         RL         mg/kg         RL	Percent Moisture		13.7	1.00	13.5	1.00			
Units/RL: mg/kg RL mg/kg RL	TPH By SW8015B Mod	Extracted:	May-15-15 1	7:00	May-15-15 17	7:00			
		Analyzed:	May-15-15 22	2:28	May-15-15 22	2:49			
C6-C10 Gasoline Range Hydrocarbons ND 17.3 ND 17.3		Units/RL:	mg/kg	RL	mg/kg	RL			
	C6-C10 Gasoline Range Hydrocarbons			17.3		17.3			
C10-C28 Diesel Range Hydrocarbons ND 17.3 ND 17.3	C10-C28 Diesel Range Hydrocarbons		ND	17.3	ND	17.3			
Total TPH ND 17.3 ND 17.3   ND 17.3	Total TPH		ND	17.3	ND	17.3			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed 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 liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager



### 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

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

PQL Practical Quantitation Limit MQL 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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5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
6017 Financial Drive, Norcross, GA 30071	(770) 449-8800	(770) 449-5477
3725 E. Atlanta Ave, Phoenix, AZ 85040	(602) 437-0330	



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

Work Orders: 507902, **Project ID:** 088210/13

**Lab Batch #:** 968336 Matrix: Soil Sample: 507902-001 / SMP Batch:

Units:	mg/kg	<b>Date Analyzed:</b> 05/15/15 19:36	SURROGATE RECOVERY STUDY							
	TPH :	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1-Chlorooct	ane		113	99.9	113	70-135				
o-Terpheny	1		58.6	50.0	117	70-135				

**Lab Batch #:** 968336 Sample: 507902-002 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg **Date Analyzed:** 05/15/15 20:39 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	99.9	109	70-135	
o-Terphenyl	56.1	50.0	112	70-135	

**Lab Batch #:** 968313 Sample: 507902-001 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/15/15 20:58 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	80-120	
4-Bromofluorobenzene	0.0310	0.0300	103	80-120	

**Lab Batch #:** 968336 Sample: 507902-003 / SMP Batch: 1 Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/15/15 20:59	SURROGATE RECOVERY STUDY								
	TPH 1	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1-Chlorooc	etane		114	99.7	114	70-135					
o-Terpheny	/1		57.7	49.9	116	70-135					

**Lab Batch #:** 968313 Sample: 507902-002 / SMP Batch: Matrix: Soil

<b>Units:</b>	mg/kg	<b>Date Analyzed:</b> 05/15/15 21:15	SURROGATE RECOVERY STUDY							
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1,4-Difluor	robenzene	<del>-</del>	0.0301	0.0300	100	80-120				
4-Bromoflu	uorobenzene		0.0323	0.0300	108	80-120				

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



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# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507902, **Project ID:** 088210/13

Da4a Amalamada 05/15/15 21.22

Units: mg/kg	g/kg Date Analyzed: 05/15/15 21:22 SURROGATE RECOVERY STUDY								
TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
Analytes			[D]						
1-Chlorooctane	100	100	100	70-135					
o-Terphenyl	51.4	50.0	103	70-135					

**Units:** mg/kg Date Analyzed: 05/15/15 21:31 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Flags Found Limits Amount Recovery [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0302 0.0300 101 80-120 4-Bromofluorobenzene 0.0320 0.0300 107 80-120

Units: mg/kg Date Analyzed: 05/15/15 21:45 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.1	99.8	94	70-135	
o-Terphenyl	48.1	49.9	96	70-135	

Units:	mg/kg	<b>Date Analyzed:</b> 05/15/15 22:04	SURROGATE RECOVERY STUDY						
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluor	robenzene		0.0304	0.0300	101	80-120			
4-Bromoflu	uorobenzene		0.0318	0.0300	106	80-120			

Units:	mg/kg	<b>Date Analyzed:</b> 05/15/15 22:07	SURROGATE RECOVERY STUDY					
	ТРН І	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooc	tane		114	99.8	114	70-135		
o-Terpheny	<i>i</i> 1		58.2	49.9	117	70-135	'	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



o-Terphenyl

# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

Work Orders: 507902, **Project ID:** 088210/13

**Lab Batch #:** 968313 Matrix: Soil Sample: 507902-005 / SMP Batch:

Units:	mg/kg	<b>Date Analyzed:</b> 05/15/15 22:21	SURROGATE RECOVERY STUDY					
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluorobenzene			0.0293	0.0300	98	80-120		
4-Bromofluor	robenzene		0.0311	0.0300	104	80-120		

**Lab Batch #:** 968336 Sample: 507902-007 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg **Date Analyzed:** 05/15/15 22:28 SURROGATE RECOVERY STUDY **Amount** True Control TPH By SW8015B Mod Found Limits Flags Amount Recovery [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 117 99.7 117 70-135

60.2

49.9

70-135

121

Lab Batch #: 968313 Sample: 507902-006 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 05/15/15 22:37 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0318	0.0300	106	80-120	

Sample: 507902-008 / SMP **Lab Batch #:** 968336 Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/15/15 22:49	SURROGATE RECOVERY STUDY					
	ТРН	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooc	tane		109	99.9	109	70-135		
o-Terpheny	ıl		56.0	50.0	112	70-135		

Batch: Lab Batch #: 968313 Sample: 507902-007 / SMP Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 05/15/15 22:54	SURROGATE RECOVERY STUDY					
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluorol	benzene	111111111111111111111111111111111111111	0.0301	0.0300	100	80-120		
4-Bromofluorobenzene			0.0329	0.0300	110	80-120		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



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T T-- 24 -- -

# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507902, **Project ID:** 088210/13

**Lab Batch #:** 968313 **Sample:** 507902-008 / SMP **Batch:** 1 **Matrix:** Soil

Data Amalamada 05/15/15 02:11

Units: mg/kg	SURROGATE RECOVERY STUDY							
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
Analytes			[D]					
1,4-Difluorobenzene	0.0305	0.0300	102	80-120				
4-Bromofluorobenzene	0.0319	0.0300	106	80-120				

Lab Batch #: 968336 Sample: 692672-1-BLK / BLK Batch: 1 Matrix: Solid

**Units:** mg/kg Date Analyzed: 05/15/15 18:33 SURROGATE RECOVERY STUDY **Amount** True Control TPH By SW8015B Mod Flags Found Limits Amount Recovery [A] [B] %R %R **Analytes** [D] 1-Chlorooctane 122 100 122 70-135 o-Terphenyl 64.0 50.0 128 70-135

Lab Batch #: 968313 Sample: 692667-1-BLK / BLK Batch: 1 Matrix: Solid

Units: mg/kg Date Analyzed: 05/15/15 19:19 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0305	0.0300	102	80-120	

Lab Batch #: 968336 Sample: 692672-1-BKS / BKS Batch: 1 Matrix: Solid

**Units:** mg/kg Date Analyzed: 05/15/15 18:54 SURROGATE RECOVERY STUDY Amount True Control TPH By SW8015B Mod Recovery Found Amount Limits Flags [B] %R %R [A] [D] **Analytes** 1-Chlorooctane 100 129 70-135 129 o-Terphenyl 57.7 50.0 115 70-135

Lab Batch #: 968313Sample: 692667-1-BKS / BKSBatch: 1Matrix: Solid

Units: mg/kg	<b>Date Analyzed:</b> 05/15/15 19:36	SU	RROGATE RI	ECOVERY S	STUDY	
BTEX by	FPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
An	alytes			[D]		
1,4-Difluorobenzene	0.0308	0.0300	103	80-120		
4-Bromofluorobenzene	0.0282	0.0300	94	80-120		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders**: 507902, **Project ID**: 088210/13

 Lab Batch #: 968336
 Sample: 692672-1-BSD / BSD
 Batch: 1
 Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 05/15/15 19:16	SURROGATE RECOVERY STUDY				
	TPH 1	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooct	ane		125	100	125	70-135	
o-Terphenyl	1		48.4	50.0	97	70-135	

Lab Batch #: 968313 Sample: 692667-1-BSD / BSD Batch: 1 Matrix: Solid

**Units:** mg/kg **Date Analyzed:** 05/15/15 19:52 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0309 0.0300 103 80-120 4-Bromofluorobenzene 0.0284 0.0300 95 80-120

Units: mg/kg Date Analyzed: 05/15/15 19:57 SURROGATE RECOVERY STUDY

TPH By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	127	99.9	127	70-135	
o-Terphenyl	57.3	50.0	115	70-135	

Units:	mg/kg	<b>Date Analyzed:</b> 05/15/15 20:09	SURROGATE RECOVERY STUDY						
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluor	obenzene		0.0306	0.0300	102	80-120			
4-Bromofluorobenzene			0.0284	0.0300	95	80-120			

Units:	mg/kg	<b>Date Analyzed:</b> 05/15/15 20:18	SU	RROGATE RE	ECOVERY S	STUDY	
	TPH 1	By SW8015B Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooc	tane		129	99.8	129	70-135	
o-Terpheny	<i>r</i> 1		59.2	49.9	119	70-135	'

<sup>\*</sup> Surrogate outside of Laboratory QC limits

Surrogate Recovery [D] = 100 \* A / B

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: Vaca 24 Federal Com #3H

**Work Orders:** 507902, **Project ID:** 088210/13

**Units: Date Analyzed:** 05/15/15 20:25 mg/kg SURROGATE RECOVERY STUDY Amount True Control BTEX by EPA 8021B Recovery Found Amount Limits Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0306 0.0300 102 80-120 4-Bromofluorobenzene 0.0310 0.0300 103 80-120

Surrogate Recovery [D] = 100 \* A / B

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



#### **BS / BSD Recoveries**



Project Name: Vaca 24 Federal Com #3H

Work Order #: 507902 Project ID: 088210/13

Analyst: ARM Date Prepared: 05/15/2015 Date Analyzed: 05/15/2015

 Lab Batch ID: 968313
 Sample: 692667-1-BKS
 Batch #: 1
 Matrix: Solid

Units:	mg/kg	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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	0.0945	95	0.100	0.0959	96	1	70-130	35	
Toluene	< 0.00200	0.100	0.0990	99	0.100	0.101	101	2	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.104	104	0.100	0.106	106	2	71-129	35	
m,p-Xylenes	< 0.00200	0.200	0.208	104	0.200	0.212	106	2	70-135	35	
o-Xylene	< 0.00100	0.100	0.103	103	0.100	0.104	104	1	71-133	35	

Analyst: JUM Date Prepared: 05/17/2015 Date Analyzed: 05/17/2015

Lab Batch ID: 968366 Sample: 692709-1-BKS Batch #: 1 Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1  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
Chloride	<2.00	50.0	48.8	98	50.0	49.9	100	2	90-110	20	

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



#### **BS / BSD Recoveries**



Project Name: Vaca 24 Federal Com #3H

Work Order #: 507902 Project ID: 088210/13

Analyst: ARM Date Prepared: 05/15/2015 Date Analyzed: 05/15/2015

 Lab Batch ID: 968336
 Sample: 692672-1-BKS
 Batch #: 1
 Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B 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 %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1090	109	1000	1080	108	1	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	1000	100	1000	1120	112	11	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



# Form 3 - MS Recoveries





**Work Order #:** 507902

**Project ID:** 088210/13 Lab Batch #: 968366

**Date Analyzed:** 05/18/2015 **Date Prepared:** 05/17/2015 Analyst: JUM **QC- Sample ID:** 507438-003 S **Batch #:** 1 Matrix: Soil

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Reporting Units: mg/kg	MATRIX / MATRIX SPIKE RECOVERY STUDY							
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag		
Chloride	31.9	545	569	99	80-120			

Lab Batch #: 968366

**Date Analyzed:** 05/17/2015 **Date Prepared:** 05/17/2015 Analyst: JUM **QC- Sample ID:** 507902-001 S **Batch #:** 1 Matrix: Soil

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MATRIX / MATRIX SPIKE RECOVERY STUDY							
Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag		
[A]	[B]						
3.60	54.4	62.7	109	80-120			
	Sample Result [A]	Sample Spike Result Added [A] [B]	Sample Spike Result Added [A] [B] Result	Sample Spike Result %R [C] [D]	Sample Spike Result %R Limits Result Added [C] [D] %R  [A] [B]		

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 - MS / MSD Recoveries



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507902 **Project ID:** 088210/13

**Lab Batch ID:** 968313 **QC- Sample ID:** 507902-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 05/15/2015 Date Prepared: 05/15/2015 Analyst: ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	< 0.00108	0.108	0.104	96	0.109	0.102	94	2	70-130	35	
Toluene	< 0.00217	0.108	0.108	100	0.109	0.107	98	1	70-130	35	
Ethylbenzene	< 0.00108	0.108	0.113	105	0.109	0.113	104	0	71-129	35	
m,p-Xylenes	< 0.00217	0.217	0.225	104	0.217	0.231	106	3	70-135	35	
o-Xylene	< 0.00108	0.108	0.111	103	0.109	0.114	105	3	71-133	35	

**Lab Batch ID:** 968336 **QC- Sample ID:** 507902-001 S **Batch #:** 1 **Matrix:** Soil

**Date Analyzed:** 05/15/2015 **Date Prepared:** 05/15/2015 **Analyst:** ARM

Reporting Units: mg/kg MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<16.3	1090	1230	113	1090	1270	117	3	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<16.3	1090	1140	105	1090	1180	108	3	70-135	35	



# **Sample Duplicate Recovery**



Project Name: Vaca 24 Federal Com #3H

**Work Order #:** 507902

**Lab Batch #:** 968328 **Project ID:** 088210/13

 Date Analyzed:
 05/15/2015 18:00
 Date Prepared:
 05/15/2015
 Analyst: WRU

 QC- Sample ID:
 507902-001 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: % SAMPLE / SAMPLE DUPLICATE RECOV					
Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	8.17	8.30	2	20	



# CHAIN OF CUSTODY

Address: 1621 Indian School Phone: 505-884-0672 Fax: NE Albuqueque, NM, 87110

OF

(See Reverse Side for Instructions) PAGE\_

Final 1.000

Project Name: Vaca 24 Federal Com#3H Chemistry Contact: Project Location: Project No/ Phase/Task Code: Sampler(s): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 1 Week ☐ 2 Week ☐ Other: TAT Required in business days (use separate COCs for different TATs): bernie boulisch 5-088210-13-051315-SP-07 5-088210-13-051315-5P-04 5-088210-13-051315-88-03 S-088210-13-05/3/5-58-05 S-088210-13-051315-SP-08 5-088210-13-051315-51-06 5-088210-13-051315-58-02 5-088210-13-051315-59-01 SAMPLE IDENTIFICATION -ea lownty tere brez 088219-13-05/4 RELINQUISHED BY bbochisch@craworld,com Sperezo Craworld, com DATE 7 TIME Matrix Code SAMPLE Laboratory Name: TYPE (see back of COC) Grab (G) or Comp (C) respo-ours All Samples in Cooler must be on COC Unpreserved Brooks Hydrochloric Acid (HCI) CONTAINER QUANTITY & Total Number of Containers: Nitric Acid (HNO<sub>3</sub>) PRESERVATION Sulfuric Acid (H2SO4) Sodium Hydroxide (NaOH) Methanol/Water (Soil VOC) EnCores 3x5-g, 1x25-g RECEIVED BY Notes/ Special Requirements: Lab Location: Lab Quote No: 802 (See Back of COC for Definitions) ANALYSIS REQUESTED COMPANY MS/MSD Request Capter Date Shipped: Airbill No: Cooler No: SSOW ID: SPECIAL INSTRUCTIONS: COMMENTS! 2000 TIME

Page 19 of 20

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Item

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT — ALL FIELDS MUST BE COMPLETED ACCURATEL)



# XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: Conestoga-Rovers & Associates-Albuqu

Date/ Time Received: 05/15/2015 10:30:00 AM

Work Order #: 507902

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

**Temperature Measuring device used:** 

	Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?		3.5
#2 *Shipping container in good condition	?	Yes
#3 *Samples received on ice?		Yes
#4 *Custody Seals intact on shipping cor	ntainer/ cooler?	N/A
#5 Custody Seals intact on sample bottle	es?	N/A
#6 *Custody Seals Signed and dated?		N/A
#7 *Chain of Custody present?		Yes
#8 Sample instructions complete on Cha	in of Custody?	Yes
#9 Any missing/extra samples?		No
#10 Chain of Custody signed when relind	quished/ received?	Yes
#11 Chain of Custody agrees with sampl	e label(s)?	Yes
#12 Container label(s) legible and intact?	?	Yes
#13 Sample matrix/ properties agree with	n 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 indicate	ed test(s)?	Yes
#18 All samples received within hold time	e?	Yes
#19 Subcontract of sample(s)?		No
#20 VOC samples have zero headspace	(less than 1/4 inch bubble)?	No
#21 <2 for all samples preserved with HN samples for the analysis of HEM or HEM-analysts.		No
#22 >10 for all samples preserved with N	laAsO2+NaOH, ZnAc+NaOH?	No
* Must be completed for after-hours de Analyst:	livery of samples prior to placing in PH Device/Lot#:	the refrigerator
Checklist completed by:	Kelsey Brooks	Date: <u>05/15/2015</u>
Checklist reviewed by:	Kelsey Brooks	Date: <u>05/15/2015</u>