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Remediation Summary and Closure Report

This RP is closed on the condition of the submittal of a new C-141 for the historical contamination found during remedial activities.

> New McKee Junction Sump Plains SRS No. 2015-175 NMOCD Ref. No. 1RP-3841 Lea County, New Mexico Unit Letter "K", Section 29, Township 20 South, Range 38 East Latitude 32.54213° / Longitude -103.17194° June 13, 2016



Distribution:

Copy 1: Plains – Midland, TX Copy 2: New Mexico Oil Conservation Division – Hobbs Copy 3: Bureau of Land Management - Carlsbad Prepared for: Plains Pipeline, L.P. Midland, Texas

Prepared by: Terracon Consultants, Inc. Lubbock, Texas



June 13, 2016

Terracon

Plains Pipeline, L.P. 505 N. Big Spring, Suite 600 Midland, Texas 79701

- Attn: Ms. Camille Bryant P: (432) 221-7922 E: cjbryant@paalp.com
- Re: Remediation Summary and Closure Report New McKee Junction Sump Plains SRS No. 2015-175 NMOCD Ref. No. 1RP-3841 Lea County, New Mexico Latitude 32.54213° / Longitude -103.17194° Terracon Project No. AR157452

Dear Ms. Bryant:

Terracon is pleased to submit two copies of the *Remediation Summary and Closure Report* for the above-referenced site.

We appreciate the opportunity to provide environmental consulting services at the New McKee Junction Sump Site for Plains Pipeline, L.P. Please contact the undersigned at (806) 300-0140 if you have questions regarding the information provided in the report.

Sincerely, Terracon Consultants, Inc.

) al found

Joel Lowry Project Geologist Lubbock

Loyd, PG

Senior Associate Office Manager – Lubbock



Terracon Consultants, Inc. 5827 50th Street, Suite 1 Lubbock, Texas 79424 P (806) 300 0140 F (806) 797 0947 terracon.com

Terracon

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REMEDIATION SUMMARY AND CLOSURE REPORT

New McKee Junction Sump Plains SRS No. 2015-175 NMOCD Ref. No. 1RP-3841 Terracon Project No. AR157452

June 8, 2016

1.0 INTRODUCTION & BACKGROUND INFORMATION

Terracon Consultants Inc. (Terracon), on behalf of Plains Pipeline (Plains), has prepared this *Remediation Summary and Closure Report* for the release site known as New McKee Junction Sump (hereafter referred to as the "site"). The site is located at 32.54213° North Latitude and 103.17194° West Longitude in Unit Letter "K", Section 29, Township 20 South, Range 38 East, in Lea County, New Mexico. The affected property is owned by the United Stated Department of the Interior and administered by the Bureau of Land Management (BLM). A "Site Location Map" is provided as Figure 1 in Appendix A.

On August 28, 2015, Plains discovered a release had occurred at the New McKee Junction facility. The release was attributed to the failure of a check valve causing an on-site sump to overfill. The "Release Notification and Correction Action Form" (NMOCD Form C-141) indicated that approximately 40 barrels (bbls) of crude oil were released, with approximately 35 bbls being recovered. The release affected an area measuring approximately 1,800 square feet (sq. ft.) within the facility boundaries before flowing west affecting area measuring approximately 6,000 sq. ft. adjacent to the facility. Between September 2, 2015 and January 25, 2016, Terracon personnel oversaw excavation of affected soil and conducted confirmation soil sampling activities at the site. Photographs of the site are provided in Appendix D.

Pursuant to the New Mexico Administrative Code (NMAC) 19.15.29, Plains personnel notified the New Mexico Oil Conservation Division (NMOCD) of the occurrence of the release due to the estimated volume of the release being greater than 5 barrels. A copy of the NMOCD Form C-141 is provided in Appendix E.

Site Name	New McKee Junction Sump
GPS	Lat.: 32.54213°, Long: -103.17194°
Legal Description	U/L "K", Section 29, Township 20 South, Range 38 East
County	Lea County
General Description	The release site consists of a pipeline junction station complete with numerous above and below ground pipelines; valve settings and sumps.

1.1 Site Description



A "Site Location Map" and "Site Diagram" are included as Figures 1 and 2, respectively, in Appendix A.

1.2 Scope of Services

The Scope of Services for Terracon as requested by Plains Pipeline included:

- Oversight of the remediation of impacted soil;
- Collection of confirmation soil samples; and
- Submittal of a Remediation Summary and Closure Report detailing field activities, analytical results, site maps and photographs.

1.3 Regulatory Framework

Crude oil facilities in New Mexico are generally regulated by the NMOCD. Contamination of soil due to a surface release of petroleum hydrocarbons is addressed in the NMOCD guidance document titled *Guidelines for Remediation of Leaks, Spills and Releases,* dated August 13, 1993.

The guidance document provides direction for initial response actions, site assessment, sampling procedures and provides a total ranking score based on the depth to groundwater, distance to private and domestic water sources, and the distance to the nearest surface water body as follows:

Ranking Score Criteria				
General Site Characterist	ics	Score		
	< 50 feet	20		
Depth to Ground Water	50 – 99 feet	10		
	> 100 feet	0		
Well Head Protection Area, <1,000 feet from water source, or	Yes	20		
<200 feet from private domestic water source	No	0		
	< 200 feet	20		
Distance to Surface Water Body	200 – 1,000 feet	10		
	> 1,000 feet	0		

The total ranking score is the sum of the four individual ranking criteria and the basis for determining the recommended remediation action levels at the site.

Remediation Summary and Closure Report



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Recommended Remediation Action Levels							
Contaminant of Concern	Т	Total Ranking Score					
	>19	10-19	0-9				
Benzene	10 mg/kg	10 mg/kg	10 mg/kg				
BTEX	50 mg/kg	50 mg/kg	50 mg/kg				
TPH	100 mg/kg	1,000 mg/kg	5,000 mg/kg				

The NMAC does not specify a recommended remediation action level for chloride in soil. Recommended remediation action levels for chloride are set by the NMOCD on a site-specific basis.

1.4 NMOCD Site Ranking

Based on Terracon's evaluation of the site ranking criteria, the Site has a total ranking score of 20 points, based on the following:

- Review of the New Mexico Water Rights Reporting System (NMWRRS) database indicates depth to groundwater information is unavailable for Section 29, Township 20 South, Range 38 East. Review of a depth to groundwater gradient map suggests groundwater should be encountered at approximately 60 ft. bgs. Analytical results from soil samples collected at the release site indicate historical soil impacts extend to 15.5 to 16 ft. bgs in the area represented by delineation trench DT-1, which is within 50 ft. of groundwater.
- Review of the NMWRRS database indicates there are no registered water wells within 1,000 feet of the Site.
- Review of available United States Geological Survey (USGS) topographical maps indicates that there are no surface water bodies within 1,000 feet of the Site.

Total Ranking Score for Site				
Ranking Score Criteria	ı		Score	
	< 50 feet	20		
Depth to Ground Water	50 – 99 feet	10	20	
	> 100 feet	0		
Well Head Protection Area, <1,000 feet from water source, or;	Yes	20	- 0	
<200 feet from private domestic water source	No	0	U	
	< 200 feet	20		
Distance to Surface Water Body	200 – 1,000 feet	10	0	
	> 1,000 feet	0]	
Total Ranking Score				



Recommended remediation action levels for a site with a total ranking score of 20 points are as follows:

- Benzene 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene and xylene (BTEX) 50 mg/kg
- Total petroleum hydrocarbons (TPH) 100 mg/kg

2.0 LIMITATIONS

2.1 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies or other third parties supplying information used in the preparation of the report.

2.2 Additional Scope Limitations

Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, non-detectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this remediation activities. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

2.3 Reliance

This report has been prepared for the exclusive use of Plains Pipeline, L.P., and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of Plains Pipeline, L.P. and Terracon. Any unauthorized distribution or reuse is at the client's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in this report, and Terracon's Terms and Conditions. The



limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to the client and all relying parties unless otherwise agreed in writing.

3.0 SUMMARY OF FIELD ACTIVITIES

3.1 Site Investigation

Following notification of a crude oil release that occurred on August 28, 2015 at the New McKee Junction facility, Terracon visited the site with a Plains representative. The release was attributed to the failure of a check valve causing an on-site sump to overfill. It is estimated that approximately 40 bbls of crude oil were released, with approximately 35 bbls being recovered. The release affected an area measuring approximately 1,800 sq. ft. within the facility boundaries before flowing west affecting area measuring approximately 6,000 sq. ft. adjacent to the facility. During initial response activities, Plains personnel responded to the reported incident, secured the release site, recovered free-standing fluid and repaired the affected check valve. A "Site Diagram" is provided as Figure 2 in Appendix A.

3.2 Remediation Summary and Soil Sampling Activities

September 2, 2015

Remediation activities commenced at the release site. Affected soil within the release margins was excavated and stockpile on-site, atop a polyurethane liner, pending final disposition. One soil sample, RP (1') was collected from adjacent to the release point and submitted to the laboratory for analysis of chloride concentrations, which were determined to be 7.99 mg/kg. Impacted soil within the affected pasture to the west of the station was excavated until laboratory analytical results from confirmation soil samples indicated total petroleum hydrocarbon (TPH) and benzene, toluene, ethylbenzene, and total xylene (BTEX) concentrations were less than NMOCD Regulatory Remediation Action Levels established for the site.

During the excavation of impacted soil within the facility boundaries, historical soil impacts were discovered beneath and adjacent to facility piping. Impacted soil was excavated to the maximum extent practicable, given the proximity to active pipelines and the congested nature of the facility.

Excavated soils associated with remedial assessment activities for the duration of the project were profiled and transported to J & L Landfarm Inc. (Permit No. NM1-023).

September 4, 2015

Terracon collected six confirmation soil samples (NE PA NSW, NE PA ESW, NE PA WSW, NW PA NSW, NW PA ESW and NW PA WSW) from the sidewalls of the excavated area in the

Remediation Summary and Closure Report New McKee Junction Sump Lea County, New Mexico Plains SRS 2015-175 Terracon Project No. AR157452



northwestern portion of the release site and submitted them to the laboratory for analysis of BTEX and TPH.

Laboratory analytical results indicated BTEX and TPH concentrations were less than the applicable laboratory sample detection limits (SDLs) in each of the submitted soil samples with the exception of soil sample NE PA NSW, which exhibited a TPH concentration of 58.5 mg/kg. BTEX and TPH concentrations were below NMOCD Recommended Remediation Action Levels in each of the submitted soil samples.

The locations of the confirmation soil samples are illustrated on Figures 2 and 3 of Appendix A. A summary of confirmation soil sample analytical results is provided in Table 1 of Appendix B. The executed chain-of-custody forms, laboratory data sheets, and analytical summary table are provided in Appendix C.

October 2, 2015

Terracon collected two confirmation soil samples (NE PA Floor and NW PA Floor) from the floor of the excavated area in the northwestern portion of the release site and submitted them to the laboratory for analysis of BTEX and TPH. BTEX concentrations were not detected above applicable laboratory SDLs, and TPH concentrations were 303 mg/kg. The excavation was advanced the area represented by soil sample NE PA Floor.

October 12, 2015

Terracon collected seven confirmation soil samples (SSW #1, SSW #2, WSW #2, NSW #3, Center Floor @ 7', SE Floor @ 7' and NE PA Floor @8') from the floor sidewalls of the excavated area in the western portion of the release site and submitted them to the laboratory for analysis of BTEX and TPH. Laboratory analytical results indicated BTEX concentrations were less than the applicable laboratory SDL in each of the submitted soil samples. Analytical results indicated TPH concentrations were less than the applicable laboratory SDL in each of the submitted soil samples with the exception of soil sample NE PA Floor @ 8', which exhibited a TPH concentration of 137 mg/kg. The excavation was advanced in the area represented by soil sample NE PA Floor @ 8'.

In addition, two soil samples (Telephone Pole In-Situ and Cathodic In-Situ) were collected from affected soil adjacent to an on-site telephone pole and cathodic well. Collected soil samples were submitted to the laboratory for analysis of BTEX and TPH concentrations. Laboratory analytical results indicated soil sample Telephone Pole (In-Situ) exhibited a benzene concentration of 0.112 mg/kg, total BTEX concentration of 32.4 mg/kg and a TPH concentration of 3.29 mg/kg, total BTEX concentration of 171 mg/kg and a TPH concentration of 20,800 mg/kg.

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October 16, 2015

Terracon collected confirmation soil sample NE PA @ 9' from the floor of the excavation in the area represented by soil sample NE PA Floor @ 8' and submitted it to the laboratory for analysis of TPH concentrations, which were determined to be less than the laboratory SDL.

Upon collecting the necessary confirmation soil samples, Plain's requested NMOCD and BLM permission to backfill the remediated area within the affected pasture with locally-purchased material, and temporarily backfill a portion of the excavated area within the facility boundaries to facilitate the installation of a new pipeline at the facility.

October 26, 2015

Plains and BLM representatives met on-site to discuss the presence of historical soil impacts discovered during remediation activities and backfilling the excavated areas within the affected pasture and facility boundaries to facilitate the installation of the new pipeline at the facility. During the meeting, it was determined that the excavated areas could be backfilled, and that upon installing the new pipeline at the facility, additional delineation activities would be conducted to further investigate historical soil impacts discovered during remediation of the subject release. In addition, the BLM requested that an additional soil sample be collected from the floor of the excavation in an effort to determine whether a recent rainfall event resulted in hydrocarbon impacts.

October 27, 2015

Upon receiving NMOCD and BLM approval, environmental personnel began backfilling the excavated area within the affected pasture with locally purchased material. In addition, excavated areas within the facility boundaries were backfilled with locally purchased caliche and compacted to meet the needs of the pipeline installation.

October 28, 2015

As per the BLM, one additional soil sample (10/28 NE PA @ 9') was collected from the floor of the excavated area characterized by the northeast pooling area and submitted to the laboratory for analysis of TPH concentrations in an effort to determine whether a recent rainfall event resulted in hydrocarbon impacts. Laboratory analytical results indicate the TPH concentration in soil sample 10/28 NE PA @ 9' was less than the laboratory SDL.

December 10, 2015

Upon backfilling the excavated areas to facilitate the installation of the new pipeline, impacted soils represented by soil samples Telephone Pole In-Situ and Cathodic In-Situ was excavated. Excavated material was placed in the existing soil stockpile.

In addition, delineation activities were conducted at the release site in an effort to further evaluate historical soil impacts discovered beneath and adjacent to facility piping during remediation activities. Delineation trench DT-1 was advanced proximate to the inferred center of

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the area characterized by historical soil impacts. During the advancement of the delineation trench, soil samples were collected from within the 10.5 to 11 ft., 12.5 to 13 ft., 15.5 to 16 ft. and 17.5 to 18 ft. bgs intervals and submitted to the laboratory for analysis of TPH and BTEX. Laboratory analytical results indicated TPH concentrations ranged from less than the laboratory SDL for the soil sample collected from the 17.5 to 18 ft. interval to 4,800 mg/kg for the soil sample collected from the 12.5 to 13 ft. interval. Analytical results indicated benzene concentrations ranged from less than the laboratory SDL for the soil samples collected from the 12.5 to 13 ft. interval. Analytical results indicated benzene concentrations ranged from less than the laboratory SDL for the soil samples collected from the 12.5 to 13 ft. interval. SDL for the soil samples collected from the 15.5 to 16 ft. and 17.5 to 18 ft. intervals to 0.562 mg/kg for the soil sample collected at the 10.5 to 11 ft. interval. Total BTEX concentrations ranged from less than the laboratory SDL for the soil sample collected at the 17.5 to 18 ft. intervals to 46.3 mg/kg for the soil sample collected soil samples, it was determined that soil was not affected above NMOCD Regulatory Remediation Action Levels for TPH, benzene or total BTEX beyond 17.5 to 18 ft. bgs.

January 13, 2016

NMOCD and Plains representatives met to discuss historical soil impacts encountered beneath active piping and valve settings at the site and the results of delineation activities. During the meeting, it was determined additional horizontal delineation activities would be conducted in and an additional Form C-141 be submitted documenting the presence of historical soil impacts and the results of delineation activities.

January 21, 2016

Excavation activities resumed within the facility boundaries. A hydroexcavator and hand-shovels were used to excavate affected soil beneath and adjacent to pipelines within the facility. Impacted soil was excavated to the maximum extent practicable, given the proximity to active pipelines and the congested nature of the facility.

January 25, 2016

Terracon collected four confirmation soil samples (Facility NSW, Facility SSW, Facility ESW and Facility Floor) from the excavated area characterized by the August 28, 2015, release and submitted them to the laboratory for analysis of TPH and BTEX. Laboratory analytical results indicate TPH and BTEX concentrations were less than the appropriate laboratory SDL in each of the submitted soil samples with the exception of soil sample Facility Floor, which exhibited a TPH concentration of 38.5 mg/kg. TPH and BTEX concentration were less than NMOCD Regulatory Remediation Action Levels in each of the submitted soil samples.

In addition, one test trench (South TT) and two (2) hand-augered soil bores (North SB and East SB) were advanced outside the facility in an effort to determine the horizontal extent of historical soil impacts discovered during remediation activities. During the advancement of the test trench and soil bores, soil samples were collected from the 4.5 to 5 ft. and 9.5 to 10 ft. intervals and submitted to the laboratory for analysis of TPH and BTEX. Laboratory analytical results indicate TPH and BTEX concentrations were less than the appropriate laboratory SDL in each of the

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submitted soil samples with the exception of soil sample North SB (9.5-10') which exhibited a TPH concentration of 86.2 mg/kg. TPH and BTEX concentration were less than NMOCD Regulatory Remediation Action Levels in each of the submitted soil samples.

May 5, 2016

Upon receiving NMOCD and BLM permission, the remaining excavated area in the southern portion of the release site was backfilled with locally purchased material. Prior to backfilling, the final dimensions of the excavated area within the affected pasture were approximately 100 ft. in length, 30 to 70 ft. in width and 6 to 9 ft. in depth. The final dimensions of the excavated area within the facility boundaries were approximately 95 ft. in length, 5 to 60 ft. in width and 2 to 13 ft. in depth.

Between October 7, 2015, and May 5, 2016, approximately 2,080 cubic yards of impacted soil was transported to J & L Landfarm Inc. (Permit No. NM1-023).

3.3 Laboratory Analytical Methods

Confirmation soil samples collected at the site were placed in laboratory-prepared containers, labeled and placed on ice in the field. The samples were relinquished with chain-of-custody forms to Xenco Laboratories, of Midland, Texas, for analysis of BTEX, TPH and/or chloride using the following methods:

- BTEX concentrations in accordance with EPA Method SW-846 8021b
- TPH concentrations in accordance with EPA Method SW-846 8015M
- Chloride concentrations in accordance with EPA Method 300.

4.0 **RECOMMENDATIONS**

Remediation activities at the New McKee Junction Sump release site were conducted in accordance with the NMOCD and BLM. Based on field activities and review of laboratory analytical results from confirmation soil samples collected from the site, additional remediation and/or investigation activities are not warranted at the site at this time. Soil exhibiting TPH concentrations above NMOCD Recommended Remediation Action Levels in the area characterized by historical soil impacts and delineation trench DT-1 may be remediated upon time of abandonment (TOA) under a separate C-141 as per the NMOCD.

Terracon respectfully submits this *Remediation Summary and Closure Report* to Plains Pipeline, L.P., as documentation of the site remediation activities at the New McKee Junction Sump site. Remediation activities conducted at the New McKee Junction Sump site met the objectives set forth by the NMOCD and BLM. Based on the completion of field activities and sample analysis

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to date, Terracon recommends no further action be taken in regards to the documented release at the site at this time.

Remediation Summary and Risk-Based Closure Report New McKee Junction Sump
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APPENDIX A

Figure 1 – Site Location Map Figure 2 – Site Diagram - Pasture Figure 3 – Site Diagram - Facility







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APPENDIX B

 Table 1 – Confirmation Soil Sample Analytical Results

					McKee Jun	ction Sum	р							
					All Americar									
				Latitude: 32.										
				Terrac	con Project N									
			Sample			TPH			Benzene	Toluene	Ethyl-	Total	Total	Chi
Sample ID	Depth	Date	Type	Soil Status	C ₆ -C ₁₂	C ₁₂ -C ₂₈	C ₂₈ -C ₃₅	C ₆ -C ₃₅	(mg/kg)	(mg/kg)	benzene	Xylenes	BTEX	(mg
					(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(119/19)	(119/119)	(mg/kg)	(mg/kg)	(mg/kg)	
RP	1'	9/2/2015	Grab	In-Situ	-	-	-	•	-	-	-	•	-	7
NE PA NSW	6'	9/4/2015	Grab	In-Situ	<15.0	58.5	<15.0	58.5	<0.00498	< 0.00996	<0.00498	< 0.00996	<0.00996	
NE PA INSW	6'	9/4/2015	Grab	In-Situ In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000498	<0.00998	<0.00498	<0.00996	<0.00996	
NE PA ESW NE PA WSW	6'	9/4/2015	Grab	In-Situ In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000998	<0.00200	<0.000998	<0.00200	<0.00200	-
NW PA NSW	5'	9/4/2015	Grab	In-Situ In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00100	<0.00200	<0.000992	<0.00200	<0.00200	
NW PA NSW	5'	9/4/2015	Grab	In-Situ In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000992	<0.00198	<0.000992	<0.00198	<0.00198	-
NW PA ESW NW PA WSW	5'	9/4/2015	Grab	In-Situ In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00100	<0.00200	<0.00100	<0.00200	<0.00200	
NW PA WSW	5	9/4/2015	Grab	in-Situ	<15.0	<15.0	<15.0	<15.0	<0.000996	<0.00199	<0.000996	<0.00199	<0.00199	
NE PA Floor	7'	10/2/2015	Grab	Excavated	<15.0	303	<15.0	303	<0.000994	<0.00199	< 0.000994	< 0.00199	<0.00199	
NW PA Floor	6'	10/2/2015	Grab	In-Situ	<14.9	<14.9	<14.9	<14.9	< 0.000994	< 0.00199	< 0.000994	< 0.00199	< 0.00199	1
SSW #1	5'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	< 0.000994	< 0.00199	< 0.000994	< 0.00199	<0.00199	
SSW #2	5'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	< 0.00166	< 0.00332	< 0.00166	< 0.00332	< 0.00332	1
WSW #2	5'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	< 0.000998	< 0.00200	<0.000998	<0.00200	< 0.00200	1
NSW #3	5'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	< 0.000990	< 0.00198	< 0.000990	< 0.00198	< 0.00198	1
Center Floor	7'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	< 0.00198	< 0.00397	< 0.00198	< 0.00397	< 0.00397	1
SE Floor	7'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	< 0.000992	< 0.00198	< 0.000992	< 0.00198	< 0.00198	
NE PA Floor	8'	10/12/2015	Grab	Excavated	<15.0	137	<15.0	137	< 0.00164	< 0.00328	< 0.00164	<0.00328	<0.00328	
elephone Pole (In-Situ)	5'	10/12/2015	Grab	Excavated	981	12,400	180	13,600	0.112	4.66	7.08	20.5	32.4	
Cathodic (In-Situ)	5'	10/12/2015	Grab	Excavated	3,540	17,100	194	20,800	3.29	39.5	35.2	92.6	171	
NE PA @ 9'	9'	10/16/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	< 0.000996	< 0.00199	< 0.000996	< 0.00199	<0.00199	
10/28 NE PA @ 9'	9'	10/28/2015	Grab	In-Situ	<15.0	<15.0	<15.0	-	-	-	-	-	-	
DT-1	10.5-11'	12/10/2015	Grab	In-Situ	1,040	2,530	<15.0	3,570	0.562	1.4	12.6	17.3	31.9	
DT-1	12.5-13'	12/10/2015	Grab	In-Situ	1,380	3,420	<14.9	4,800	0.284	0.723	19	26.3	46.3	
DT-1	15.5-16'	12/10/2015	Grab	In-Situ	<15.0	135	<15.0	135	<0.00167	< 0.00333	0.00405	0.0111	0.0152	
DT-1	17.5-18'	12/10/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00101	<0.00202	<0.00101	<0.00202	<0.00202	
Telephone (In-Situ) b	7'	12/10/2015	Grab	In-Situ	19.8	20.8	<15.0	40.6	< 0.000994	0.0109	0.0442	0.381	0.162	<u> </u>
Cathodic (In-Situ) b	7'	12/10/2015	Grab	In-Situ	<15.0	41.2	<15.0	41.2	<0.000998	0.00200	0.000998	0.0259	0.0259	—
Facility NSW	2'	1/25/2016	Grab	In-Situ	<14.9	<14.9	<14.9	<14.9	< 0.000994	<0.00199	< 0.000994	<0.000994	< 0.000994	-
Facility SSW	2'	1/25/2016	Grab	In-Situ In-Situ	<14.9	<14.9	<14.9	<14.9	<0.000994	<0.00199	<0.000994	<0.000994	<0.000994	+
Facility ESW	2'	1/25/2016	Grab	In-Situ In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000994	<0.00202	<0.000994	<0.000994	<0.00101	+
Facility Floor	4-4.5'	1/25/2016	Grab	In-Situ In-Situ	<14.9	38.5	<14.9	38.5	<0.000994	<0.00199	<0.000994	<0.000994	<0.000994	+
	4-4.5	1/23/2010	Giab	III-Situ	\$14.3	50.5	\$14.3	30.3	~0.00100	<0.00201	<0.00100	~0.00100	<0.00100	
South TT	4.5-5'	1/25/2016	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	1
South TT	9.5-10'	1/25/2016	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00100	< 0.00200	< 0.00100	< 0.00100	< 0.00100	1
North SB	4.5-5'	1/25/2016	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	< 0.00100	0.00392	< 0.00100	0.00392	0.00784	1
North SB	9.5-10'	1/25/2016	Grab	In-Situ	<15.0	86.2	<15.0	86.2	< 0.00100	< 0.00309	< 0.00100	< 0.00100	< 0.00309	1
East SB	4.5-5'	1/25/2016	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	< 0.000998	< 0.00200	< 0.000998	< 0.000998	< 0.000998	1
East SB	9.5-10'	1/25/2016	Grab	In-Situ	<14.9	<14.9	<14.9	<14.9	<0.000998	< 0.00200	< 0.000998	< 0.000998	< 0.000998	
					-			4						÷

1. TPH = Total petroleum hydrocarbons analyzed by EPA Method SW-846 8015M.

2. BTEX = BTEX analyzed by EPA Method SW-846 8021b.

3. Chlorides = Chlorides analyzed by EPA Method E 300.

- = Soil sample not analyzed for that constituent.

< = Constituent not detected above the indicated laboratory reporting limit (RL).

N/A = Not Applicable

* = Remediation Action Levels for chloride are not currently specified in the New Mexico Administrative Code and are set by the NMOCD on a site-specific basis.

Bold denotes concentrations that exceeds NMOCD Regulatory Remediation Action Levels

Remediation Summary and Risk-Based Closure Report New McKee Junction Sump
Lea County, New Mexico Plains SRS 2015-162
Terracon Project No. AR157452



APPENDIX C Laboratory Analytical Reports

Analytical Report 514841

for PLAINS ALL AMERICAN EH&S

Project Manager: Joel Lowry

New McKee Jct. Sump

AR157452

08-SEP-15

Collected By: Client





12600 West I-20 East Odessa, Texas 79765

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

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

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



08-SEP-15

Project Manager: **Joel Lowry PLAINS ALL AMERICAN EH&S** 1301 S. COUNTY ROAD 1150 Midland, TX 79706

Reference: XENCO Report No(s): **514841 New McKee Jct. Sump** Project Address:

Joel Lowry:

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) 514841. 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. 514841 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.

Kms Boah

 Kelsey Brooks

 Project Manager

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Sample Cross Reference 514841



PLAINS ALL AMERICAN EH&S, Midland, TX

New McKee Jct. Sump

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
RP @ 1'	S	09-02-15 12:15	0 - 1 ft	514841-001



CASE NARRATIVE



Client Name: PLAINS ALL AMERICAN EH&S Project Name: New McKee Jct. Sump

Project ID: AR157452 Work Order Number(s): 514841
 Report Date:
 08-SEP-15

 Date Received:
 09/03/2015

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Project Id: AR157452

Contact: Joel Lowry

Project Location:

Certificate of Analysis Summary 514841

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: New McKee Jct. Sump



Date Received in Lab: Thu Sep-03-15 05:10 pm Report Date: 08-SEP-15

Project Manager: Kelsey Brooks

				I i ojece i inanagei i	
	Lab Id:	514841-001			
Analysis Requested	Field Id:	RP @ 1'			
Anulysis Kequesteu	Depth:	0-1 ft			
	Matrix:	SOIL			
	Sampled:	Sep-02-15 12:15			
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-05-15 10:00			
	Analyzed:	Sep-05-15 18:56			
	Units/RL:	mg/kg RL			
Chloride		7.99 2.00			

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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Huns Roah

Kelsey Brooks Project Manager

Page 5 of 11



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

(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	

Phone



BS / BSD Recoveries



Project Name: New McKee Jct. Sump

Work Order #: 514841	Project ID: AR157452										
Analyst: JUM	Date Prepared: 09/05/2015			5	Date Analyzed: 09/05/2015						
Lab Batch ID: 976292 Sample: 697723-1-E	Batch #: 1				Matrix: Solid						
Units: mg/kg	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY										
Inorganic Anions by EPA 300/300.1	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]				
Chloride	<2.00	50.0	51.3	103	50.0	50.9	102	1	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

XENCO Laboratories Projec	Form 3 - MS Recoveries Project Name: New McKee Jct. Sump						
Work Order #: 514841 Lab Batch #: 976292 Date Analyzet: 09/05/2015 QC- Sample ID: 514720-019 S Reporting Units: mg/kg	Project ID: AR157452 Date Prepared: 09/05/2015 Analyst: JUM Batch #: 1 Matrix: Soil 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 Lab Batch #: 976292	31.9	50.0	78.5	93	80-120		
Date Analyzed: 09/05/2015 QC- Sample ID: 514922-001 S	Date Prepared: 09/05 Batch #: 1	analyst: J Matrix: S					
Reporting Units: mg/kg Inorganic Anions by EPA 300 Analytes	MATR Parent Sample Result [A]	IX / MA Spike Added [B]	TRIX SPIKE Spiked Sample Result [C]	RECO %R [D]	VERY STU Control Limits %R	Flag	
Chloride	1080	2500	3800	109	80-120		

BRL - Below Reporting Limit



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&S Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 09/03/2015 05:10:00 PM **Temperature Measuring device used :** Work Order #: 514841 Comments Sample Receipt Checklist #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes N/A #4 *Custody Seals intact on shipping container/ cooler? #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? Yes #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes #14 Samples in proper container/ bottle? Yes #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? No #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts. #22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH? N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Date: 09/03/2015

Checklist reviewed by:

Admilliotringly Caroline Dugan Mms Morah Kelsey Brooks

Date: 09/04/2015

Container Manna alinquished by (Signature) TURNAROUND TIME winducted by typnatu AR 157452 Sampler's Name Project Number Office Location Matrix Project Manager quisted by (Signature) 14 thed by (Signa) Date 9/2/2015 lerracon VCA - 40 ml vial WW-Wastewater Time 12:15 Lubbock 4 Ooy W Normal Joel Lowry Joel Lowry Comp A/8 - Amber Glass 11 W-Water Grab × Project Name New McKee Jct. Sump Date Date Oste: Date 9-3-15 Identifying Marks of Sample(s) 48-Hour Rush 5-50 250 ml = Glass wide mouth Lubbock Office = 5827 50th Street = Lubbock, Texas 79424 = 806-300-0140 Time 5:10 RP @ 1' line Time: Time L - Liquid 24-Hour Rush A - Air Sag P/O - Plastic Racewal by Ispanues Received by (Signature) Received by (Signature) Received by (Signature) PO/SO #: Phone: Sampler's Signature Contact: Address: Laboratory: C - Chances I tube Plains 5 Xenco Laboratories Midland, TX 79701 1211 W. Florida Ave. Joel Lowry 432-563-1800 0 Start Depth TRRP Laboratory Review Checklist 4 End Depth No. Type of Containers 4 oz Glass ÷ SL-Sludge Dape Tinte: 9-3-15 17:10 ii a E REQUESTED ANALYSIS 300 × NOTES: □ Yes CHAIN OF CUSTODY RECORD No Please Email Results to erin, loyd@terracon.com loel.lowry@terracon.com LAB USE ONLY DUE DATE: WHEN RECEIVED (°C) TEMP OF COOLER Page 1 of 1 6.

Responsive = Resourceful = Reliable



Client: PLAINS ALL AMERICAN EH&S

XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 09/03/2015 05:10:00 PM **Temperature Measuring device used :** Work Order #: 514841 Comments Sample Receipt Checklist #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? Yes #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes #14 Samples in proper container/ bottle? Yes #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? No #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts. #22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH? N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Audmilliotrafy Caroline Dugan

Date: 09/03/2015

Checklist reviewed by:

Kmg hoah

Date: 09/04/2015

Analytical Report 514960

for PLAINS ALL AMERICAN EH&S

Project Manager: Joel Lowry

New McKee Jct. Sump

AR157452

16-SEP-15

Collected By: Client





12600 West I-20 East Odessa, Texas 79765

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

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

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





Project Manager: **Joel Lowry PLAINS ALL AMERICAN EH&S** 1301 S. COUNTY ROAD 1150 Midland, TX 79706

Reference: XENCO Report No(s): **514960** New McKee Jct. Sump Project Address:

Joel Lowry:

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) 514960. 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. 514960 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.

Respectfully

 Julian Martinez

 Project Manager

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Sample Cross Reference 514960



PLAINS ALL AMERICAN EH&S, Midland, TX

New McKee Jct. Sump

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NE PA NSW @ 6'	S	09-04-15 09:05	0	514960-001
NE PA ESW @ 6'	S	09-04-15 09:20	0	514960-002
NE PA WSW @ 6'	S	09-04-15 09:35	0	514960-003
NW PA NSW @ 5'	S	09-04-15 09:45	0	514960-005
NW PA ESW @ 5'	S	09-04-15 10:05	0	514960-006
NW PA WSW @ 5'	S	09-04-15 09:55	0	514960-007
NE PA FLOOR @ 8'	S	09-04-15 09:40	8 - 8.5	Not Analyzed
NW PA FLOOR @ 7'	S	09-04-15 09:40	7 - 7.5	Not Analyzed



CASE NARRATIVE



Client Name: PLAINS ALL AMERICAN EH&S Project Name: New McKee Jct. Sump

Project ID:AR157452Work Order Number(s):514960

Report Date: 16-SEP-15 Date Received: 09/05/2015

Sample receipt non conformances and comments:

NE PA FLOOR @ 8' AND NW PA FLOOR @ 7' SAMPLES ON HOLD

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-976706 TPH by SW8015 Mod Surrogate 1-Chlorooctane recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 514960-007,514960-003.



Hits Summary 514960



PLAINS ALL AMERICAN EH&S, Midland, TX

New McKee Jct. Sump

Sample Id : NE PA NSW @	6' Matrix	: Soil	Soil % Moisture :			
Lab Sample Id : 514960-001	Date Co	ollected : 09.04.1	5 09.05	Basis :	Wet Weig	ht
Sample Depth : 0	Date Re	eceived : 09.05.1	5 16.39			
Analytical Method : TPH by SW8 Seq Number 976706	3015 Mod			Prep Methoo Date Prep:	l: TX1005P 09.10.15	
Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
C12-C28 Diesel Range Hydrocarbon	s PHCG1028	58.5	mg/kg	09.11.15 02.32		1
Total TPH	PHC635	58.5	mg/kg	09.11.15 02.32		1


Project Id: AR157452

Contact: Joel Lowry

Project Location:

Certificate of Analysis Summary 514960

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: New McKee Jct. Sump



Date Received in Lab: Sat Sep-05-15 04:39 pm

Report Date: 16-SEP-15 Project Manager: Kelsey Brooks

								1103000		Reisey Dioor			
	Lab Id:	514960-0	001	514960-0	02	514960-0	003	514960-	005	514960-	006	514960-	007
Analysis Requested	Field Id:	NE PA NSW	V@6'	NE PA ESW	W @ 6' NE PA WSW @ 6'		N @ 6'	NW PA NS	W @ 5'	NW PA ES	W @ 5'	NW PA WS	W @ 5'
Anaiysis Kequesiea	Depth:	0-		0-		0-		0-		0-		0-	
	Matrix:	SOIL		SOIL		SOIL	,	SOIL		SOIL		SOII	-
	Sampled:	Sep-04-15 (09:05	Sep-04-15 0	9:20	Sep-04-15	09:35	Sep-04-15	09:45	Sep-04-15 10:05		Sep-04-15	09:55
BTEX by EPA 8021 Extracted		Sep-15-15	09:00	Sep-11-15 0	9:00	Sep-14-15	11:00	Sep-11-15	09:00	Sep-11-15 09:00		Sep-11-15 09:00	
Analyzed		Sep-15-15	11:20	Sep-11-15 1	8:08	Sep-14-15	19:14	Sep-11-15	14:17	Sep-11-15 14:34		Sep-11-15 14:52	
Units/RL		mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00498	ND (0.000998	ND	0.00100	ND	0.000992	ND	0.00100	ND	0.000996
Toluene		ND	0.00996	ND	0.00200	ND	0.00200	ND	0.00198	ND	0.00200	ND	0.00199
Ethylbenzene		ND	0.00498	ND (0.000998	ND	0.00100	ND	0.000992	ND	0.00100	ND	0.000996
m_p-Xylenes		ND	0.00996	ND	0.00200	ND	0.00200	ND	0.00198	ND	0.00200	ND	0.00199
o-Xylene		ND	0.00498	ND (0.000998	ND	0.00100	ND	0.000992	ND	0.00100	ND	0.000996
Xylenes, Total		ND	0.00498	ND 0.000998		ND 0.00100		ND 0.000992		2 ND 0.00100		-	0.000996
Total BTEX		ND	0.00498	ND (0.000998	ND	0.00100	ND	0.000992	ND	0.00100	ND	0.000996
TPH by SW8015 Mod	Extracted:	Sep-10-15	20:00	Sep-10-15 2	20:00	Sep-10-15	20:00	Sep-10-15 20:00		Sep-10-15	20:00	Sep-10-15	20:00
	Analyzed:	Sep-11-15	02:32	Sep-11-15 0	02:57	Sep-11-15	03:21	Sep-11-15	03:44	Sep-11-15	04:08	Sep-11-15	04:32
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C12 Gasoline Range Hydrocarbons		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0
C12-C28 Diesel Range Hydrocarbons		58.5	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0
C28-C35 Oil Range Hydrocarbons		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0
Total TPH		58.5	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0

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

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Julian Martinez 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: New McKee Jct. Sump

Units: 1	ng/kg	Date Analyzed: 09/11/15 02:32	SURROGATE RECOVERY STUDY								
	пд/кд	Date Analyzeu. 09/11/15 02.52									
	TPH	by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage				
		Analytes			[D]						
1-Chlorooctane			132	99.9	132	70-135					
o-Terphenyl			59.2	50.0	118	70-135					
Lab Batch #: 9	976706	Sample: 514960-002 / SMP	P Batch: 1 Matrix: Soil								
Units: 1	ng/kg	Date Analyzed: 09/11/15 02:57	SURROGATE RECOVERY STUDY								
	TPH	by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1-Chlorooctane		Analytes	118	99.9	118	70-135					
o-Terphenyl			53.5	50.0	1107	70-135					
Lab Batch #: 9	976706	Sample: 514960-003 / SMP	Batc			70-135					
	ng/kg	Date Analyzed: 09/11/15 03:21		JRROGATE R	-	STUDV					
	0 0					1					
	TPH	by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage				
		Analytes			[D]						
1-Chlorooctane			140	99.7	140	70-135	**				
o-Terphenyl			63.2	49.9	127	70-135					
Lab Batch #: 9	976706	Sample: 514960-005 / SMP	Batc	h: 1 Matrix	: Soil						
Units: 1	ng/kg	Date Analyzed: 09/11/15 03:44	SU	JRROGATE R	ECOVERY S	STUDY					
	TPH	by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage				
1-Chlorooctane		Anarytes	123	99.8	123	70-135					
o-Terphenyl			55.4	49.9	123	70-135					
Lab Batch #: 9	976706	Sample: 514960-006 / SMP	Batc			10155					
	ng/kg	Date Analyzed: 09/11/15 04:08		JRROGATE R		STUDY					
	TPH	by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag				
		Analytes			[D]						
1-Chlorooctane			116	99.9	116	70-135					
o-Terphenyl			52.8	50.0	106	70-135					

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Sump

	rders: 51496 #: 976706	0, 514960 Sample: 514960-007 / SMP	Bate		: AR157452 :: Soil							
Units:	mg/kg	Date Analyzed: 09/11/15 04:32	SU	RROGATE R	ECOVERY S	STUDY						
	TPH	by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags					
		Analytes			[D]							
1-Chlorooc	etane		136	99.7	136	70-135	**					
o-Terpheny	/1		61.6	49.9	123	70-135						
Lab Batch	#: 976900	Sample: 514960-005 / SMP	P Batch: 1 Matrix: Soil									
Units:	mg/kg	Date Analyzed: 09/11/15 14:17	SURROGATE RECOVERY STUDY									
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags					
		Analytes			[D]							
1,4-Difluor			0.0271	0.0300	90	80-120						
4-Bromoflu	lorobenzene		0.0292	0.0300	97	80-120						
Lab Batch	#: 976900	Sample: 514960-006 / SMP	Batc	h: 1 Matrix	: Soil							
Units:	mg/kg	Date Analyzed: 09/11/15 14:34	SU	RROGATE R	ECOVERY	STUDY						
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags					
		Analytes			[D]							
1,4-Difluor	obenzene		0.0260	0.0300	87	80-120						
4-Bromoflu	ıorobenzene		0.0296	0.0300	99	80-120						
Lab Batch	#: 976900	Sample: 514960-007 / SMP	Batc	h: 1 Matrix	: Soil							
Units:	mg/kg	Date Analyzed: 09/11/15 14:52	SU	RROGATE R	ECOVERY	STUDY						
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags					
		Analytes			[D]							
1,4-Difluor	obenzene		0.0276	0.0300	92	80-120						
4-Bromoflu	ıorobenzene		0.0339	0.0300	113	80-120						
Lab Batch	#: 976900	Sample: 514960-002 / SMP	Batc	h: 1 Matrix	: Soil							
Units:	mg/kg	Date Analyzed: 09/11/15 18:08	SU	RROGATE R	ECOVERY S	STUDY						
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags					
4 4 50 - 20		Analytes										
1,4-Difluor			0.0248	0.0300	83	80-120						
4-Bromoflu	ıorobenzene		0.0274	0.0300	91	80-120						

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Sump

Lab Batch #:		Sample: 514960-003 / SMP	Batc	SURROGATE RECOVERY STUDY									
Units:	mg/kg	Date Analyzed: 09/14/15 19:14	SURROGATE RECOVERY STUDY										
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags						
		Analytes			[D]								
1,4-Difluorober	izene		0.0244	0.0300	81	80-120							
4-Bromofluorol	benzene		0.0257	0.0300	86	80-120							
Lab Batch #:	976825	Sample: 514960-001 / SMP	AP Batch: 1 Matrix: Soil										
Units:	mg/kg	Date Analyzed: 09/15/15 11:20	SURROGATE RECOVERY STUDY										
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags						
1.4-Difluorober	7000	Analytes	0.0272	0.0200		80.120							
4-Bromofluorol			0.0272	0.0300	91	80-120 80-120							
Lab Batch #:		Sample: 698002-1-BLK / BI				80-120							
		Date Analyzed: 09/11/15 00:33											
Units:	mg/kg	Date Analyzed: 09/11/15 00.55	st	JRROGATE R	ECOVERY	STUDY							
	TPH	by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags						
		Analytes			[D]								
1-Chlorooctane			118	100	118	70-135							
o-Terphenyl			52.6	50.0	105	70-135							
Lab Batch #:	976900	Sample: 698080-1-BLK / BI	LK Batc	h: 1 Matrix	: Solid								
Units:	mg/kg	Date Analyzed: 09/11/15 10:42	SURROGATE RECOVERY STUDY										
	BTE	X by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags						
1,4-Difluorober	izene	Anaryus	0.0278	0.0300	93	80-120							
4-Bromofluorol			0.0278	0.0300	101	80-120							
Lab Batch #:		Sample: 698087-1-BLK / BI				00 120							
	mg/kg	Date Analyzed: 09/14/15 14:11		JRROGATE R		STUDY							
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage						
		Analytes			[D]								
1,4-Difluorober			0.0272	0.0300	91	80-120							
4-Bromofluorol	benzene		0.0297	0.0300	99	80-120							

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Sump

Units:	mg/kg	Date Analyzed: 09/11/15 00:57	SI	RROGATE R	ECOVERV	STUDY					
		by SW8015 Mod	Amount Found	True Amount	Recovery	Control Limits	Flags				
		Analytes	[A]	[B]	%R [D]	%R					
1-Chlorooct	000	Analytes	109	100		70.125					
o-Terpheny			128	100	128 97	70-135					
	#: 976900	Sample: 698080-1-BKS / B	48.7	50.0		70-135					
		•									
Units:	mg/kg	Date Analyzed: 09/11/15 09:52	SU	JRROGATE R	ECOVERYS	STUDY					
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
140.0	1	Analytes	0.0000	0.0200		00.100					
1,4-Difluor			0.0329	0.0300	110	80-120					
4-Bromoflu		G L (00007 1 DKG / D	0.0354	0.0300	118	80-120					
	#: 976825	Sample: 698087-1-BKS / B									
Units:	mg/kg	Date Analyzed: 09/14/15 13:19	SU	JRROGATE R	ECOVERY S	STUDY					
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes	[]		[D]	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
1,4-Difluor	obenzene		0.0287	0.0300	96	80-120					
4-Bromoflu	orobenzene		0.0319	0.0300	106	80-120					
Lab Batch	#: 976706	Sample: 698002-1-BSD / B	SD Bate	h: 1 Matrix	: Solid	11					
Units:	mg/kg	Date Analyzed: 09/11/15 01:21	SURROGATE RECOVERY STUDY								
	TPH	by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]						
1-Chlorooct	ane		123	100	123	70-135					
o-Terpheny			49.5	50.0	99	70-135					
Lab Batch	#: 976900	Sample: 698080-1-BSD / B	SD Bate	h: 1 Matrix	: Solid	ı					
Units:	mg/kg	Date Analyzed: 09/11/15 10:09	SU	JRROGATE R	ECOVERY	STUDY					
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]						
1,4-Difluor	benzene		0.0312	0.0300	104	80-120					
4-Bromoflu	orobenzene		0.0322	0.0300	107	80-120					

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Sump

Units:	mg/kg	Date Analyzed: 09/14/15 13:36	ST	RROGATE R	ECOVERV	STUDY						
		X by EPA 8021	Amount Found	True Amount	Recovery	Control Limits	Flags					
		Analytes	[A]	[B]	%R [D]	%R						
1,4-Difluorol	enzene		0.0293	0.0300	98	80-120						
4-Bromofluo	robenzene		0.0326	0.0300	109	80-120						
Lab Batch #	: 976900	Sample: 515169-003 S / MS	Batc	h: 1 Matrix	: Soil							
Units:	mg/kg	Date Analyzed: 09/11/15 16:26	SURROGATE RECOVERY STUDY									
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags					
145.0		Analytes										
1,4-Difluorol			0.0302	0.0300	101	80-120						
4-Bromofluo			0.0322	0.0300	107	80-120						
Lab Batch #		Sample: 514960-001 S / MS	Batc									
Units:	mg/kg	Date Analyzed: 09/12/15 00:18	SU	RROGATE R	ECOVERYS	STUDY						
	TPH	by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags					
		Analytes			[D]							
1-Chloroocta	ne		122	99.7	122	70-135						
o-Terphenyl			46.7	49.9	94	70-135						
Lab Batch #	: 976825	Sample: 514960-001 S / MS	Batc	h: 1 Matrix	: Soil							
Units:	mg/kg	Date Analyzed: 09/15/15 11:37	su	RROGATE R	RROGATE RECOVERY STUDY							
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags					
140.0		Analytes	0.0015	0.0200		00.100						
1,4-Difluorol			0.0317	0.0300	106	80-120						
4-Bromofluo Lab Batch #		Sample: 515169-003 SD / MS	0.0339 D Batc	0.0300 h: 1 Matrix	113	80-120						
Lab Batch # Units:	mg/kg	Date Analyzed: 09/11/15 16:43										
omis.	mg/kg	Date Analyzeu. 07/11/15 10.45	SU	RROGATE R	ECOVERY	STUDY						
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags					
		Analytes			[D]							
1,4-Difluorol			0.0300	0.0300	100	80-120						
4-Bromofluo	robenzene		0.0327	0.0300	109	80-120						

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Sump

Work Orde Lab Batch #:		50, 514960 Sample: 514960-001 SD / M	MSD Batch: 1 Matrix: Soil								
Units:	mg/kg	Date Analyzed: 09/12/15 00:42	SURROGATE RECOVERY STUDY								
TPH by SW8015 Mod Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags					
1-Chlorooctane			127	99.6	128	70-135					
o-Terphenyl			50.0	49.8	100	70-135					

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



BS / BSD Recoveries



Project Name: New McKee Jct. Sump

Work Order #: 514960, 514960							Proj	ect ID:	AR157452			
Analyst: SYG	D	ate Prepar	ed: 09/11/20	15			Date A	nalyzed: (09/11/2015			
Lab Batch ID: 976900 Sample: 698080-1-E	BKS	Batcl	n #: 1			Matrix: Solid						
Units: mg/kg	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
BTEX by EPA 8021 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	<0.000998	0.0998	0.0810	81	0.0998	0.0873	87	7	70-130	35		
Toluene	< 0.00200	0.0998	0.0800	80	0.0998	0.0886	89	10	70-130	35		
Ethylbenzene	< 0.000998	0.0998	0.0827	83	0.0998	0.0918	92	10	71-129	35		
m_p-Xylenes	< 0.00200	0.200	0.169	85	0.200	0.187	94	10	70-135	35		
o-Xylene	< 0.000998	0.0998	0.0812	81	0.0998	0.0899	90	10	71-133	35		
Analyst: SYG	D	ate Prepar	ed: 09/14/20	15			Date A	nalyzed: (09/14/2015			
Lab Batch ID: 976825 Sample: 698087-1-E	BKS Batch #: 1					Matrix: Solid						
Units: mg/kg		BLAN	K /BLANK	SPIKE /]	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY		
BTEX by EPA 8021 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	0.0780	78	0.100	0.0811	81	4	70-130	35		
Toluene	< 0.00200	0.100	0.0804	80	0.100	0.0802	80	0	70-130	35		
Ethylbenzene	< 0.00100	0.100	0.0860	86	0.100	0.0821	82	5	71-129	35		
m_p-Xylenes	< 0.00200	0.200	0.175	88	0.200	0.168	84	4	70-135	35		
o-Xylene	< 0.00100	0.100	0.0842	84	0.100	0.0808	81	4	71-133	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



BS / BSD Recoveries



Project Name: New McKee Jct. Sump

Work Order	: #: 514960, 514960					Project ID: AR157452							
Analyst:	PJB	D	ate Prepai	red: 09/10/201	5	Date Analyzed: 09/11/2015							
Lab Batch ID	: 976706 Sample: 698002-1-	BKS	BKS Batch #: 1				Matrix: Solid						
Units:	mg/kg		BLAN	K /BLANK S	SPIKE / 1	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY		
	TPH by SW8015 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	
Analy	vtes		[B]	[C]	[D]	[E]	Result [F]	[G]					
C6-C12 C	asoline Range Hydrocarbons	<15.0	1000	993	99	1000	987	99	1	70-135	35		
C12-C28	Diesel Range Hydrocarbons	<15.0	1000	932	93	1000	879	88	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: New McKee Jct. Sump

Work Order #: 514960 Lab Batch #: 976825 00/15/2015 Date Analy л QC- Samp Reporting

Project ID: AR157452

Date Analyzed: 09/15/2015	Date Prepared: 09/15	/2015	А	Analyst: SYG						
QC- Sample ID: 514960-001 S	Batch #: 1		Matrix: Soil							
Reporting Units: mg/kg	MATR	IX / MA	TRIX SPIKE	RECO	VERY STU	DY				
BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag				
Benzene	<0.000996	0.0996	0.0797	80	70-130					
Toluene	<0.00199	0.0996	0.0805	81	70-130					
Ethylbenzene	<0.000996	0.0996	0.0880	88	71-129					
m_p-Xylenes	<0.00199	0.199	0.167	84	70-135					
o-Xylene	<0.000996	0.0996	0.0888	89	71-133					

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: New McKee Jct. Sump



70-135

35

Work Order # :	rk Order #: 514960 Project ID: AR157452												
Lab Batch ID:	976900	QC- Sample ID:	515169	-003 S	Ba	tch #:	1 Matrix						
Date Analyzed:	09/11/2015	Date Prepared:	09/11/2	015	Ar	alyst: S	SYG						
Reporting Units:	mg/kg		Μ	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY			
	BTEX by EPA 8021	Parent Sample Result	Spike	Spiked Sample Result	Sample	Spike	Duplicate Spiked Sample	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag	
	Analytes	[A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%K [G]	% 0	%K	%KPD		
Benzene		<0.000996	0.0996	0.0829	83	0.0996	0.0805	81	3	70-130	35		
Toluene		<0.00199	0.0996	0.0840	84	0.0996	0.0815	82	3	70-130	35		
Ethylbenzene		<0.000996	0.0996	0.0802	81	0.0996	0.0804	81	0	71-129	35		
m_p-Xylenes		<0.00199	0.199	0.167	84	0.199	0.165	83	1	70-135	35		
o-Xylene		<0.000996	0.0996	0.0805	81	0.0996	0.0797	80	1	71-133	35		
Lab Batch ID:	976706	QC- Sample ID:	514960	-001 S	Ba	tch #:	1 Matrix	: Soil					
Date Analyzed:	09/12/2015	Date Prepared:	09/10/2	015	Ar	alyst: F	уB						
Reporting Units:	mg/kg		Μ	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY			
	TPH by SW8015 Mod	Parent Sample	Spike	Spiked Sample Result	Sample	Spike	Duplicate Spiked Sample		RPD	Control Limits	Control Limits	Flag	
	Analytes	Result [A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD		
C6-C12 Gasol	ine Range Hydrocarbons	<15.0	997	942	94	996	1010	101	7	70-135	35		

58.5

997

843

79

996

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

C12-C28 Diesel Range Hydrocarbons

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

892

84

6



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Comments

Client: PLAINS ALL AMERICAN EH&S Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 09/05/2015 04:39:00 PM **Temperature Measuring device used :** Work Order #: 514960 Sample Receipt Checklist 5 #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes #14 Samples in proper container/ bottle? Yes #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? No #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts.

#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH? N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Date: 09/08/2015

Checklist reviewed by:

Admilliotringly Caroline Dugan Mms Morah Kelsey Brooks

Date: 09/09/2015

Matrix Container	mentiquistic	P. Landa	Rainquishe	Bylinguishe	TONNA.	TIBNAS	\square	s 1	1	5	un (• •	5		Matri	×	Proje	line	Proje	Offic	
	mentiquisities by (Signature)		Refinauished by ISlenatural	Bylintuitated by (Sippature)	inquished by (Signature)			0/4/2015	0/4/2015	9/4/2015	0/4/2015	9/4/2015	9/4/2015	9/4/2015	Date	AR	Project Number	oampier s Name	Project Manager	Office Location	
WW-Wasteweter VOA - 40 mL visit				1	- AF	-	-	0470	000	Inns	045	566	920		- 39	AR157452	er	ne l	ger	n Lubbock	
W - Water A/G - Amb															Comp			Joel	Joel	bock	
W - Water A/G - Amber Giess 11					Mormal	-		×);	× :	× 3	×)>	< ×	×		Grab	New	Proj	JOEI LOWITY	Joel Lowry		d
	Date:	Date:		51/5/15			AM.	WN	N	N	N	N	z	Z	ldentifyir	New McKee Jct. Sump (SRS # Pending)	Project Name	10			n D D
S-Soit L-Liquis 230 ml = Glass wide mowth	Time:	Time		25:2			NW PA Floor @ /	NW PA WSW @ 5	NW PA ESW @ 5	NW PA NSW @ 5'	NE PA Floor @ 8'	NE PA WSW @ 6'	NE PA ESW @ 6'	NE PA NSW @ 6'	Identifying Marks of Sample(s)	np (SRS # Pendi				1	J
A - Air Bag P/O - Plastic or other	Received by (Signature)	Received by (Signature)	vectived by Digitalities	E E	24-Hour Rush										nple(s)	ng)	for	Sampler's Signature	Contact: PO/SO #:	Phone:	Address:
C - Chancoal Table				-			1 7	1	1	1	00	١	1	,	Start Depth		AL AN	gnature	Joel Lowry Plains - SRS	432-5	1211 Midl
8					RRP Lab	-	7.5	1	,	,	8.5	-1	,	,	End Depth	4	N	122	Joel Lowry Plains - SRS Pending	432-563-1800	1211 W. Florida Ave. Midland TY 70701
st Skudge					oratory	+	4	4	-	-	4	-	1	4	4 oz Gla	59	Type o		anding	0	da Ave.
	Date:	Dates	[Tang	29/65	TRRP Laboratory Review Checklist												No. Type of Containers				
ŀ	Time	Time	Ine	3 2	Checklist	+	×	×	×	×	×	×	×	×	TPH (8015		ř.				RE
			8	ape																1	REQUESTED
		G		NOTES:	D Yes	_	×	×	×	×	×	×	×	×	BTEX (802	1)					-
		Camille Bryant			0	+				\vdash		_	-		Hold	_					
		yant	loe!.lo	Please erin.lo	No																
			wry@te	e Email F wd@ter	-	_	-													12.	
			oel.lowry@terracon.com	Please Email Results to erin.lovd@terracon.com											JC St				Page	TEMP OF COOLER WHEN RECEIVED (°C)	DUE DATE:
															5) 49 VO				Page 1 of 1	õ	

Responsive . Resourceful . Reliable

-

Final 1.001



Client: PLAINS ALL AMERICAN EH&S

XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In

Comments

5

Yes

No



Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 09/05/2015 04:39:00 PM **Temperature Measuring device used :** Work Order #: 514960 Sample Receipt Checklist #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes #14 Samples in proper container/ bottle? Yes #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes

#19 Subcontract of sample(s)? No #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts. #22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH? N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Caroline Dugan

Date: 09/08/2015

Checklist reviewed by:

Kmg hoah

Date: 09/09/2015

Analytical Report 517088

for PLAINS ALL AMERICAN EH&S

Project Manager: Joel Lowry

New McKee Jct. Sump

12-OCT-15

Collected By: Client





12600 West I-20 East Odessa, Texas 79765

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

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

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



12-OCT-15



Project Manager: **Joel Lowry PLAINS ALL AMERICAN EH&S** 1301 S. COUNTY ROAD 1150 Midland, TX 79706

Reference: XENCO Report No(s): **517088** New McKee Jct. Sump Project Address:

Joel Lowry:

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) 517088. 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. 517088 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.

Kms Boah

 Kelsey Brooks

 Project Manager

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Sample Cross Reference 517088



PLAINS ALL AMERICAN EH&S, Midland, TX

New McKee Jct. Sump

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NE PA Floor	S	10-02-15 12:15	- 7 ft	517088-001
NW PA Floor	S	10-02-15 12:30	- 6 ft	517088-002



CASE NARRATIVE



Client Name: PLAINS ALL AMERICAN EH&S Project Name: New McKee Jct. Sump

Project ID: Work Order Number(s): 517088
 Report Date:
 12-OCT-15

 Date Received:
 10/07/2015

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Project Id: Contact: Joel Lowry

Project Location:

Certificate of Analysis Summary 517088

PLAINS ALL AMERICAN EH&S, Midland, TX





Date Received in Lab:Wed Oct-07-15 05:20 pmReport Date:12-OCT-15Project Manager:Kelsey Brooks

$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		1		1					
Analysis Requested Deph: 7 fl 6 ft Matrix: SOIL SOIL<		Lab Id:	517088-0	001	517088-00	02			
Image: begin: open in the second s	Analysis Requested	Field Id:	NE PA Fl	oor	NW PA Fl	oor			
Sampled Oct-02-15 12:15 Oct-02-15 12:30 Image: 0ct-02-15 12:30 Image: 0ct-02-15 12:00 BTEX by EPA 8021B Extract: 0ct-02-15 12:00 Oct-02-15 12:00 Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Analyze: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Oct-02-15 12:00 Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Benzene NIN Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Toluene NIN Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Total Xylenes NIN Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:00 Total BTEX XIL Image: 0ct-02-15 12:00 Image: 0ct-02-15 12:	Analysis Kequestea	Depth:	7 ft		6 ft				
BTEX by EPA 8021B Extracted: Analyzed: 0ct-09-15 12:51 Oct-09-15 10:30 Oct-09-15 13:08 Oct-09-15 10:30 Mailing (minic) (mi		Matrix:	SOIL		SOIL				
Analyze: Oct-09-15 :251 Oct-09-15 :38 Oct-09-15 :39 Oct-09-15 :38 Oct-09-15 :39 Oct-09-15 :38 Oct-09-15 :38 Oct-09-15 :39 Oct-09-15 :38 Oct-09-15 :39 Oct-09-15 :59 Oct-09-15 :59 <td></td> <td>Sampled:</td> <td>Oct-02-15</td> <td>12:15</td> <td>Oct-02-15 1</td> <td>2:30</td> <td></td> <td></td> <td></td>		Sampled:	Oct-02-15	12:15	Oct-02-15 1	2:30			
Units/RL: mg/kg RL mg/kg RL mg/kg RL Benzene ND 0.00994 ND 0.00994 Image: State S	BTEX by EPA 8021B	Extracted:	Oct-09-15	10:30	Oct-09-15 1	0:30			
Benzene ND 0.000994 ND 0.000994 Toluene ND 0.00199 ND 0.00199 Ethylbenzene ND 0.000994 ND 0.000994 m_p-Xylenes ND 0.000994 ND 0.000994 o-Xylene ND 0.000994 ND 0.000994 Total Xylenes ND 0.000994 ND 0.000994 Total Xylenes ND 0.000994 ND 0.000994 Total STEX ND 0.000994 ND 0.000994 TPH By SW8015B Mod Extracted: Oct-09-15 12:00 Oct-09-15 12:00 Oct-09-15 15:59 Units/RL: mg/kg RL mg/kg RL Mz/kg C6-C10 Gasoline Range Hydrocarbons ND 15.0 ND 14.9 Image Image C10-C28 Diesel Range Hydrocarbons 303 15.0 ND 14.9 Image Image Image		Analyzed:	Oct-09-15	12:51	Oct-09-15 1	3:08			
Toluene ND 0.00199 ND 0.00199 ND 0.00199 Ethylbenzene ND 0.00094 ND 0.00094 Import 1000000000000000000000000000000000000			mg/kg	RL	mg/kg	RL			
Ethylbenzene ND ND ND ND ND ND ND m_p-Xylenes ND 0.000994 ND 0.000994 ND 0.00199 o-Xylene ND 0.000994 ND 0.000994 Import Import Total Xylenes ND 0.000994 ND 0.000994 Import Import Total Xylenes ND 0.000994 ND 0.000994 Import Import Total STEX ND 0.000994 ND 0.000994 Import Import Total BTEX ND 0.000994 ND 0.000994 Import Import TPH By SW8015B Mod Extracted: 0ct-09-15 12:00 0ct-09-15 12:00 Import Import Import Import Import Import Import Import Import C6-C10 Gasoline Range Hydrocarbons ND 15.0 ND 14.9 Import Import C10-C28 Diesel Range Hydrocarbons 303 15.0 ND 14.9 Import Import			ND	0.000994	ND ().000994			
M_p-Xylenes ND 0.00199 ND 0.00199 ND 0.00199 o-Xylene ND 0.000994 ND 0.000994 Image: Constraint of the con	oluene		ND	0.00199	ND	0.00199			
Image by Mark Image by Mark<	Ethylbenzene		ND	0.000994	ND 0	0.000994			
Total Xylenes ND 0.000994 ND 0.000914 ND 0.000115 ND	m_p-Xylenes		ND	0.00199	ND	0.00199			
Total BTEX ND 0.000994 ND 0.000994 ND 0.000994 Image: Control of the control of	o-Xylene		ND	0.000994	ND 0	0.000994			
TPH By SW8015B Mod Extracted: Oct-09-15 12:00 Oct-09-15 12	Total Xylenes		ND	0.000994	ND 0	0.000994			
Analyzed: Oct-09-15 1::0 Oct-09-15 1::5 Oct-09-15 1::0 Oct-09-15	Total BTEX		ND	0.000994	ND 0	0.000994			
Units/RL: mg/kg RL mg/kg RL C6-C10 Gasoline Range Hydrocarbons ND 15.0 ND 14.9 C10-C28 Diesel Range Hydrocarbons 303 15.0 ND 14.9	TPH By SW8015B Mod	Extracted:	Oct-09-15	12:00	Oct-09-15 12:00				
C6-C10 Gasoline Range Hydrocarbons ND 15.0 ND 14.9 C10-C28 Diesel Range Hydrocarbons 303 15.0 ND 14.9	Analyzed:		Oct-09-15	15:10	Oct-09-15 1	5:59			
C10-C28 Diesel Range Hydrocarbons 303 15.0 ND 14.9		Units/RL:	mg/kg	RL	mg/kg	RL			
	C6-C10 Gasoline Range Hydrocarbons		ND	15.0	ND	14.9			
C28-C35 Oil Range Hydrocarbons ND 15.0 ND 14.9	C10-C28 Diesel Range Hydrocarbons	-C28 Diesel Range Hydrocarbons 303 15.0		ND	14.9				
	C28-C35 Oil Range Hydrocarbons	28-C35 Oil Range Hydrocarbons ND 15.0		ND	14.9				
Total TPH 303 15.0 ND 14.9	Total TPH		303	15.0	ND	14.9			

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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Version: 1.%

Huns Boah

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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2505 North Falkenburg Rd, Tampa, FL 33619
12600 West I-20 East, Odessa, TX 79765
6017 Financial Drive, Norcross, GA 30071
3725 E. Atlanta Ave, Phoenix, AZ 85040

(214) 902 0300	(214) 351-9139
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(813) 620-2000	(813) 620-2033
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	

Phone

(281) 240-4200

Final 1.000

Fax

(281) 240-4280



Project Name: New McKee Jct. Sump

	r ders : 51708 #: 978757	8, Sample: 517088-001 / SMP	Batch												
Units:	mg/kg	Date Analyzed: 10/09/15 12:51	SUI	RROGATE R	RECOVERY S	STUDY									
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags								
		Analytes			[D]										
1,4-Difluor	obenzene		0.0281	0.0300	94	80-120									
4-Bromoflu	orobenzene		0.0321	0.0300	107	80-120									
Lab Batch	#: 978757	Sample: 517088-002 / SMP	MP Batch: 1 Matrix: Soil												
Units:	mg/kg	Date Analyzed: 10/09/15 13:08	SURROGATE RECOVERY STUDY												
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags								
1.4.5.0	,	Analytes													
1,4-Difluor			0.0284	0.0300	95	80-120									
	iorobenzene		0.0316	0.0300	105	80-120									
	#: 978756	Sample: 517088-001 / SMP	Batch	: 1 Matrix	: Soil										
Units:	mg/kg	Date Analyzed: 10/09/15 15:10	SURROGATE RECOVERY STUDY												
	ТРН В	Sy SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags								
		Analytes			[D]										
1-Chlorooc	tane		88.7	99.7	89	70-135									
o-Terpheny	1		45.5	49.9	91	70-135									
Lab Batch	#: 978756	Sample: 517088-002 / SMP	Batch	: 1 Matrix	:: Soil										
Units:	mg/kg	Date Analyzed: 10/09/15 15:59	SURROGATE RECOVERY STUDY												
	ТРН В	Sy SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags								
		Analytes			[D]										
1-Chlorooc			112	99.6	112	70-135									
o-Terpheny			57.1	49.8	115	70-135									
	#: 978757	Sample: 699267-1-BLK / BLF	K Batch	: 1 Matrix	: Solid										
Units:	mg/kg	Date Analyzed: 10/09/15 12:18	SUI	RROGATE R	RECOVERY S	STUDY									
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags								
1,4-Difluor	obenzene	Analytto	0.0288	0.0300	96	80-120									
· ·	orobenzene														
4-B101110110	lorobelizelle		0.0318	0.0300	106	80-120									

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Sump

	r ders : 51708 #: 978756	8, Sample: 699266-1-BLK / Bl												
Units:	mg/kg	Date Analyzed: 10/09/15 13:58	SU	RROGATE R	ECOVERY S	STUDY								
	ТРН В	y SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags							
		Analytes			[D]									
1-Chlorooc	tane		86.4	100	86	70-135								
o-Terpheny	1		44.1	50.0	88	70-135								
Lab Batch	#: 978757	Sample: 699267-1-BKS / BI	KS Batch	n: 1 Matrix	: Solid									
Units:	mg/kg	Date Analyzed: 10/09/15 10:45	SURROGATE RECOVERY STUDY											
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags							
1.4.0.0	1	Analytes												
1,4-Difluor			0.0257	0.0300	86	80-120								
	orobenzene		0.0306	0.0300	102	80-120								
	#: 978756	Sample: 699266-1-BKS / BI			: Solid									
Units:	mg/kg	Date Analyzed: 10/09/15 14:22	SURROGATE RECOVERY STUDY											
	ТРН В	y SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags							
		Analytes			[D]									
1-Chlorooc	tane		104	100	104	70-135								
o-Terpheny	1		47.3	50.0	95	70-135								
Lab Batch	#: 978757	Sample: 699267-1-BSD / BS	SD Batch	n: 1 Matrix	: Solid									
Units:	mg/kg	Date Analyzed: 10/09/15 11:02	SURROGATE RECOVERY STUDY											
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags							
1,4-Difluor	obenzene		0.0242	0.0300	81	80-120								
·	orobenzene		0.0242	0.0300	85	80-120								
	#: 978756	Sample: 699266-1-BSD / BS			: Solid	00 120								
Units:	mg/kg	Date Analyzed: 10/09/15 14:47		RROGATE R		STUDY								
	TPH B	y SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags							
		Analytes			[D]									
1-Chlorooc	tane		99.1	100	99	70-135								
o-Terpheny	1		43.7	50.0	87	70-135								

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



BS / BSD Recoveries



Project Name: New McKee Jct. Sump

Work Order #: 517088	Project ID:													
Analyst: SYG	D	ate Prepar	red: 10/09/20	15	Date Analyzed: 10/09/2015									
Lab Batch ID: 978757 Sample: 699267-1-B	KS	Bate	h #: 1		Matrix: Solid									
Units: mg/kg		BLAN	K /BLANK	SPIKE / I	IKE / 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	0.0813	81	0.0998	0.0806	81	1	70-130	35				
Toluene	< 0.00201	0.100	0.0923	92	0.0998	0.0854	86	8	70-130	35				
Ethylbenzene	< 0.00100	0.100	0.119	119	0.0998	0.110	110	8	71-129	35				
m_p-Xylenes	< 0.00201	0.201	0.239	119	0.200	0.219	110	9	70-135	35				
o-Xylene	< 0.00100	0.100	0.120	120	0.0998	0.110	110	9	71-133	35				
Analyst: PJB	D	ate Prepar	red: 10/09/20	15	Date Analyzed: 10/09/2015									
Lab Batch ID: 978756 Sample: 699266-1-B	KS	Bate	h #: 1		Matrix: Solid									
Units: mg/kg		BLAN	K /BLANK	SPIKE / I	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY				
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	1080	108	1000	966	97	11	70-135	35				
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	862	86	1000	840	84	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

	Matrix Containet	Reins	Reing	Relat	Di	TUR		s	N	Matrix	NE	Pro	4	San I	Pro	Off			1
		Reinquished by (Signature)	Reinquished by (Signature)	Religionshed white stars	Reinquished by (Signatury)	TURNAROUND TIME		10/2/2015	10/2/2015	Date		Project Number	pres o recen	Sampler's Name	Project Manager	Office Location			
	WW-Wastewarer V0A - 40 milika	.2	0	A	1 to	ME		12:30	12:15	Time		ä		D	e	Lubbock		2	
			1	3	r					Comp	1			DP	Joe	ock			
	W - Water A/G - Amber Glass 11.							×	×	Grab	Z	P		Inel Lowry	Joel Lowry		6	ł	
Lubbock Office	5 - Sei r Glass 11. 250 mi = Glass wide mouth	Date: Time:		10.7.15 The	10/1/15 B:	48-Hour		NW PA Floor	NE PA Floor	Identifying Marks of Sample(s)	New McKee Jct, Sump	Project Name							
 5827 50th St Responsive 	c-Uquid A-Air Sig uth P/O - Plasta or other	Received by (Signature)	Received by (Signature)	120 Ancolored by	B: LLV Heccaves by Isgnaugh	24-Hour Rush		Floor	Floor	cs of Sample(s)		10	Pher	Sampler's Sign'Ature	PO/SO #:	Phone:		Laboratory: Address:	
Lubbock, lesourceful	C - Darmal tube SL - Sludge		-	3	with	TRRP Kaboratory Review		6 1	7 1	Start Depth End Depth 4 oz Gla	l (No. Type	ters s	nature	Joel Lowry Plains		432-563-1800	Xenco Laboratories 1211 W. Florida Ave.	100 Mar
Texas 79424 Reliable	-sta	Oata		Outer	\$07.15	ry Review Ch						No. Type of Containers							
24 =		Time:	1	. 7		Checklist		×	×	001	5	n	4	_			_	REQ	
-908				A:20	14:5			×	×	80		16	2					ANALYSIS REQUESTED	
806-300-0140			13	×	NOTES:												1	0	-
40						Yes							225.2				_		
				to	P	O No	$\left \right $		-										
				llown	n.loyd	ľ	+++	-	\vdash								_		
				oel.lowry@terracon.com	Please Email Results to erin.loyd@terracon.com				68041S	Lab Sample ID					Page 1 of 1		WHEN RECEIVED (°C) 4,0 °C	DUEDATE:	

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Page 10 of 11

Final 1.000



Work Order #: 517088

XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&S Date/ Time Received: 10/07/2015 05:20:00 PM

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

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

Analyst:

PH Device/Lot#:

Date: 10/08/2015

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

Date: 10/08/2015

Analytical Report 517342

for PLAINS ALL AMERICAN EH&S

Project Manager: Joel Lowry

New McKee Historical

14-OCT-15

Collected By: Client





12600 West I-20 East Odessa, Texas 79765

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

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

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



14-OCT-15



Project Manager: **Joel Lowry PLAINS ALL AMERICAN EH&S** 1301 S. COUNTY ROAD 1150 Midland, TX 79706

Reference: XENCO Report No(s): 517342 New McKee Historical Project Address: --

Joel Lowry:

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) 517342. 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. 517342 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.

Kms Hoah

 Kelsey Brooks

 Project Manager

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Sample Cross Reference 517342



PLAINS ALL AMERICAN EH&S, Midland, TX

New McKee Historical

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SSW #1	S	10-12-15 15:00	5 ft	517342-001
SSW #2	S	10-12-15 15:05	5 ft	517342-002
WSW #2	S	10-12-15 15:10	5 ft	517342-003
NSW #3	S	10-12-15 15:15	5 ft	517342-004
Center Floor	S	10-12-15 15:20	7 ft	517342-005
SE Floor	S	10-12-15 15:25	7 - 7.5 ft	517342-006
NE PA Floor	S	10-12-15 15:30	8 - 8.5 ft	517342-007



CASE NARRATIVE



Client Name: PLAINS ALL AMERICAN EH&S Project Name: New McKee Historical

Project ID: Work Order Number(s): 517342 Report Date: *14-OCT-15* Date Received: *10/13/2015*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Project Id: Contact: Joel Lowry --

Project Location:

Certificate of Analysis Summary 517342 PLAINS ALL AMERICAN EH&S, Midland, TX



Project Name: New McKee Historical

Date Received in Lab: Tue Oct-13-15 11:58 am Report Date: 14-OCT-15 Project Manager: Kelsey Brooks

		515242	201	515242	000	51 72 12	000	517242	004	515242	007	515040	00.6
	Lab Id:	517342-0	001	517342-0	002	517342-		517342	-004	517342-	005	517342-	-006
Analysis Requested	Field Id:	SSW #	1	SSW #	2	WSW	#2	NSW	#3	Center F	loor	SE Flo	oor
Analysis Requested	Depth:	5- ft		5- ft		5- ft		5- f	ť	7- ft		7-7.5	ft
	Matrix:	SOIL		SOIL	,	SOII	-	SOI	L	SOII		SOII	L
	Sampled:	Oct-12-15	15:00	Oct-12-15	15:05	Oct-12-15	15:10	Oct-12-15	5 15:15	Oct-12-15	15:20	Oct-12-15	15:25
BTEX by EPA 8021B	Extracted:	Oct-13-15	18:00	Oct-13-15	18:00	Oct-13-15	18:00	Oct-13-15	5 18:00	Oct-13-15	18:00	Oct-13-15	18:00
	Analyzed:	Oct-14-15	10:55	Oct-14-15	11:59	Oct-13-15	21:10	Oct-13-15	5 21:26	Oct-14-15	15:07	Oct-13-15 21:59	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.000994	ND	0.00166	ND	0.000998	ND	0.000990	ND	0.00198	ND	0.000992
Toluene		ND	0.00199	ND	0.00332	ND	0.00200	ND	0.00198	ND	0.00397	ND	0.00198
Ethylbenzene		ND	0.000994	ND	0.00166	ND	0.000998	ND	0.000990	ND	0.00198	ND	0.000992
m_p-Xylenes		ND	0.00199	ND	0.00332	ND	0.00200	ND	0.00198	ND	0.00397	ND	0.00198
o-Xylene		ND	0.000994	ND	0.00166	ND	0.000998	ND	0.000990	ND	0.00198	ND	0.000992
Xylenes, Total		ND	0.000994	ND	0.00166	ND	0.000998	ND	0.000990	ND	0.00198	ND	0.000992
Total BTEX		ND	0.000994	ND	0.00166	ND	0.000998	ND	0.000990	ND	0.00198	ND	0.000992
TPH By SW8015B Mod	Extracted:	Oct-13-15	18:00	Oct-13-15	18:00	Oct-13-15	18:00	Oct-13-15	5 18:00	Oct-13-15	18:00	Oct-13-15	18:00
	Analyzed:	Oct-14-15	13:35	Oct-14-15	11:33	Oct-13-15	20:14	Oct-14-15	5 11:58	Oct-13-15	21:02	Oct-14-15	09:51
	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	15.0	ND	14.9	ND	15.0	ND	15.0	ND	15.0	ND	15.0
C10-C28 Diesel Range Hydrocarbons		ND	15.0	ND	14.9	ND	15.0	ND	15.0	ND	15.0	ND	15.0
C28-C35 Oil Range Hydrocarbons		ND	15.0	ND	14.9	ND	15.0	ND	15.0	ND	15.0	ND	15.0
Total TPH		ND	15.0	ND	14.9	ND	15.0	ND	15.0	ND	15.0	ND	15.0

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

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Huns Boah

Kelsey Brooks Project Manager



Project Id:Contact:Joel LowryProject Location:--

Certificate of Analysis Summary 517342

PLAINS ALL AMERICAN EH&S, Midland, TX

TNI REGRATORI

Project Name: New McKee Historical

Date Received in Lab:Tue Oct-13-15 11:58 amReport Date:14-OCT-15Project Manager:Kelsey Brooks

	Lab Id:	517342-007			
Analysis Requested	Field Id:	NE PA Floor			
Analysis Kequestea	Depth:	8-8.5 ft			
	Matrix:	SOIL			
	Sampled:	Oct-12-15 15:30			
BTEX by EPA 8021B	Extracted:	Oct-13-15 18:00			
	Analyzed:	Oct-14-15 13:44			
	Units/RL:	mg/kg RL			
Benzene		ND 0.00164			
Toluene		ND 0.00328			
Ethylbenzene		ND 0.00164			
m_p-Xylenes		ND 0.00328			
o-Xylene		ND 0.00164			
Xylenes, Total		ND 0.00164			
Total BTEX		ND 0.00164			
TPH By SW8015B Mod	Extracted:	Oct-13-15 18:00			
	Analyzed:	Oct-14-15 12:22			
	Units/RL:	mg/kg RL			
C6-C10 Gasoline Range Hydrocarbons	·	ND 15.0			
C10-C28 Diesel Range Hydrocarbons		137 15.0			
C28-C35 Oil Range Hydrocarbons		ND 15.0			
Total TPH		137 15.0			

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Huns Roah

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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(813) 620-2033

(432) 563-1713

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Project Name: New McKee Historical

WORK OR Lab Batch	ders : 51734 #: 979030	2, Sample: 517342-003 / SMP	Bate	Project ID h: 1 Matrix						
Units:	mg/kg	Date Analyzed: 10/13/15 20:14								
	TPH By SW8015B Mod			True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]					
1-Chlorooct	ane		97.3	100	97	70-135				
o-Terphenyl			49.1	50.0	98	70-135				
Lab Batch	#: 979030	Sample: 517342-005 / SMP	Bate	ch: 1 Matrix	: Soil					
Units:	mg/kg	Date Analyzed: 10/13/15 21:02	SU	URROGATE R	ECOVERY	STUDY				
	TPH B	Sy SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1-Chlorooct	ane	Analytes	76.5	99.7	77	70-135				
o-Terphenyl			37.9	49.9	76	70-135				
Lab Batch		Sample: 517342-003 / SMP	Bate			10 155				
Units:	mg/kg	Date Analyzed: 10/13/15 21:10		JRROGATE R		STUDY				
BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
		Analytes								
1,4-Difluoro			0.0281	0.0300	94	80-120				
4-Bromoflu			0.0257	0.0300	86	80-120				
Lab Batch		Sample: 517342-004 / SMP	Batch: 1 Matrix: Soil							
Units:	mg/kg	Date Analyzed: 10/13/15 21:26	SU	JRROGATE R	ECOVERY	STUDY				
	BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1,4-Difluoro	benzene		0.0273	0.0300	91	80-120				
4-Bromoflue	orobenzene		0.0241	0.0300	80	80-120				
Lab Batch	#: 979047	Sample: 517342-006 / SMP	Bato	h: 1 Matrix	: Soil	1				
Units:	mg/kg	Date Analyzed: 10/13/15 21:59	SU	JRROGATE R	ECOVERY	STUDY				
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage			
1,4-Difluoro	benzene		0.0293	0.0300	98	80-120				
.,			0.0295	0.0500	70	00-120				

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Historical

Work Orders : 517342, Lab Batch #: 979030 Sample: 517342-006 / SMP		Batch:	Project ID 1 Matrix							
Units:	mg/kg	Date Analyzed: 10/14/15 09:51	SURROGATE RECOVERY STUDY							
	TPH B	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]					
1-Chlorooctane	e		112	99.9	112	70-135				
o-Terphenyl			56.7	50.0	113	70-135				
Lab Batch #:	979047	Sample: 517342-001 / SMP	Batch:	1 Matrix	: Soil					
Units:	mg/kg	Date Analyzed: 10/14/15 10:55	SUR	ROGATE R	RECOVERY	STUDY				
BTEX by EPA 8021B			Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
140.01		Analytes								
1,4-Difluorobe			0.0269	0.0300	90	80-120				
4-Bromofluoro		G 17242 002 (SMD	0.0244	0.0300	81	80-120				
Lab Batch #:		Sample: 517342-002 / SMP								
Units:	mg/kg	Date Analyzed: 10/14/15 11:33	SURROGATE RECOVERY STUDY							
TPH By SW8015B Mod		Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]					
1-Chlorooctane	e		115	99.6	115	70-135				
o-Terphenyl			59.0	49.8	118	70-135				
Lab Batch #:	979030	Sample: 517342-004 / SMP	Batch:	1 Matrix	: Soil					
Units:	mg/kg	Date Analyzed: 10/14/15 11:58	SUR	ROGATE R	RECOVERY	STUDY				
	TPH B	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1-Chlorooctane	2		116	99.9	116	70-135				
o-Terphenyl			58.7	50.0	117	70-135				
Lab Batch #:	979047	Sample: 517342-002 / SMP	Batch:				<u> </u>			
Units:	mg/kg	Date Analyzed: 10/14/15 11:59	SUR	ROGATE R	RECOVERY	STUDY				
BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
4.000		Analytes			[D]					
1,4-Difluorobe			0.0284	0.0300	95	80-120				
4-Bromofluoro	benzene		0.0305	0.0300	102	80-120				

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Historical

Work Orders : 517342, Lab Batch #: 979030 Sample: 517342-007 / SMP			Batch:	Project ID 1 Matrix						
Units:	mg/kg	Date Analyzed: 10/14/15 12:22	SURROGATE RECOVERY STUDY							
	ТРН В	y SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]					
1-Chloroocta	ane		130	99.9	130	70-135				
o-Terphenyl			64.6	50.0	129	70-135				
Lab Batch #	#: 979030	Sample: 517342-001 / SMP	Batch:	1 Matrix	: Soil					
Units:	mg/kg	Date Analyzed: 10/14/15 13:35	SUR	RROGATE R	RECOVERY	STUDY				
TPH By SW8015B Mod Analytes			Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1 (11)		Anarytes								
1-Chloroocta			119	99.9	119	70-135				
o-Terphenyl			61.6	50.0	123	70-135				
Lab Batch #		Sample: 517342-007 / SMP	MP Batch: 1 Matrix: Soil							
Units:	mg/kg	Date Analyzed: 10/14/15 13:44	SUF	RROGATE R	RECOVERY	STUDY				
BTEX by EPA 8021B			Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]					
1,4-Difluoro	benzene		0.0264	0.0300	88	80-120				
4-Bromofluc	orobenzene		0.0306	0.0300	102	80-120				
Lab Batch #	#: 979047	Sample: 517342-005 / SMP	Batch	1 Matrix	: Soil					
Units:	mg/kg	Date Analyzed: 10/14/15 15:07	SUF	ROGATE R	RECOVERY	STUDY				
	ВТЕУ	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1.4 Diffuore	hanzana	Analytes	0.0201	0.0200		00.120				
1,4-Difluoro			0.0291	0.0300	97	80-120				
4-Bromofluc Lab Batch 3		Sample: 699420-1-BLK / BLF	0.0321 Batch:	0.0300	107 :: Solid	80-120				
		-								
Units:	mg/kg	Date Analyzed: 10/13/15 18:18	SUF	REOGATE R	RECOVERY	STUDY				
TPH By SW8015B Mod			Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
· · · · · · · · · · · · · · · · · · ·		Analytes			[D]					
1-Chloroocta	ane		119	100	119	70-135				
o-Terphenyl			59.3	50.0	119	70-135				

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B


Project Name: New McKee Historical

L ab Batch #: 97 U nits: m		Sample: 699437-1-BLK / B			x: Solid						
Units: m	g/kg	Date Analyzed: 10/13/15 20:21	SU	JRROGATE 1	RECOVERYS	STUDY					
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage				
		Analytes			[D]						
1,4-Difluorobenze	ene		0.0271	0.0300	90	80-120					
4-Bromofluorober	izene		0.0240	0.0300	80	80-120					
Lab Batch #: 97	79030	Sample: 699420-1-BKS / B	KS Bate	h: 1 Matri	x: Solid						
Units: m	g/kg	Date Analyzed: 10/13/15 18:41	SU	JRROGATE	RECOVERYS	STUDY					
	ТРН В	y SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1-Chlorooctane		Analytes	117	100	117	70-135					
o-Terphenyl			51.3	50.0	103	70-135					
Lab Batch #: 97	79047	Sample: 699437-1-BKS / B			x: Solid	70-155					
	g/kg	Date Analyzed: 10/13/15 19:32									
Cintist in	5,15	Duce (Muly2ed, 10/13/15 1).52									
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]						
1,4-Difluorobenze			0.0266	0.0300	89	80-120					
4-Bromofluorober		<u></u>	0.0243	0.0300	81	80-120					
Lab Batch #: 97		Sample: 699420-1-BSD / B	SD Bate	h: 1 Matri	x: Solid						
Units: m	g/kg	Date Analyzed: 10/13/15 19:04	SU	JRROGATE 1	RECOVERY	STUDY					
	ТРН В	y SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1-Chlorooctane		•	132	100	132	70-135					
o-Terphenyl			59.4	50.0	119	70-135					
Lab Batch #: 97	79047	Sample: 699437-1-BSD / B			x: Solid						
Units: m	g/kg	Date Analyzed: 10/13/15 19:48	SU	JRROGATE	RECOVERY	STUDY					
	втех	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]						
1,4-Difluorobenze			0.0241	0.0300	80	80-120					
4-Bromofluorober	izene		0.0252	0.0300	84	80-120					

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Historical

	:ders : 51734 #: 979030	2, Sample: 517342-006 S / MS	Batc	Project ID: h: 1 Matrix			
Units:	mg/kg	Date Analyzed: 10/13/15 21:50	SU	RROGATE R	ECOVERY S	STUDY	
	TPH B	Sy SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	10.000	Analytes	120	100		Control Limits %R Flags 0 70-135 5 70-135 5 70-135 3 70-135 3 70-135 3 70-135 3 70-135 3 70-135 3 80-120 3 80-120 3 80-120 3 80-120 3 70-135 3 70-135 3 70-135 3 70-135 3 70-135	
o-Terpheny			53.1	50.0	120		
1 2	#: 979047	Sample: 517342-001 S / MS				70-155	
		-					
Units:	mg/kg	Date Analyzed: 10/14/15 14:01	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags
		Analytes					
1,4-Difluor			0.0268	0.0300	89		
4-Bromoflu			0.0266	0.0300	89	80-120	
Lab Batch	#: 979030	Sample: 517342-006 SD / M	ISD Batch	h: 1 Matrix:	: Soil		
U nits:	mg/kg	Date Analyzed: 10/13/15 22:13	SU	RROGATE R	ECOVERY S	STUDY	
	TPH B	sy SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Limits	Flags
		Analytes	[A]	լոյ	[D]	70K	
1-Chlorooct	tane		111	99.8	111	70-135	
o-Terpheny	1		50.2	49.9	101	70-135	
Lab Batch	#: 979047	Sample: 517342-001 SD / M	ISD Bate	h: 1 Matrix:	Soil	1 1	
U nits:	mg/kg	Date Analyzed: 10/14/15 14:17	SU	RROGATE R	ECOVERY S	STUDY	
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluor	obenzene	-	0.0275	0.0300	92	80-120	
					1		

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



BS / BSD Recoveries



Project Name: New McKee Historical

Work Order #: 517342							Proj	ject ID:			
Analyst: SYG	D	ate Prepar	ed: 10/13/20	15			Date A	nalyzed:	10/13/2015		
Lab Batch ID: 979047 Sample: 699437-1-	BKS	Batch	n#: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE /]	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
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	< 0.00101	0.101	0.0831	82	0.0994	0.0809	81	3	70-130	35	
Toluene	< 0.00201	0.101	0.0809	80	0.0994	0.0802	81	1	70-130	35	
Ethylbenzene	< 0.00101	0.101	0.105	104	0.0994	0.116	117	10	71-129	35	
m_p-Xylenes	< 0.00201	0.201	0.212	105	0.199	0.237	119	11	70-135	35	
o-Xylene	< 0.00101	0.101	0.100	99	0.0994	0.108	109	8	71-133	35	
Analyst: PJB	D	ate Prepar	ed: 10/13/20	15			Date A	nalyzed:	10/13/2015		
Lab Batch ID: 979030 Sample: 699420-1-	BKS	Batch	n#: 1					Matrix:	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE /]	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
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	993	99	1000	1090	109	9	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	839	84	1000	887	89	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 / MSD Recoveries

Project Name: New McKee Historical



Work Order # : 517342						Project II):				
Lab Batch ID: 979047	QC- Sample ID:	517342-0	001 S	Ba	tch #:	1 Matrix	x: Soil				
Date Analyzed: 10/14/2015	Date Prepared:	10/13/20	15	An	alyst: S	SYG					
Reporting Units: mg/kg		MA	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
BTEX by EPA 8021B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]		[D]	[E]	Kesutt [F]	[G]	/0	70K		
Benzene	<0.00101	0.101	0.0811	80	0.101	0.0807	80	0	70-130	35	
Toluene	<0.00202	0.101	0.0807	80	0.101	0.0820	81	2	70-130	35	
Ethylbenzene	< 0.00101	0.101	0.0850	84	0.101	0.0877	87	3	71-129	35	
m_p-Xylenes	< 0.00202	0.202	0.171	85	0.201	0.175	87	2	70-135	35	
o-Xylene	<0.00101	0.101	0.0826	82	0.101	0.0861	85	4	71-133	35	
Lab Batch ID: 979030	QC- Sample ID:	517342-0	006 S	Ba	tch #:	1 Matrix	x: Soil				
Date Analyzed: 10/13/2015	Date Prepared:	10/13/20	15	An	alyst: I	PJB					
Reporting Units: mg/kg		MA	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
TPH By SW8015B Mod	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]	[U]	50K [D]	[E]	Acsuit [F]	%K [G]	/0	/01	70KF D	
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	910	91	998	864	87	5	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	815	82	998	766	77	6	70-135	35	

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



Client: PLAINS ALL AMERICAN EH&S

XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 10/13/2015 11:58:00 AM **Temperature Measuring device used :** Work Order #: 517342 Comments Sample Receipt Checklist 5 #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes #14 Samples in proper container/ bottle? Yes #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? Yes #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts. #22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH? N/A

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

Analyst:

PH Device/Lot#:

Date: 10/13/2015

Checklist completed by: March Kelsey Brooks Checklist reviewed by: March Kelsey Brooks Kelsey Brooks

Date: 10/13/2015



Page 16 of 17

Final 1.000



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&S Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 10/13/2015 11:58:00 AM **Temperature Measuring device used :** Work Order #: 517342 Comments Sample Receipt Checklist #1 *Temperature of cooler(s)? 5 #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinguished/ received? Vac

#TO Chain of Custody signed when reiniquished/ received?	165
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	Yes
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except fo samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH	? N/A

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

Analyst:

PH Device/Lot#:

Date: 10/13/2015

Checklist completed by: Kelsey Brooks Checklist reviewed by: Kelsey Brooks Kelsey Brooks

Date: 10/13/2015

Analytical Report 517344

for PLAINS ALL AMERICAN EH&S

Project Manager: Joel Lowry

New McKee Historical

20-OCT-15

Collected By: Client





12600 West I-20 East Odessa, Texas 79765

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

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

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



20-OCT-15



Project Manager: **Joel Lowry PLAINS ALL AMERICAN EH&S** 1301 S. COUNTY ROAD 1150 Midland, TX 79706

Reference: XENCO Report No(s): 517344 New McKee Historical Project Address:

Joel Lowry:

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) 517344. 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. 517344 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.

Respectfully,

Huns Hoah

Kelsey Brooks Project Manager

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Sample Cross Reference 517344



PLAINS ALL AMERICAN EH&S, Midland, TX

New McKee Historical

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Telephone Pole In-Situ	S	10-12-15 15:30	5 ft	517344-001
Cathodic In-Situ	S	10-12-15 15:40	5 ft	517344-002



CASE NARRATIVE



Client Name: PLAINS ALL AMERICAN EH&S Project Name: New McKee Historical

Project ID: Work Order Number(s): 517344
 Report Date:
 20-OCT-15

 Date Received:
 10/13/2015

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Project Id: Contact: Joel Lowry

Project Location:

Certificate of Analysis Summary 517344

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: New McKee Historical



Date Received in Lab:Tue Oct-13-15 11:58 amReport Date:20-OCT-15Project Manager:Kelsey Brooks

	Lab Id:	517344-	001	517344-0	002		
Analysis Paguested	Field Id:	Telephone Po	le In-Situ	Cathodic Ir	n-Situ		
Analysis Requested	Depth:	5- ft		5- ft			
	Matrix:	SOIL		SOIL	,		
	Sampled:	Oct-12-15	15:30	Oct-12-15	15:40		
BTEX by EPA 8021B	Extracted:	Oct-15-15	10:00	Oct-15-15	10:00		
	Analyzed:	Oct-16-15	15:35	Oct-16-15	17:57		
	Units/RL:	mg/kg	RL	mg/kg	RL		
Benzene		0.112	0.0202	3.29	0.0998		
Toluene		4.66	0.0403	39.5	0.200		
Ethylbenzene		7.08	0.0202	35.2	0.0998		
m_p-Xylenes		14.3	0.0403	65.6	0.200		
o-Xylene		6.23	0.0202	27.0	0.0998		
Xylenes, Total		20.5	0.0202	92.6	0.0998		
Total BTEX		32.4	0.0202	171	0.0998		
TPH By SW8015B Mod	Extracted:	Oct-16-15	18:30	Oct-16-15	18:30		
	Analyzed:	Oct-18-15	18:41	Oct-18-15	18:19		
	Units/RL:	mg/kg	RL	mg/kg	RL		
C6-C10 Gasoline Range Hydrocarbons		981	150	3540	150		
C10-C28 Diesel Range Hydrocarbons		12400	150	17100	150		
C28-C35 Oil Range Hydrocarbons		180	150	194	150		
Total TPH		13600	150	20800	150		

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

Huns Boah

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
2505 North Falkenburg Rd, Tampa, FL 33619
12600 West I-20 East, Odessa, TX 79765
6017 Financial Drive, Norcross, GA 30071
3725 E. Atlanta Ave, Phoenix, AZ 85040

(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	

Phone



Project Name: New McKee Historical

	rders : 51734 #: 979154	4, Sample: 517344-001 / SMP	Batch	Project ID : 1 Matrix			
Units:	mg/kg	Date Analyzed: 10/16/15 15:35	SUI	RROGATE R	RECOVERY	STUDY	
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluor	obenzene		0.0291	0.0300	97	80-120	
4-Bromoflu	orobenzene		0.0273	0.0300	91	80-120	
Lab Batch	#: 979154	Sample: 517344-002 / SMP	Batch	: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 10/16/15 17:57	SUI	RROGATE R	RECOVERY	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
140.0	1	Analytes	0.02.00	0.0000		00.100	
1,4-Difluor	obenzene		0.0260	0.0300	87	80-120	
		G 1 517244.002/SMD	0.0310	0.0300	103	80-120	
	#: 979371	Sample: 517344-002 / SMP	Batch				
Units:	mg/kg	Date Analyzed: 10/18/15 18:19	SUI	RROGATE R	RECOVERY	STUDY	
	ТРН В	sy SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooc	tane		118	100	118	70-135	
o-Terpheny	rl		63.3	50.0	127	70-135	
Lab Batch	#: 979371	Sample: 517344-001 / SMP	Batch	: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 10/18/15 18:41	SUI	RROGATE R	RECOVERY	STUDY	
	ТРН В	Sy SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		Analytes					
1-Chlorooc			124	100	124	70-135	
o-Terpheny			55.8	50.0	112	70-135	
	#: 979154	Sample: 699509-1-BLK / BLI			x: Solid		
Units:	mg/kg	Date Analyzed: 10/15/15 11:18	SUI	RROGATE R	RECOVERY S	STUDY	
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.4 Difluor	obenzene		0.0300	0.0300	100	80-120	
1.4-DILLO			0.0000	0.0000	1 100	00120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Historical

	r ders : 5 1734 #: 979371	4, Sample: 699640-1-BLK / B	LK Bate	Project ID h: 1 Matrix			
Units:	mg/kg	Date Analyzed: 10/17/15 05:27	SU	RROGATE R	ECOVERY S	STUDY	
	ТРН В	sy SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooc	tane		107	100	107	70-135	
o-Terpheny	1		51.4	50.0	103	70-135	
Lab Batch	#: 979154	Sample: 699509-1-BKS / B	KS Bate	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 10/15/15 10:12	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
140.0	1	Analytes	0.0050	0.0200		00.100	
1,4-Difluor			0.0259	0.0300	86	80-120	
	lorobenzene		0.0242	0.0300	81	80-120	
	#: 979371	Sample: 699640-1-BKS / B					
Units:	mg/kg	Date Analyzed: 10/17/15 05:51	SU	RROGATE R	ECOVERY S	STUDY	
	TPH B	y SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes		[10]	[D]	/01	
1-Chlorooc	tane		114	100	114	70-135	
o-Terpheny	1		52.6	50.0	105	70-135	
Lab Batch	#: 979154	Sample: 699509-1-BSD / B	SD Bate	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 10/15/15 10:46	SU	RROGATE R	ECOVERY	STUDY	
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.4-Difluor	obenzene		0.0249	0.0300	83	80-120	
,	lorobenzene		0.0245	0.0300	82	80-120	
	#: 979371	Sample: 699640-1-BSD / B				00 120	
Units:	mg/kg	Date Analyzed: 10/17/15 06:14		RROGATE R	ECOVERY S	STUDY	
	ТРН В	Sy SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooc	tane		123	100	123	70-135	
o-Terpheny	'l		52.8	50.0	106	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Historical

Work Ord Lab Batch #	lers : 51734 : 979154	14, Sample: 517421-001 S / MS	Batc	Project ID			
Units:	mg/kg	Date Analyzed: 10/15/15 14:18	SU	RROGATE R	ECOVERY S	STUDY	
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluorob	enzene		0.0264	0.0300	88	80-120	
4-Bromofluor	obenzene		0.0301	0.0300	100	80-120	
Lab Batch #	: 979371	Sample: 517289-001 S / MS	Batc	h: 1 Matrix	: Solid		
U nits:	mg/kg	Date Analyzed: 10/17/15 08:42	SU	RROGATE R	ECOVERY S	STUDY	
	TPH F	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooctar	ne		129	99.8	129	70-135	
o-Terphenyl			55.5	49.9	111	70-135	
Lab Batch #		Sample: 517421-001 SD / M	SD Batc	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 10/15/15 14:34	SU	RROGATE R	ECOVERY S	STUDY	
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluorob	enzene		0.0269	0.0300	90	80-120	
4-Bromofluor	obenzene		0.0312	0.0300	104	80-120	
Lab Batch #	: 979371	Sample: 517289-001 SD / M	SD Bate	h: 1 Matrix	: Solid		
U nits:	mg/kg	Date Analyzed: 10/17/15 09:08	SU	RROGATE R	ECOVERY S	STUDY	
	TPH F	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooctar	ne		118	99.9	118	70-135	
o-Terphenyl			49.4	50.0	99	70-135	

* Surrogate outside of Laboratory QC limits

- ** Surrogates outside limits; data and surrogates confirmed by reanalysis
- *** Poor recoveries due to dilution
- Surrogate Recovery [D] = 100 * A / B



BS / BSD Recoveries



Project Name: New McKee Historical

Work Order #: 517344							Proj	ject ID:			
Analyst: SYG	D	ate Prepai	red: 10/15/20	15			Date A	nalyzed: 1	0/15/2015		
Lab Batch ID: 979154 Sample: 699509-1-E	BKS	Bate	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / I	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	ΟY	
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	<0.00101	0.101	0.0811	80	0.101	0.0810	80	0	70-130	35	
Toluene	<0.00202	0.101	0.0904	90	0.101	0.0951	94	5	70-130	35	
Ethylbenzene	< 0.00101	0.101	0.111	110	0.101	0.116	115	4	71-129	35	
m_p-Xylenes	< 0.00202	0.202	0.224	111	0.202	0.231	114	3	70-135	35	
o-Xylene	< 0.00101	0.101	0.110	109	0.101	0.115	114	4	71-133	35	
Analyst: PJB	D	ate Prepai	red: 10/16/20	15			Date A	nalyzed:	10/17/2015		
Lab Batch ID: 979371 Sample: 699640-1-H	BKS	Batc	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / I	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
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	854	85	1000	917	92	7	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	1000	100	1000	1080	108	8	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 / MSD Recoveries

Project Name: New McKee Historical



Work Order # :	517344						Project II):				
Lab Batch ID:	979154	QC- Sample ID:	517421	-001 S	Ba	tch #:	1 Matrix	x: Soil				
Date Analyzed:	10/15/2015	Date Prepared:	10/15/2	015	Ar	alyst: S	SYG					
Reporting Units:	mg/kg		Μ	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
	BTEX by EPA 8021B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]		[D]	[E]	Kesutt [F]	[G]	70	JUK		
Benzene		<0.000994	0.0994	0.0365	37	0.0994	0.0799	80	75	70-130	35	XF
Toluene		< 0.00199	0.0994	0.0389	39	0.0994	0.0803	81	69	70-130	35	XF
Ethylbenzene		<0.000994	0.0994	0.0442	44	0.0994	0.0894	90	68	71-129	35	XF
m_p-Xylenes		<0.00199	0.199	0.0964	48	0.199	0.184	92	62	70-135	35	XF
o-Xylene		<0.000994	0.0994	0.0547	55	0.0994	0.0922	93	51	71-133	35	XF
Lab Batch ID:	979371	QC- Sample ID:	517289	-001 S	Ba	tch #:	1 Matrix	x: Solid				
Date Analyzed:	10/17/2015	Date Prepared:	10/16/2	015	Ar	alyst: F	УВ					
Reporting Units:	mg/kg		Μ	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
]	FPH By SW8015B Mod	Parent Sample Result	Spike	Spiked Sample Result	Sample	Spike	Duplicate Spiked Sample		RPD %	Control Limits	Control Limits	Flag
	Analytes	[A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	/0	%R	%RPD	
C6-C10 Gasoli	ne Range Hydrocarbons	<15.0	998	1000	100	999	846	85	17	70-135	35	

1170

<15.0

998

117

999

1010

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

C10-C28 Diesel Range Hydrocarbons

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

101

15

70-135

35



XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 10/13/2015 11:58:00 AM **Temperature Measuring device used :** Work Order #: 517344 Comments Sample Receipt Checklist 5 #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes #14 Samples in proper container/ bottle? Yes #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? Yes #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts. #22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH? N/A

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

Analyst:

PH Device/Lot#:

Date: 10/13/2015

Checklist completed by: March Kelsey Brooks Checklist reviewed by: March Kelsey Brooks Kelsey Brooks

Date: 10/13/2015

8	Container	Г	Selin	9.elin	Relig	Pelle	Τ			Π				5	2	Matrix		Pro	Sa	Pro	Q)		٦
	1		Selinquished by (Signature)	Relinquished by (Signature)	Lished by (Sign	elipquished by//Signature)								~	12/12/10	Date		Project Number	Sampler's Name	Project Manager	Office Location			
	W04 - 40 mi visi		(mature)	gnature]	- Artur	nalurel								Omit		Time		nber	1	nager	2	ſ		
	2.8				rl		-	+	-		-		-	-	\vdash	Comp			loway	Joe	LUBBOCK			
	A/S - Amb					6								$\overline{}$	>	Grab			2	Joel Lowry				
	A/3 - Amber Glass (L.	L	Dates	Data	Date	Date:								Carlodic	Telephone		New	Project Name		4				
Lub	3 - 301 250 mi e Gia	N WOR	a	×	ام)، اد		נ							24	Pole	Identifying	the les	ame						
Luppock Опісе	350ml = Gass wide mouth		Time	Time	1158 Time	Tima:								2n-Situ	In-sito	Identifying Marks of Sample(s)	Historical							
B82/ 50th Street = Lubbock, lexas /94 Responsive = Resourceful = Reliable	ä		Received by (Signature)	Received by (Signature)	Received by (Signature)	Received by Si	כ									imple(s)			Sampler's Signature	PO/SO #:	Phone: Contact:		Address:	
n stro			(anneut	(nature)	nature)	mature)			1								(SAS New mu planette	-	C Sign	1	: n	15	ry:	L
Re:	C- Darcosi tube				5	Þ			~					ς,	5	Start Depth	wind		ture		Joel Lowry	Midland, TX 79701 432-563-1800	Xenco Laboratories 1211 W. Florida Ave.	
44					5'											End Depth	North North	2		Val	VIN	1d, TX	V. Flor	
:eful							L				_	+	-	-	_	4 oz Gla	135	lo. Type		M		0	ida Av	
Re	SL - Shuge	⊢	Date	Data	to	Date	-	+	*		+	+	_	-			_	of Cor		Now we les Hist.			μ	
curceful = Reliable					21613			+	-		+						-	No. Type of Containers		Est.				
			Time:	Time	110	Time							1	7	V	BTE	1	0	07	/			REQUESTE	
806-3		L			1158									*	1	TPH	ł	nor	5-				REQUESTED	
806-300-0140					NOTES									k	4	Hold	A	1	19	nal	44	14	r	
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						, 0	1		-		-			2 2		-	_		1	_		5000 mm 7 m		
					rin.loy pel.low						-		_	23 - 53		22								
					erin.loyd@terracon.com loel.lowry@terracon.com		-				+				_	ىر		-	_			TEMP WHEN	DUE DATE:	
					con.co											5 5					225	TEMP OF COOLER WHEN RECEIVED (°C)	DUE DATE:	
					EI EI											Lab Sample ID					Page 1 of 1	S S		
																PleiD			2		of 1	N		
																						n		
																	1							L

Page 13 of 14

Final 1.000



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&S Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 10/13/2015 11:58:00 AM **Temperature Measuring device used :** Work Order #: 517344 Comments Sample Receipt Checklist 5 #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes Yes #14 Samples in proper container/ bottle? #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? Yes #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A N/A

#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts. #22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?

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

Analyst:

PH Device/Lot#:

Date: 10/13/2015

N/A

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

Date: 10/13/2015

Analytical Report 517661

for PLAINS ALL AMERICAN EH&S

Project Manager: Joel Lowry SRS New McKee Jct. Historical

New McKee Jct. Sump Historical

23-OCT-15

Collected By: Client





12600 West I-20 East Odessa, Texas 79765

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

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

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



23-OCT-15



Project Manager: **Joel Lowry PLAINS ALL AMERICAN EH&S** 1301 S. COUNTY ROAD 1150 Midland, TX 79706

Reference: XENCO Report No(s): **517661 SRS New McKee Jct. Historical** Project Address:

Joel Lowry:

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) 517661. 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. 517661 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.

Respectfully,

Huns hoah

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 517661



PLAINS ALL AMERICAN EH&S, Midland, TX

SRS New McKee Jct. Historical

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NE P.A. @ 9'	S	10-16-15 09:30		517661-001



CASE NARRATIVE



Client Name: PLAINS ALL AMERICAN EH&S Project Name: SRS New McKee Jct. Historical

Project ID: New McKee Jct. Sump His Work Order Number(s): 517661
 Report Date:
 23-OCT-15

 Date Received:
 10/17/2015

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 517661 PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: SRS New McKee Jct. Historical



Report Date: 23-OCT-15

Project Id:

New McKee Jct. Sump Historical

Contact:

Joel Lowry

Project Location:

Date Received in Lab: Sat Oct-17-15 01:00 pm Project Manager: Kelsey Brooks

	Lab Id:	517661-001			
Analysis Requested	Field Id:	NE P.A. @ 9'			
Analysis Kequestea	Depth:				
	Matrix:	SOIL			
	Sampled:	Oct-16-15 09:30			
BTEX by EPA 8021	Extracted:	Oct-20-15 17:00	ľ		
	Analyzed:	Oct-21-15 15:53			
	Units/RL:	mg/kg RL			
Benzene		ND 0.000996			
Toluene		ND 0.00199			
Ethylbenzene		ND 0.000996			
m_p-Xylenes		ND 0.00199			
o-Xylene		ND 0.000996			
Xylenes, Total		ND 0.000996			
Total BTEX		ND 0.000996			
TPH by SW 8015B	Extracted:	Oct-20-15 14:00			
	Analyzed:	Oct-20-15 14:08			
	Units/RL:	mg/kg RL			
C6-C10 Gasoline Range Hydrocarbons		ND 15.0			
C10-C28 Diesel Range Organics		ND 15.0			
Total TPH		ND 15.0			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our 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

Huns Boah

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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(813) 620-2000	(813) 620-2033
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(770) 449-8800	(770) 449-5477
(602) 437-0330	

Phone

(281) 240-4200

Fax

(281) 240-4280



Form 2 - Surrogate Recoveries Project Name: SRS New McKee Jct. Historical

Work Orders Lab Batch #: 9		Sample: 517661-001 / SMP	Batc	0	: New McKee : Soil	I	
Units: m	ng/kg	Date Analyzed: 10/20/15 14:08	SU	JRROGATE R	ECOVERY S	STUDY	
	TP	H by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooctane			104	99.8	104	70-135	
o-Terphenyl			47.9	49.9	96	70-135	
Lab Batch #: 9	79557	Sample: 517661-001 / SMP	Batc	h: 1 Matrix	: Soil		
Units: m	ng/kg	Date Analyzed: 10/21/15 15:53	SU	JRROGATE R	ECOVERY S	STUDY	
	BTI	EX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.4-Difluorobenze	ene	Analytes	0.0292	0.0300	97	80-120	
4-Bromofluorobe			0.0292	0.0300	100	80-120	
Lab Batch #: 9		Sample: 699894-1-BLK / BI				80-120	
	ng/kg	Date Analyzed: 10/20/15 15:26		JRROGATE R	-	STUDY	
	TP	H by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes		[0]	[D]	/01	
1-Chlorooctane			88.1	100	88	70-135	
o-Terphenyl			40.0	50.0	80	70-135	
Lab Batch #: 9	79557	Sample: 699778-1-BLK / Bl	LK Bate	h: 1 Matrix	: Solid		
Units: m	ng/kg	Date Analyzed: 10/21/15 10:58	SU	JRROGATE R	ECOVERY S	STUDY	
	BTI	EX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
145.0 1		Analytes					
1,4-Difluorobenze			0.0297	0.0300	99	80-120	
4-Bromofluorobe		Sample: 699894-1-BKS / BI	0.0328	0.0300	109	80-120	
	19755 ng/kg	Date Analyzed: 10/20/15 15:52				TUN	
	15/ NG	Date mary 200, 10/20/13 13.32		JRROGATE R			
	TP	H by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1 Chloret		Analytes	100	100		70.125	
1-Chlorooctane			120	100	120	70-135	
o-Terphenyl			63.9	50.0	128	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Form 2 - Surrogate Recoveries Project Name: SRS New McKee Jct. Historical

Units:	mg/kg	Date Analyzed: 10/21/15 10:09			ECOVEDE		
Units:	mg/kg	Date Analyzed: 10/21/15 10:09	SU	JRROGATE R	ECOVERYS	STUDY	
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes	[]		[D]	,	
1,4-Difluoro	benzene		0.0358	0.0300	119	80-120	
4-Bromoflue	orobenzene		0.0349	0.0300	116	80-120	
Lab Batch	#: 979753	Sample: 699894-1-BSD / BS	SD Bate	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 10/20/15 16:16	SU	JRROGATE R	ECOVERY S	STUDY	
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	ane	Anarytes	129	100	129	70-135	
o-Terphenyl			54.5	50.0	129		
Lab Batch		Sample: 699778-1-BSD / BS				70-155	
Units:	mg/kg	Date Analyzed: 10/21/15 10:25				TUDV	
C	8	2	50			ry Limits %R 80-120 RY STUDY ry Control Limits %R 70-135 70-135 70-135 RY STUDY ry Control Limits %R 80-120 RY STUDY ry Control Limits %R 80-120 RY STUDY	
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Limits	Flags
		Analytes			[D]		
1,4-Difluoro			0.0353	0.0300	118	80-120	
4-Bromoflue			0.0337	0.0300	112	80-120	
Lab Batch		Sample: 517765-003 S / MS					
Units:	mg/kg	Date Analyzed: 10/21/15 17:08	SU	JRROGATE R	ECOVERY S	STUDY	
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags
1.4-Difluoro	hangana	Analytes	0.0200	0.0200		00.120	
4-Bromoflue			0.0308	0.0300	103		
Lab Batch		Sample: 517765-003 SD / N			I	00-120	
Units:	mg/kg	Date Analyzed: 10/21/15 17:24		JRROGATE R		STUDY	
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits	Flage
		Analytes			[D]		
1,4-Difluoro	benzene		0.0249	0.0300	83	80-120	
4-Bromoflue	orobenzene		0.0256	0.0300	85	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



BS / BSD Recoveries



Project Name: SRS New McKee Jct. Historical

Work Order #: 517661							Pro	ject ID:	New McKe	e Jct. Sum	p Historic
Analyst: SYG	D	ate Prepai	red: 10/20/202	15			Date A	nalyzed:	10/21/2015		
Lab Batch ID: 979557 Sample: 699778-1-	3KS	Batc	h #: 1					Matrix:	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE /]	BLANK	SPIKE DUP	LICATE	RECOV	ERY STU	DY	
BTEX by EPA 8021	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
Analytes Benzene	<0.00100	0.100	0.0959	96	0.101	0.0931	92	3	70-130	35	
Toluene	<0.00100	0.100	0.100	100	0.101	0.0931	92	6	70-130	35	
								-			
Ethylbenzene	< 0.00100	0.100	0.105	105	0.101	0.0949	94	10	71-129	35	
m_p-Xylenes	< 0.00201	0.201	0.211	105	0.202	0.192	95	9	70-135	35	
o-Xylene	< 0.00100	0.100	0.104	104	0.101	0.0961	95	8	71-133	35	
Analyst: PJB	D	ate Prepai	red: 10/20/202	15			Date A	nalyzed:	10/20/2015		
Lab Batch ID: 979753 Sample: 699894-1-1	BKS	Bate	h #: 1					Matrix: 3	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE /]	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STU	DY	
TPH by SW 8015B 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	1030	103	1000	1170	117	13	70-135	35	
C10-C28 Diesel Range Organics	<15.0	1000	1130	113	1000	1270	127	12	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 / MSD Recoveries

Project Name: SRS New McKee Jct. Historical



Work Order # :	517661	Project ID: New McKee Jct. Sump Historical												
Lab Batch ID:	QC- Sample ID:	517765-	003 S	Ba	tch #:	1 Matrix	: Soil							
Date Analyzed:	Date Prepared:	10/20/20	015	An	alyst: S	SYG								
Reporting Units:	mg/kg	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY												
	BTEX by EPA 8021	Parent Sample	Spike	Spiked Sample Result	Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag		
	Analytes	Result [A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD			
Benzene		<0.000998	0.0998	0.0893	89	0.0990	0.105	106	16	70-130	35			
Toluene		<0.00200	0.0998	0.0868	87	0.0990	0.108	109	22	70-130	35			
Ethylbenzene		<0.000998	0.0998	0.0866	87	0.0990	0.118	119	31	71-129	35			
m_p-Xylenes		<0.00200	0.200	0.177	89	0.198	0.234	118	28	70-135	35			
o-Xylene		<0.000998	0.0998	0.0857	86	0.0990	0.116	117	30	71-133	35			

Matrix Spike Percent Recovery $[D] = 100^{\circ}(C-A)/B$ Relative Percent Difference RPD = $200^{\circ}|(C-F)/(C+F)|$ Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

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



Client: PLAINS ALL AMERICAN EH&S

XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 10/17/2015 01:00:00 PM **Temperature Measuring device used :** Work Order #: 517661 Comments Sample Receipt Checklist 4 #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? No #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes #14 Samples in proper container/ bottle? Yes N/A #15 Samples properly preserved? #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? No #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts. #22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH? N/A

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

Analyst:

PH Device/Lot#:

Date: 10/19/2015

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

Date: 10/19/2015

1 Mar	1 Mar		Contraction of the state of the	CTLs TRRP [Reg. P	0	9	 _7	0	- 5	4	ω	2		S	ample #	Sampler Name: Matt Taylor	Invoice To: Ca	Project ID: Ne	PM/Attn: Jc	City: Lu	Address: 31	Company: Te	Laboratories	XEN
	Cart V	the loge	Relinquished by	DW NPDES LPST DryCln Other:	Reg. Program / Clean-up Std									NE P.A. @ 9'		Sample ID		Camille Bryant Plains All American	New McKee Jct. Sump Historical SRS New McKee Jct. Historical	Joel Lowry	Lubbock	3100 Plains Hwy.	Terracon	orntorics Houston: 4143 Greenbriar Dr. Stattord, IX //4// (281)240-4200 or Aberlie Redictionality	6
				FL TX GA LA AL NM	STATE									10/16/2015		Collect Date	Circle One E Quartely St	erican						r Dr. Stattord, L	1
	Kes. V	Besin	Affiliation	NC SC NJ PA Other:	STATE for Certs & Regs					1			*	0930		Collect Time	Circle One Event: Dally Quartely Semi-Annual A			Email:	State: TX			X //4// (281)2	CHAIN
•	10116/15	51/10/	on Date	NELAC DoD-ELAP										S		Code ^ Field Filtered Integrity OK (YIN) Total # of	Weekly Monthly Annual N/A	Quote #:	PO#: PAA-C. Bryant		Zip:	Fax:	Phone: (432)466-4450		
		1310	Time	P AFCEE QAPP P Other:	QA/QC Level & Certification									×	# Cont Lab Only:	Volatile	ample is by 8: ГРН	260		Cont Type * GC	-	Std (5	TAT Work Days	Odessa: 12600 West I-20 East Odessa, TX 79765 (432)563-1600	DY RECORD
3 51,00 m Xerco 10-17-15 13:0	Misty Lenons	Cash Br	Received by	ADaPT SEDD ERPIMS XLS Other:	EDDs										y:							0) 5Hrs 1D 2D 3C	= D Need results	× 79765 (432)563-1800	RD
	Mr. DSriver by	Daxin 10	Affiliation	Match Incomplete Absent Unclear 1.2	COC & Labels																ES REQUESTED	5D 7D 10D	by:	LAB W.O # : Field billable Hrs :	Page_1
0-17-15 13:0	0/11/15 1:56	116/15- 1:36	Date Time	1236 2423	Coolers Temp °C			-		-						Hol	d Sample	3				14D Other	Time:	517601	of 1
Proper containers used? pH verified-acceptable, excl VOCs? Received on time to meet HTs?		C Labeled with proper preservatives? Received within holding time?		Non-Conformances found? Samples intact upon arrival?	Lab Use Only YES									****RUSH****	REMARKS	(CALL SW Surface Water O Oil OCALL PL Product-Liquid U Urine PS Product-Liquid B Blood SL Sludge	Run TPH GW Gro DW Drin	only	B. HNO3 F. MeOH J. MCAA C. H ₂ SO4 G. Na ₂ S ₂ O3 K. ZnAc&NaOH D. NaOH H. NaHSO4 L Asbc Acid&NaOH	E. HCL	** Preservative Type Codes	Size(s): 2oz, 4oz, 8oz, 16oz, 32oz, 1Gal 40ml. 125 ml. 250 ml. 500 ml. 1L. Other		VC Vial Clear TS Teracore Sampler VP Vial Pre-preserved AC Air Cantster GA Glass Amber TB Tedlar Bag DA Glass Clear Zip Lock Bag DA De Glass Clear DC Diputio (New Control of the Control	ESJ

past due amounts shall accrue interest at 1.5% per month until paid in full. All laboratory analytical data and reports generated by Xenco remain the exclusive property of Xenco until invoices for such data are paid in full. Revision Date: Nov 12, 2009



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&S Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 10/17/2015 01:00:00 PM **Temperature Measuring device used :** Work Order #: 517661 Comments Sample Receipt Checklist 4 #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Vac

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

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

Analyst:

PH Device/Lot#:

Date: 10/19/2015

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

Date: 10/19/2015

Analytical Report 518800

for PLAINS ALL AMERICAN EH&S

Project Manager: Joel Lowry

New McKee Jct. Historical

AR157452

06-NOV-15

Collected By: Client





12600 West I-20 East Odessa, Texas 79765

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

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

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



06-NOV-15



Project Manager: **Joel Lowry PLAINS ALL AMERICAN EH&S** 1301 S. COUNTY ROAD 1150 Midland, TX 79706

Reference: XENCO Report No(s): **518800** New McKee Jct. Historical Project Address:

Joel Lowry:

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) 518800. 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. 518800 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.

Respectfully,

Huns hoah

Kelsey Brooks Project Manager

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


Sample Cross Reference 518800



PLAINS ALL AMERICAN EH&S, Midland, TX

New McKee Jct. Historical

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
10/28 NE PA @ 9'	S	10-28-15 10:20	- 9 ft	518800-001



CASE NARRATIVE



Client Name: PLAINS ALL AMERICAN EH&S Project Name: New McKee Jct. Historical

Project ID: AR157452 Work Order Number(s): 518800
 Report Date:
 06-NOV-15

 Date Received:
 10/30/2015

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Contact: Joel Lowry

Project Location:

Certificate of Analysis Summary 518800

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: New McKee Jct. Historical



Date Received in Lab:Fri Oct-30-15 01:57 pmReport Date:06-NOV-15Project Manager:Kelsey Brooks

	Lab Id:	518800-001			
Analysis Requested	Field Id:	10/28 NE PA @ 9'			
Analysis Kequestea	Depth:	9 ft			
	Matrix:	SOIL			
	Sampled:	Oct-28-15 10:20			
TPH by SW 8015B	Extracted:	Nov-05-15 13:00	í.	l .	
	Analyzed:	Nov-06-15 04:59			
	Units/RL:	mg/kg RL			
C6-C10 Gasoline Range Hydrocarbons		ND 15.0			
C10-C28 Diesel Range Organics		ND 15.0			
Total TPH		ND 15.0			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our 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

Huns Boah

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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6017 Financial Drive, Norcross, GA 30071
3725 E. Atlanta Ave, Phoenix, AZ 85040

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(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	

Phone

(281) 240-4200

Fax

(281) 240-4280



Project Name: New McKee Jct. Historical

Units:	ma/ka	Date Analyzed: 11/06/15 04:59	~-		FOOTERT						
Units:	mg/kg	Date Analyzed: 11/06/15 04:59	SU	JRROGATE R	ECOVERYS	STUDY					
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]						
1-Chlorooctan	e		120	100	120	70-135					
o-Terphenyl			54.9	50.0	110	70-135					
Lab Batch #:	980771	Sample: 700524-1-BLK / BL	K Bate	h: 1 Matrix	: Solid						
Units:	mg/kg	Date Analyzed: 11/05/15 13:57	SU	JRROGATE R	ECOVERY	STUDY					
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1-Chlorooctan		Analytes	02.0	100		70.125					
o-Terphenyl	с		98.0	100	98	70-135					
Lab Batch #:	980771	Sample: 700524-1-BKS / BK	44.4	50.0 h: 1 Matrix		/0-135					
Lab batch #: Units:		Date Analyzed: 11/05/15 15:03	BKS Batch: 1 Matrix: Solid SURROGATE RECOVERY STUDY								
Units:	mg/kg	Date Analyzed: 11/05/15 15.05	SU	STUDY							
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage				
		Analytes	[]	[_]	[D]	,					
1-Chlorooctan	e		108	100	108	70-135					
o-Terphenyl			40.8	50.0	82	70-135					
Lab Batch #:	980771	Sample: 700524-1-BSD / BS	D Bate	h: 1 Matrix	: Solid						
Units:	mg/kg	Date Analyzed: 11/05/15 18:48	SU	JRROGATE R	ECOVERYS	STUDY					
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]						
1-Chlorooctan	e		121	100	121	70-135					
o-Terphenyl			46.7	50.0	93	70-135					
Lab Batch #:	980771	Sample: 518684-006 S / MS	Batc	h: 1 Matrix	: Soil						
Units:	mg/kg	Date Analyzed: 11/06/15 03:52	SU	JRROGATE R	ECOVERYS	STUDY					
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag				
		Analytes			[D]						
1-Chlorooctan	e		124	100	124	70-135					
o-Terphenyl			49.8	50.0	100	70-135					

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Historical

Work Orders : 51880 Lab Batch #: 980771 Units: mg/kg	00, Sample: 518684-006 SD / M Date Analyzed: 11/06/15 04:25	Project ID: AR157452 MSD Batch: 1 Matrix: Soil SURROGATE RECOVERY STUDY							
TPH by SW 8015B Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1-Chlorooctane		127	99.7	127	70-135				
o-Terphenyl		50.9	49.9	102	70-135				

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



BS / BSD Recoveries



Project Name: New McKee Jct. Historical

Work Order #: 518800Project ID										AR157452		
Analyst:	РЈВ	D	ate Prepai	red: 11/05/201	15			Date A	nalyzed:	11/05/2015		
Lab Batch ID:	: 980771 Sample: 700524-1-1	BKS	Batc	h #: 1					Matrix: S	Solid		
Units:	mg/kg		BLAN	K /BLANK	SPIKE / 1	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
	TPH by SW 8015B	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
Analy	rtes		[B]	[C]	[D]	[E]	Result [F]	[G]				
C6-C10 G	asoline Range Hydrocarbons	<15.0	1000	967	97	1000	1100	110	13	70-135	35	
C10-C28 I	Diesel Range Organics	<15.0	1000	1120	112	1000	1270	127	13	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 / MSD Recoveries

Project Name: New McKee Jct. Historical



Work Order # :	518800	Project ID: AR157452										
Lab Batch ID:	980771	QC- Sample ID:	518684	-006 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	11/06/2015	Date Prepared:	Date Prepared:11/05/2015Analyst:PJB									
Reporting Units:	mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERYS	STUDY		
	TPH by SW 8015B	Parent Sample	Spike	Spiked Sample Result	Sample	Spike	Duplicate Spiked Sample	-	RPD	Control Limits	Control Limits	Flag
	Analytes	Result [A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
C6-C10 Gasoline	e Range Hydrocarbons	<15.0	1000	1010	101	997	1090	109	8	70-135	35	
C10-C28 Diesel	Range Organics	<15.0	1000	1150	115	997	1220	122	6	70-135	35	

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

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

Page 10 of 13



Client: PLAINS ALL AMERICAN EH&S

XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 10/30/2015 01:57:00 PM **Temperature Measuring device used :** Work Order #: 518800 Comments Sample Receipt Checklist 4 #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes #14 Samples in proper container/ bottle? Yes #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? No #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts.

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

Analyst:

PH Device/Lot#:

Checklist completed by:

#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?

Date: 11/04/2015

N/A

Checklist reviewed by:

by: <u>Carley Owens</u> Carley Owens by: <u>Mms Moah</u>

Date: 11/05/2015

						CHAIN OF CUSTODY RECORD	STODY REC	ORD	
			Xenco Laboratories	4	ANALYSIS			LAB USE ONLY	Г
		Address:	1211 W. Florida Ave.		REQUESTED			DUE DATE:	
			Midland, TX 79701	L				TEMP OF COOLER WHEN RECEIVED (°C)	<u> </u>
Office Location Lubbock		Phone:			}				T
		Contact:	Joel Lowry		Y			Page 1 of 1	
Project Manager Joel Lowry		PO/SO #:	Plains SRS (New McKee Jct. Historical)	vical)	7				
	Υ	Sampler's Si	gnature		vv				
		Que Jr	- Inner		د ۱			•	
Project Number	Project Name		No. Type of Containers	Containers	510				
AR157452	New McKee Jct. Historical	ical			0				
Matrix Bate T T T G T G T D D D D	ldentifying	Identifying Marks of Sample(s)	rtant Depth End Depth Afgel D ZO A		Hdl			518800 Lab Sample ID	Γ
10/28/2015 10:20 X	10/2	10/28 NE PA @ 9'	50		×				Τ
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ш	🗆 Normal 🛛 🛛 48-Hour Rush	0 24-H9	🖊) TRRP Laboratory Review Checklist	Review Checl	klist		ON [
Relinquished by (Signature)	Date: 10/28/11<		9	VC/20	t.	NOTES:	Please Em erin.lovd(Please Email Results to erin.lovd@terracon.com	
ReyInquished by (Signadure)	Date:	Time: Received by (Signature			me:		ioel.lowry	joel.lowry@terracon.com	
Relinquished by (Signature)	Date:	Time: Received by (Signature)	(0)	Date:	Times	PIORESITX-LOWRY	K-LOWRY		
Relinquished by (Signature)	Date:	Time: Received by (Signature)	(c)	Date:	lime:				
	er Glass 11	L. Liquid	C - Charcoal tube 5L - Sludge	ť					1
		fice a	Street = Lithhock Te	0472 29474	E	00-0140			Г
		2	e a Resourceful a	Reliable	1				
VAA. 40 mi visi	AG - Amber Glass 11. 250 ml - Glass wide mouth Lubbock OI	ffice a	700-™enteer enter	exas 79424 Reliable	B	806-300-0140			

Page 12 of 13

Final 1.000



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&S Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 10/30/2015 01:57:00 PM **Temperature Measuring device used :** Work Order #: 518800 Comments Sample Receipt Checklist 4 #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes Yes #14 Samples in proper container/ bottle? #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? No #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts.

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

Analyst:

PH Device/Lot#:

Checklist completed by:

#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?

Date: 11/04/2015

N/A

Checklist reviewed by:

by: <u>Carley Owens</u> Carley Owens by: Mms Moah

Date: 11/05/2015

Analytical Report 521085

for PLAINS ALL AMERICAN EH&S

Project Manager: Joel Lowry

New McKee Jct. Historical

AR157452

18-DEC-15

Collected By: Client





1211 W. Florida Ave, Midland TX 79701

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

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

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



18-DEC-15



Project Manager: **Joel Lowry PLAINS ALL AMERICAN EH&S** 1301 S. COUNTY ROAD 1150 Midland, TX 79706

Reference: XENCO Report No(s): **521085** New McKee Jct. Historical Project Address:

Joel Lowry:

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) 521085. 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. 521085 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.

Respectfully,

Huns hoah

Kelsey Brooks Project Manager

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Sample Cross Reference 521085



PLAINS ALL AMERICAN EH&S, Midland, TX

New McKee Jct. Historical

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
DT-1 (10.5-11')	S	12-10-15 10:45	10.5 - 11 ft	521085-001
DT-1 (12.5-13')	S	12-10-15 10:50	12.5 - 13 ft	521085-002
DT-1 (15.5-16')	S	12-10-15 10:55	15.5 - 16 ft	521085-003
DT-1 (17.5-18')	S	12-10-15 11:05	17.5 - 18 ft	521085-004
Telephone (In-situ) B	S	12-10-15 10:00	- 7 ft	521085-005
Catholic (In-situ) B	S	12-10-15 10:15	- 7 ft	521085-006



CASE NARRATIVE



Client Name: PLAINS ALL AMERICAN EH&S Project Name: New McKee Jct. Historical

Project ID: AR157452 Work Order Number(s): 521085
 Report Date:
 18-DEC-15

 Date Received:
 12/11/2015

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Project Id: AR157452 Contact: Joel Lowry

Project Location:

Certificate of Analysis Summary 521085 PLAINS ALL AMERICAN EH&S, Midland, TX



Project Name: New McKee Jct. Historical

Date Received in Lab:Fri Dec-11-15 12:20 pmReport Date:18-DEC-15Project Manager:Kelsey Brooks

	Lab Id:	521085-	001	521085-0	002	521085-	003	521085-	004	521085-	-005	521085-	006
Analysis Degrested	Field Id:	DT-1 (10.5	5-11')	DT-1 (12.5	5-13')	DT-1 (15.:	5-16')	DT-1 (17.	5-18')	Telephone (I	n-situ) B	Catholic (In	-situ) B
Analysis Requested	Depth:	10.5-11	ft	12.5-13	ft	15.5-16	ft	17.5-18	ft	7 ft		7 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL	_	SOI	L	SOII	_
	Sampled:	Dec-10-15	10:45	Dec-10-15	10:50	Dec-10-15	10:55	Dec-10-15	11:05	Dec-10-15	5 10:00	Dec-10-15	10:15
BTEX by EPA 8021	Extracted:	Dec-17-15	10:00	Dec-17-15	10:00	Dec-17-15	10:00	Dec-16-15	12:00	Dec-17-15	10:00	Dec-17-15	10:00
	Analyzed:	Dec-17-15	13:05	Dec-17-15	14:44	Dec-17-15	14:29	Dec-16-15	22:48	Dec-17-15	12:14	Dec-17-15	11:57
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		0.562	0.0497	0.284	0.0499	ND	0.00167	ND	0.00101	ND	0.000994	ND	0.000998
Toluene		1.40	0.0994	0.723	0.0998	ND	0.00333	ND	0.00202	0.0109	0.00199	ND	0.00200
Ethylbenzene		12.6	0.0497	19.0	0.0499	0.00405	0.00167	ND	0.00101	0.0442	0.000994	ND	0.000998
m_p-Xylenes		14.9	0.0994	22.0	0.0998	0.00928	0.00333	ND	0.00202	0.219	0.00199	0.0153	0.00200
o-Xylene		2.41	0.0497	4.25	0.0499	0.00182	0.00167	ND	0.00101	0.162	0.000994	0.0106	0.000998
Xylenes, Total		17.3	0.0497	26.3	0.0499	0.0111	0.00167	ND	0.00101	0.381	0.000994	0.0259	0.000998
Total BTEX		31.9	0.0497	46.3	0.0499	0.0152	0.00167	ND	0.00101	0.436	0.000994	0.0259	0.000998
TPH by SW 8015B	Extracted:	Dec-15-15	11:00	Dec-15-15 11:00		Dec-15-15 11:00		Dec-15-15 11:00		Dec-15-15 11:00		Dec-15-15 11:00	
	Analyzed:	Dec-15-15	22:52	Dec-15-15	Dec-15-15 23:19		Dec-15-15 17:36		Dec-15-15 18:00		23:46	Dec-15-15	18:50
	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		1040	15.0	1380	14.9	ND	15.0	ND	15.0	19.8	15.0	ND	15.0
C10-C28 Diesel Range Organics		2530	15.0	3420	14.9	135	15.0	ND	15.0	20.8	15.0	41.2	15.0
C28-C35 Oil Range Hydrocarbons		ND	15.0	ND	14.9	ND	15.0	ND	15.0	ND	15.0	ND	15.0
Total TPH		3570	15.0	4800	14.9	135	15.0	ND	15.0	40.6	15.0	41.2	15.0

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

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Huns Boah

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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(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	



Project Name: New McKee Jct. Historical

Lab Batch #:		Sample: 521085-003 / SMP	Batc	h: 1 Matrix	: 5011						
Units:	mg/kg	Date Analyzed: 12/15/15 17:36	SURROGATE RECOVERY STUDY								
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]		Flag:				
1-Chlorooctane	e		103	99.7	103	70-135					
o-Terphenyl			40.3	49.9	81	70-135					
Lab Batch #:	983674	Sample: 521085-004 / SMP	Batc	h: 1 Matrix	: Soil						
Units:	mg/kg	Date Analyzed: 12/15/15 18:00	SURROGATE RECOVERY STUDY								
	TPH	L by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1.011		Analytes	440			70.107					
1-Chlorooctane			112	99.9	112	70-135					
o-Terphenyl Lab Batch #:	092674	Samples 521085 006 / SMD	44.8	50.0 h: 1 Matrix	90 • Soil	70-135					
		Sample: 521085-006 / SMP	Batc								
Units:	mg/kg	Date Analyzed: 12/15/15 18:50	SU	RROGATE R	ECOVERY S	STUDY					
TPH by SW 8015B			Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]						
1-Chlorooctane	è.		103	99.9	103	70-135					
o-Terphenyl			40.4	50.0	81	70-135					
Lab Batch #:	983674	Sample: 521085-001 / SMP	Batc	h: 1 Matrix	: Soil						
Units:	mg/kg	Date Analyzed: 12/15/15 22:52	SU	RROGATE R	ECOVERY S	STUDY					
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes	[]		[D]	,					
1-Chlorooctane	e		126	99.9	126	70-135					
o-Terphenyl			53.8	50.0	108	70-135					
Lab Batch #:	983674	Sample: 521085-002 / SMP	Batc	h: 1 Matrix	: Soil	<u> </u>					
Units:	mg/kg	Date Analyzed: 12/15/15 23:19	SU	RROGATE R	ECOVERY S	STUDY					
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes	[A]	[10]	[D]	/0 K					
1-Chlorooctane			130	99.6	131	70-135					
o-Terphenyl			56.8	49.8	114	70-135					

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Historical

Lab Batch #:		Sample: 521085-005 / SMP	Batc								
Units:	mg/kg	Date Analyzed: 12/15/15 23:46	SURROGATE RECOVERY STUDY								
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]		Flag				
1-Chlorooctan	e		116	99.7	116	70-135					
o-Terphenyl			47.1	49.9	94	70-135					
Lab Batch #:	983710	Sample: 521085-004 / SMP	Batc	h: 1 Matrix	: Soil	· · · · · · · · · · · · · · · · · · ·					
Units:	mg/kg	Date Analyzed: 12/16/15 22:48	SURROGATE RECOVERY STUDY								
	BTE	X by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1,4-Difluorobe	72070	Anarytes	0.0277	0.0300	92	80-120					
4-Bromofluoro					-						
Lab Batch #:		Sample: 521085-006 / SMP	0.0241 Batc	0.0300 h: 1 Matrix	80 • Soil	80-120					
		-									
Units:	mg/kg	Date Analyzed: 12/17/15 11:57	SU	RROGATE R	ECOVERY S	STUDY					
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]						
1,4-Difluorobe	nzene		0.0300	0.0300	100	80-120					
4-Bromofluoro	benzene		0.0284	0.0300	95	80-120					
Lab Batch #:	983775	Sample: 521085-005 / SMP	Batc	h: 1 Matrix	: Soil						
Units:	mg/kg	Date Analyzed: 12/17/15 12:14	SU	RROGATE R	ECOVERY S	STUDY					
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]						
1,4-Difluorobe			0.0322	0.0300	107	80-120					
4-Bromofluoro			0.0322	0.0300	107	80-120					
Lab Batch #:		Sample: 521085-001 / SMP	Bate	h: 1 Matrix	: Soil						
Units:	mg/kg	Date Analyzed: 12/17/15 13:05	SU	RROGATE R	ECOVERY S	STUDY					
		X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage				
140.0 .		Analytes	0.0050	0.0700		00.100					
1,4-Difluorobe			0.0358	0.0300	119	80-120					
4-Bromofluoro	benzene		0.0246	0.0300	82	80-120					

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Historical

		Sample: 521085-003 / SMP	Batcl		: AR157452 : Soil		
Units:	mg/kg	Date Analyzed: 12/17/15 14:29	SU	RROGATE R	ECOVERY	STUDY	
	mg/kg Date Analyzed: 12/17/15 14:29 BTEX by EPA 8021 Analytes uorobenzene ofluorobenzene tth #: 983775 Sample: 521085-002 / SI mg/kg Date Analyzed: 12/17/15 14:44 BTEX by EPA 8021 Analytes uorobenzene ofluorobenzene ooctane enyl tch #: 983710 Sample: 702284-1-BLK mg/kg Date Analyzed: 12/16/15 10:17 BTEX by EPA 8021 Analytes uorobenzene ofluorobenzene ofluorobenzene	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]		rol its R 20 20 20 20 Y rol its R 20 20 20 20 20 20 20 20 20 20
1,4-Difluor	obenzene		0.0340	0.0300	113	80-120	
4-Bromoflu	orobenzene		0.0319	0.0300	106	80-120	
Lab Batch	#: 983775	Sample: 521085-002 / SMP	Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 12/17/15 14:44	SU	RROGATE R	ECOVERY	STUDY	
	BTE		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.4 D:fl	. 1	Anarytes	0.0212	0.0200		00.120	
,			0.0312	0.0300	104	80-120	
		$\mathbf{S}_{\mathbf{r}}$	0.0320	0.0300 h: 1 Matrix	107	80-120	
		•					
Units:	mg/kg	Date Analyzed: 12/15/15 11:29	SU	RROGATE R	ECOVERYS	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooct	ane		106	100	106	70-135	
o-Terpheny	1		47.6	50.0	95	70-135	
Lab Batch	#: 983710	Sample: 702284-1-BLK / B	LK Batcl	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 12/16/15 10:17	SU	RROGATE R	ECOVERY S	STUDY	
	BTE	-	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1 4-Difluor	benzene	111111 100	0.0352	0.0300	117	80-120	
·			0.0352	0.0300	94	80-120	
		Sample: 702320-1-BLK / B				00120	
Units:		-		RROGATE R		STUDY	
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluor	obenzene		0.0357	0.0300	119	80-120	
4-Bromoflu	orobenzene		0.0328	0.0300	109	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Historical

T	/1	Dete Anol-mod: 10/15/15 11 55									
Units:	mg/kg	Date Analyzed: 12/15/15 11:55	SURKUGATE RECOVERY STUDY								
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes	Found [A] Amount [B] Recovery %R [D] Limits %R 116 100 116 70-135 53.5 50.0 107 70-135 3KS Batch: 1 Matrix: Solid SURROGATE RECOVERY STUDY Amount Found [A] True Amount [B] Recovery %R [D] Control Limits %R 0.0305 0.0300 102 80-120 0.0305 0.0300 102 80-120 0.0277 0.0300 92 80-120 3KS Batch: 1 Matrix: Solid SURROGATE RECOVERY STUDY Amount Found [A] True Amount [B] Recovery %R [D] Control Limits %R 0.0353 0.0300 118 80-120 3SD Batch: 1 Matrix: Solid SURROGATE RECOVERY STUDY Amount [B] Recovery %R [D] Control Limits %R 3SD Batch: 1 Matrix: Solid SURROGATE RECOVERY STUDY Amount [B] Recovery %R [D]								
1-Chlorooct	ane		116	100	116	70-135					
o-Terphenyl			53.5	50.0	107	70-135					
Lab Batch	#: 983710	Sample: 702284-1-BKS / B	KS Bate	h: 1 Matrix	: Solid						
Units:	mg/kg	Date Analyzed: 12/16/15 09:26	SURROGATE RECOVERY STUDY								
	BTE	X by EPA 8021	Found	Amount	%R	Limits	Flags				
1,4-Difluoro	hanzana	Analytes	0.0205	0.0200		80.120					
4-Bromoflu											
Lab Batch		Sample: 702320-1-BKS / B				80-120					
Units:	mg/kg	Date Analyzed: 12/17/15 08:02									
onits.	iiig/ Kg	Date Analyzet. 12/17/15 00:02	SU	JRROGATE R	ECOVERYS	STUDY					
	BTE	X by EPA 8021	Found	Amount	•	Limits	Flags				
		Analytes			[D]						
1,4-Difluoro	benzene		0.0353	0.0300	118	80-120					
4-Bromoflu	orobenzene		0.0314	0.0300	105	80-120					
Lab Batch	#: 983674	Sample: 702266-1-BSD / B	SD Bate	h: 1 Matrix	: Solid						
Units:	mg/kg	Date Analyzed: 12/15/15 12:21	SURROGATE RECOVERY STUDY								
	TPH	I by SW 8015B	Found	Amount	%R	Limits	Flags				
1-Chlorooct		Analytes	110	100		70.125					
o-Terphenyl											
Lab Batch		Sample: 702284-1-BSD / BS				10-135					
Units:	mg/kg	-				STUDY					
	mg/kg Date Analyzed: 12/16/15 09:43 BTEX by EPA 8021			True Amount	Recovery	Control Limits	Flags				
		Analytes	[A]	[15]		%R					
1,4-Difluoro	benzene	<i>u</i>	0.0335	0.0300	112	80-120					
4-Bromoflu											

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Historical

Lab Batch	#: 983775	Sample: 702320-1-BSD / BSD	Batc	h: 1 Matrix	: Sond		
Units:	mg/kg	Date Analyzed: 12/17/15 08:19	SU	RROGATE R	ECOVERY S	STUDY	
	BTE	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1,4-Difluoro	benzene		0.0355	0.0300	118	80-120	
4-Bromoflue	orobenzene		0.0305	0.0300	102	80-120	
Lab Batch	# : 983674	Sample: 521085-006 S / MS	Batc	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 12/15/15 19:15	SU	RROGATE R	ECOVERY S	STUDY	
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	ane	Anarytes	102	99.6	102	70-135	
o-Terphenyl			42.4	49.8	85	70-135	
Lab Batch		Sample: 521332-013 S / MS	Batc			70-155	
Units:	mg/kg	Date Analyzed: 12/16/15 20:18					
Units.	iiig/kg		SU	RROGATE R	ECOVERYS	STUDY	
	ВТЕ	X by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1,4-Difluoro	benzene		0.0345	0.0300	115	80-120	
4-Bromoflue			0.0315	0.0300	105	80-120	
Lab Batch	# : 983775	Sample: 521085-003 S / MS	Batc	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 12/17/15 13:21	SU	RROGATE R	ECOVERY S	STUDY	
	BTE	X by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluoro	henzene	Anarytes	0.0341	0.0300	114	80-120	
4-Bromoflue			0.0341	0.0300	114	80-120	
Lab Batch		Sample: 521085-006 SD / MS				00 120	
Units:	mg/kg	Date Analyzed: 12/15/15 19:40		RROGATE R		STUDY	
	nits: mg/kg Date Analyzed: 12/15/15 19:40 TPH by SW 8015B			True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes	[A]		[D]	/01	
1-Chlorooct	ane		125	99.9	125	70-135	
o-Terphenyl			50.3	50.0	101	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Jct. Historical

Work Ord Lab Batch #		35, Sample: 521332-013 SD / M	MSD Batch: 1 Matrix: Soil								
Units:	mg/kg	Date Analyzed: 12/16/15 20:35	SU	RROGATE RI	ECOVERY S	STUDY					
	BTH	CX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1,4-Difluorob	enzene	Analytes	0.0356	0.0300	119	80-120					
4-Bromofluor	obenzene		0.0322	0.0300	107	80-120					
Lab Batch #	: 983775	Sample: 521085-003 SD / M	ASD Batcl	h: 1 Matrix:	Soil						
Units:	mg/kg	Date Analyzed: 12/17/15 13:38	SU	RROGATE RI	ECOVERY S	STUDY					
	BTH	EX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
		Analytes									
1,4-Difluorob			0.0349	0.0300	116	80-120					
4-Bromofluor	obenzene		0.0342	0.0300	114	80-120					

* Surrogate outside of Laboratory QC limits

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

- *** Poor recoveries due to dilution
- Surrogate Recovery [D] = 100 * A / B



BS / BSD Recoveries



Project Name: New McKee Jct. Historical

Work Order #: 521085							Proj	ject ID: 4	AR157452		
Analyst: SYG	D	ate Prepar	red: 12/16/20	15			Date A	nalyzed: 1	2/16/2015		
Lab Batch ID: 983710 Sample: 702284-1-E	BKS	Batcl	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / 1	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	ЭY	
BTEX by EPA 8021 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	0.0837	84	0.100	0.0857	86	2	70-130	35	
Toluene	<0.00200	0.100	0.0856	86	0.100	0.0841	84	2	70-130	35	
Ethylbenzene	<0.00100	0.100	0.0900	90	0.100	0.0872	87	3	71-129	35	
m_p-Xylenes	< 0.00200	0.200	0.185	93	0.200	0.179	90	3	70-135	35	
o-Xylene	< 0.00100	0.100	0.0878	88	0.100	0.0846	85	4	71-133	35	
Analyst: SYG	D	ate Prepar	ed: 12/17/20	15			Date A	nalyzed:	12/17/2015		
Lab Batch ID: 983775 Sample: 702320-1-H	BKS	Batcl	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / 1	BLANK S	SPIKE DUP	LICATE	RECOVI	ERY STUI	DY	
BTEX by EPA 8021 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	0.0854	85	0.100	0.0844	84	1	70-130	35	
Toluene	<0.00200	0.100	0.0832	83	0.100	0.0805	81	3	70-130	35	
Ethylbenzene	<0.00100	0.100	0.0862	86	0.100	0.0849	85	2	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.178	89	0.200	0.175	88	2	70-135	35	
o-Xylene	<0.00100	0.100	0.0863	86	0.100	0.0848	85	2	71-133	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



BS / BSD Recoveries



Project Name: New McKee Jct. Historical

Work Order	Work Order #: 521085 Project ID:									AR157452		
Analyst:	РЈВ	D	ate Prepai	red: 12/15/201	5		Date Analyzed: 12/15/2015					
Lab Batch ID: 983674 Sample: 702266-1-BKS Batch #: 1					Matrix: Solid							
Units: mg/kg BLANK /BLANK SPIKE / 1						BLANK SPIKE DUPLICATE RECOVERY STUDY						
TPH by SW 8015B		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
Analy	ytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
C6-C10 C	Gasoline Range Hydrocarbons	<15.0	1000	700	70	1000	726	73	4	70-135	35	
C10-C28	Diesel Range Organics	<15.0	1000	783	78	1000	850	85	8	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 / MSD Recoveries

Project Name: New McKee Jct. Historical



Work Order # :	521085						Project II): AR157	7452				
Lab Batch ID:	983710	QC- Sample ID:	521332	-013 S	Ba	tch #:	1 Matrix	k: Soil					
Date Analyzed:	12/16/2015	Date Prepared:	12/16/2	015	An	alyst: S	SYG						
Reporting Units:	mg/kg	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
	BTEX by EPA 8021	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag	
	Analytes	[A]	[B]		[D]	[E]	Kesun [F]	[G]	70	70K	70KI D		
Benzene		<0.000992	0.0992	0.0808	81	0.0994	0.0807	81	0	70-130	35		
Toluene		< 0.00198	0.0992	0.0800	81	0.0994	0.0800	80	0	70-130	35		
Ethylbenzene		<0.000992	0.0992	0.0826	83	0.0994	0.0824	83	0	71-129	35		
m_p-Xylenes		< 0.00198	0.198	0.173	87	0.199	0.172	86	1	70-135	35		
o-Xylene		<0.000992	0.0992	0.0824	83	0.0994	0.0816	82	1	71-133	35		
Lab Batch ID:	983775	QC- Sample ID:	521085	-003 S	Ba	tch #:	1 Matrix	x: Soil					
Date Analyzed:	12/17/2015	Date Prepared:	12/17/2	015	An	alyst: S	SYG						
Reporting Units:	mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY			
	BTEX by EPA 8021 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		<0.00101	0.101	0.0927	92	0.100	0.0905	91	2	70-130	35		
Toluene		<0.00202	0.101	0.0891	88	0.100	0.0870	87	2	70-130	35		
Ethylbenzene		0.00405	0.101	0.0921	87	0.100	0.0866	83	6	71-129	35		
m_p-Xylenes		0.00928	0.202	0.189	89	0.200	0.181	86	4	70-135	35		
o-Xylene		0.00182	0.101	0.0867	84	0.100	0.0850	83	2	71-133	35		

Matrix Spike Percent Recovery $[D] = 100^{\circ}(C-A)/B$ Relative Percent Difference RPD = $200^{\circ}|(C-F)/(C+F)|$ Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

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



Form 3 - MS / MSD Recoveries

Project Name: New McKee Jct. Historical



Work Order # :	521085						Project II): AR157	452			
Lab Batch ID:	983674	QC- Sample ID:	521085	-006 S	Ba	tch #:	1 Matrix	x: Soil				
Date Analyzed:	12/15/2015	Date Prepared:	12/15/2	015	An	alyst: F	уB					
Reporting Units:	mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
	TPH by SW 8015B	Parent Sample	Spike	Spiked Sample Result	Sample	Spike	Duplicate Spiked Sample	-	RPD	Control Limits	Control Limits	Flag
	Analytes	Result [A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
C6-C10 Gasolin	e Range Hydrocarbons	<14.9	996	700	70	999	711	71	2	70-135	35	
C10-C28 Diesel	Range Organics	41.2	996	806	77	999	948	91	16	70-135	35	

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



XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 12/11/2015 12:20:00 PM Temperature Measuring device used : r8 Work Order #: 521085 Comments Sample Receipt Checklist 3.9 #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes #14 Samples in proper container/ bottle? Yes #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? No #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts. #22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH? N/A

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

Analyst:

PH Device/Lot#: OC679789

Checklist completed by:

Date: 12/11/2015

Checklist completed by: Carley Owens Checklist reviewed by: Checkl

Date: 12/14/2015

¥	L-1800) Lakeland, Florida (863-646-8526)	-449-8800) Tampa, Florida (813-620-2000)	Xence Job # 501085			A= Air S = Soil/Solid	GW =Ground Water	DW = Drinking Water P = Product	SW = Surface water SL = Sludge	ww= water W = Wipe	0 - 01 WW- Water Water		Teld Comments										Notes:					FED-EX / UPS: Tracking #	7.7 Received By:	Received By:	plicable On jee Cooler Temp. Thermo. Corr. Factor
Y	Odessa, Texas (432-563-1800)	Norcross, Georgia (770-449-8800)	Xenco Quote #	Analytical Information		<u>5</u> { 	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Y,	7 M	51(1.1	7.	HJL 718	XX	×	. X X	X X	XX	* *					(g /raw data)						Date Time:	Preserved where applicable
CHAIN OF CUSTODY			www.xenco.com		Project Information	Project Name/Number: 1. Project Name/Number: 1. Project Name/Number: 7.4 14 15 15 15 15 15 15 15 15 15 15 15 15 15	Project Location:		Plains Pipeline		New Millin Jut Historical	Collection Number of preserved bottles		12/10 10:45 \$ 1	12110 10:50 5 1	12/10 10:55 5 1	11:05	1 10:00 × 1	_				Data Deliverable Information	Level II Std QC	Level III Std QC+ Forms TRRP Level IV	Level 3 (CLP Forms) UST / RG -411	TRRP Checklist				Relinquished by: Date Time: Received By: Custody Seal # Preserved where applicable 6 5 5 6 6 6 Noice: Standure of this document and relinquishment of samples constitutes a valid purchase order from client connany to XENCD Laboratories and its affiliates and the astrona sector. 5 6
LABORATORIES Setting the Standard since 1990	Stafford,Texas (281-240-4200)	Dallas, Texas (214-902-0300)	Service Center - San Antonio, Texas (210-509-3334)		Client / Reporting Information	Company Name / Branch:	Company Address:	327 50ru St.	Email: Jod. 10 7 @ Perra Lon. 10	Project Contact:	Sampley's Name:		No. Field ID / Point of Collection Sample Depth	1 07-1 (10.5-11') 11	2 07-1 (12.5-13') 13	3 DT-1 (15.5-141) 16	(91 (191-2.41) 1-10 +	NOW (7 4. 514) B	· Pethodic (Zursitu) & 7	2	<u></u>	» 0	Turnaround Time (Business days)	🔲 Same Day TAT	Next Day EMERGENCY	2 Day EMERGENCY	3 Day EMERGENCY	TAT Starts Day received by Lab, if received by 3:00 pm	ampler:	Relyquished by: Date Time:	Relinquished by: 6 Notice: Stanture of this document and relincuishment of samples constitutes a valid ourches

Page 18 of 19

Final 1.000



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&S Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 12/11/2015 12:20:00 PM Temperature Measuring device used : r8 Work Order #: 521085 Comments Sample Receipt Checklist 3.9 #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes Yes #14 Samples in proper container/ bottle? #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? No #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts.

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

#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?

Analyst:

PH Device/Lot#: OC679789

Checklist completed by:

Date: 12/11/2015

N/A

Checklist reviewed by:

by: Carley Owens Carley Owens by: Mms Moah

Date: 12/14/2015

Analytical Report 523632

for Terracon Consulting-Lubbock

Project Manager: Joel Lowry

New McKee Junction Historical

AR157468

08-FEB-16

Collected By: Client





1211 W. Florida Ave, Midland TX 79701

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

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400) Xenco-San Antonio: Texas (T104704534-15-1) Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) 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)



08-FEB-16

Project Manager: **Joel Lowry Terracon Consulting-Lubbock** 5827 50th st, Suite 1 Lubbock, TX 79424

Reference: XENCO Report No(s): **523632** New McKee Junction Historical Project Address: NM

Joel Lowry:

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) 523632. 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. 523632 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.

Respectfully,

Huns Hoah

Kelsey Brooks Project Manager

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Sample Cross Reference 523632



Terracon Consulting-Lubbock, Lubbock, TX

New McKee Junction Historical

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Facility NSW	S	01-25-16 00:00	2 - 2 ft	523632-001
Facility SSW	S	01-25-16 00:00	2 - 2 ft	523632-002
Facility ESW	S	01-25-16 00:00	2 - 2 ft	523632-003
Facility Floor	S	01-25-16 00:00	4 - 4.5 ft	523632-004
South TT	S	01-25-16 00:00	4.5 - 5 ft	523632-005
South TT	S	01-25-16 00:00	9.5 - 10 ft	523632-006
North SB	S	01-25-16 00:00	4.5 - 5 ft	523632-007
North SB	S	01-25-16 00:00	9.5 - 10 ft	523632-008
East SB	S	01-25-16 00:00	4.5 - 5 ft	523632-009
East SB	S	01-25-16 00:00	9.5 - 10 ft	523632-010



CASE NARRATIVE



Client Name: Terracon Consulting-Lubbock Project Name: New McKee Junction Historical

Project ID: AR157468 Work Order Number(s): 523632 Report Date: 08-FEB-16 Date Received: 01/26/2016

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-986701 BTEX by EPA 8021B

Lab Sample ID 523632-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 523632-001, -002, -003, -004, -005, -006, -007, -008, -009, -010.

The Laboratory Control Sample for Toluene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.



Project Id:AR157468Contact:Joel LowryProject Location:NM

Certificate of Analysis Summary 523632

Terracon Consulting-Lubbock, Lubbock, TX Project Name: New McKee Junction Historical



Date Received in Lab:Tue Jan-26-16 11:35 amReport Date:08-FEB-16Project Manager:Kelsey Brooks

	Lab Id:	523632-	-001	523632-0	002	523632-	003	523632-	004	523632-	005	523632-0	006
Are alian Do an anto d	Field Id:	Facility I	Facility NSW		Facility SSW		ESW	Facility I	Floor	South TT		South 7	ГТ
Analysis Requested	Depth:	2-2 f	2-2 ft		2-2 ft		t	4-4.5	ft	4.5-5 ft		9.5-10	ft
	Matrix:	SOII		SOIL	,	SOII	_	SOIL		SOIL		SOIL	
	Sampled:	Jan-25-16	00:00	Jan-25-16	00:00	Jan-25-16	00:00	Jan-25-16	00:00	Jan-25-16	00:00	Jan-25-16	00:00
BTEX by EPA 8021B	Extracted:	Jan-28-16 10:00		Jan-28-16 10:00		Jan-28-16	10:00	Jan-28-16	10:00	Jan-28-16	10:00	Jan-28-16	10:00
	Analyzed:	Jan-28-16	19:18	Jan-28-16	19:35	Jan-28-16	19:51	Jan-28-16	20:08	Jan-29-16	09:24	Jan-28-16	20:42
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.000994	ND	0.00101	ND	0.000994	ND	0.00100	ND	0.00101	ND	0.00100
Toluene		ND	0.00199	ND	0.00202	ND	0.00199	ND	0.00201	ND	0.00202	ND	0.00200
Ethylbenzene		ND	0.000994	ND	0.00101	ND	0.000994	ND	0.00100	ND	0.00101	ND	0.00100
m,p-Xylenes		ND	0.00199	ND	0.00202	ND	0.00199	ND	0.00201	ND	0.00202	ND	0.00200
o-Xylene		ND	0.000994	ND	0.00101	ND	0.000994	ND	0.00100	ND	0.00101	ND	0.00100
Total Xylenes		ND	0.000994	ND	0.00101	ND	0.000994	ND	0.00100	ND	0.00101	ND	0.00100
Total BTEX		ND	0.000994	ND	0.00101	ND	0.000994	ND	0.00100	ND	0.00101	ND	0.00100
TPH by SW 8015B	Extracted:	Jan-28-16	14:30	Jan-28-16	14:30	Jan-28-16	14:30	Jan-28-16	14:30	Jan-28-16	14:30	Jan-28-16	14:30
	Analyzed:	Jan-28-16	22:13	Jan-28-16	22:41	Jan-28-16	23:10	Jan-28-16	23:39	Jan-29-16	00:08	Jan-29-16	01:06
	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	14.9	ND	15.0	ND	15.0	ND	14.9	ND	15.0	ND	15.0
C10-C28 Diesel Range Hydrocarbons		ND	14.9	ND	15.0	ND	15.0	38.5	14.9	ND	15.0	ND	15.0
C28-C35 Oil Range Hydrocarbons	ND	14.9	ND	15.0	ND	15.0	ND	14.9	ND	15.0	ND	15.0	
Total TPH		ND	14.9	ND	15.0	ND	15.0	38.5	14.9	ND	15.0	ND	15.0

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

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Huns Boah

Kelsey Brooks Project Manager



Project Id:AR157468Contact:Joel LowryProject Location:NM

Certificate of Analysis Summary 523632

Terracon Consulting-Lubbock, Lubbock, TX

LUP ACCREDUE

Project Name: New McKee Junction Historical

Date Received in Lab:Tue Jan-26-16 11:35 amReport Date:08-FEB-16Project Manager:Kelsey Brooks

	Lab Id:	523632-	007	523632-0	800	523632-)09	523632-	010		
Analysis Progressed	Field Id:	North S	SB	North S	в	East S	3	East S	В		
Analysis Requested	Depth:	4.5-5	4.5-5 ft		9.5-10 ft		ť	9.5-10	ft		
	Matrix:	SOIL		SOIL	,	SOIL		SOII	_		
	Sampled:	Jan-25-16	00:00	Jan-25-16	00:00	Jan-25-16	00:00	Jan-25-16	00:00		
BTEX by EPA 8021B	Extracted:	Jan-28-16	10:00	Jan-28-16	10:00	Jan-28-16	10:00	Jan-28-16	10:00		
	Analyzed:	Jan-29-16	07:36	Jan-29-16 (09:41	Jan-29-16	08:52	Jan-29-16	09:09		
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Benzene		ND	0.00100	ND	0.00100	ND	0.000998	ND	0.000998		
Toluene		0.00392	0.00201	0.00309	0.00200	ND	0.00200	ND	0.00200		
Ethylbenzene		ND	0.00100	ND	0.00100	ND	0.000998	ND	0.000998		
"p-Xylenes		0.00238	0.00201	ND	0.00200	ND	0.00200	ND	0.00200		
o-Xylene		0.00154	0.00100	ND	0.00100	ND	0.000998	ND	0.000998		
Total Xylenes		0.00392	0.00100	ND	0.00100	ND	0.000998	ND	0.000998		
Total BTEX		0.00784	0.00100	0.00309	0.00100	ND	0.000998	ND	0.000998		
TPH by SW 8015B	Extracted:	Jan-28-16	14:30	Feb-07-16	17:00	Jan-28-16	14:30	Jan-28-16	14:30		
	Analyzed:	Jan-29-16	01:35	Feb-08-16	14:11	Jan-29-16	02:33	Jan-29-16	03:02		
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
C6-C10 Gasoline Range Hydrocarbons	·	ND	15.0	ND	15.0	ND	15.0	ND	14.9		
C10-C28 Diesel Range Hydrocarbons		ND	15.0	86.2	15.0	ND	15.0	ND	14.9		
C28-C35 Oil Range Hydrocarbons		ND	15.0	ND	15.0	ND	15.0	ND	14.9		
Total TPH		ND	15.0	86.2	15.0	ND	15.0	ND	14.9		

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Huns Boah

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
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr Suite 102, Tempe AZ 85282	(602) 437-0330	



Project Name: New McKee Junction Historical

U nits:	mg/kg	Date Analyzed: 01/28/16 19:18	ST	RROGATE R	ECOVERV	STUDY		
		X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1,4-Difluor	obenzene		0.0340	0.0300	113	80-120		
4-Bromoflu	orobenzene		0.0271	0.0300	90	80-120		
Lab Batch	#: 986701	Sample: 523632-002 / SMP	Batc	h: 1 Matrix	: Soil			
Units:	mg/kg	Date Analyzed: 01/28/16 19:35	SU	RROGATE R	ECOVERY	STUDY		
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluor	obenzene		0.0354	0.0300	118	80-120		
4-Bromoflu			0.0334	0.0300	98	80-120		
	#: 986701	Sample: 523632-003 / SMP	Batc			00 120		
Units:	mg/kg	Date Analyzed: 01/28/16 19:51		RROGATE R	-	STUDV		
	0.0			1				
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1,4-Difluor			0.0352	0.0300	117	80-120		
4-Bromoflu			0.0296	0.0300	99	80-120		
	#: 986701	Sample: 523632-004 / SMP	Bate					
Units:	mg/kg	Date Analyzed: 01/28/16 20:08	SU	RROGATE R	ECOVERY S	Y STUDY		
	BTEX	X by EPA 8021B Analytes	AmountTrueFoundAmountRecovery[A][B]%R[D]	Control Limits %R	Flags			
1,4-Difluor	obenzene		0.0354	0.0300	118	80-120		
4-Bromoflu	orobenzene		0.0315	0.0300	105	80-120		
Lab Batch	#: 986701	Sample: 523632-006 / SMP	Batc	h: 1 Matrix	Soil	1		
Units:	mg/kg	Date Analyzed: 01/28/16 20:42	su	RROGATE R	ECOVERY S	STUDY		
	BTEX	X by EPA 8021B	Amount Found	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytas	[A]	[D]				
1,4-Difluoro	1	Analytes	[A] 0.0353	0.0300	[D]	80-120		

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Junction Historical

Lab Batch # Units:		Sample: 523632-001 / SMP Date Analyzed: 01/28/16 22:13	Batch					
Units:	mg/kg	Date Analyzed: 01/28/16 22:13	SU	RROGATE R	ECOVERY S	STUDY		
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1-Chloroocta	ne		122	99.6	122	70-135		
o-Terphenyl			52.0	49.8	104	70-135		
Lab Batch #	986683	Sample: 523632-002 / SMP	Batc	h: 1 Matrix	: Soil	·		
Units:	mg/kg	Date Analyzed: 01/28/16 22:41	SU	RROGATE R	ECOVERY	STUDY		
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
		Analytes						
1-Chloroocta	ne		113	99.8	113	70-135		
o-Terphenyl			47.6	49.9	95	70-135		
Lab Batch #		Sample: 523632-003 / SMP	Batc	h: 1 Matrix	: Soil			
Units:	mg/kg	Date Analyzed: 01/28/16 23:10	SU	RROGATE R	ECOVERY S	STUDY		
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1-Chloroocta	ne		104	99.9	104	70-135		
o-Terphenyl			42.9	50.0	86	70-135		
Lab Batch #	: 986683	Sample: 523632-004 / SMP	Batc	h: 1 Matrix	: Soil			
Units:	mg/kg	Date Analyzed: 01/28/16 23:39	SU	RROGATE R	ECOVERY	STUDY		
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1-Chloroocta	ne		117	99.6	117	70-135		
o-Terphenyl			49.7	49.8	100	70-135		
Lab Batch #		Sample: 523632-005 / SMP	Batc	h: 1 Matrix	: Soil			
Units:	mg/kg	Date Analyzed: 01/29/16 00:08	SU	RROGATE R	ECOVERY	STUDY		
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag	
		Analytes						
1-Chloroocta	ne		103	99.7	103	70-135		
o-Terphenyl			44.0	49.9	88	70-135		

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Form 2 - Surrogate Recoveries Project Name: New McKee Junction Historical

Project ID: AR157468 Work Orders: 523632, 523632 Lab Batch #: 986683 Matrix: Soil Sample: 523632-006 / SMP Batch: 1 Units: Date Analyzed: 01/29/16 01:06 mg/kg SURROGATE RECOVERY STUDY True Amount Control **TPH by SW 8015B** Found Amount Recovery Limits Flags [A] [B] %R %R [**D**] Analytes 1-Chlorooctane 106 99.9 106 70-135 o-Terphenyl 43.5 50.0 87 70-135 Lab Batch #: 986683 Sample: 523632-007 / SMP Batch: 1 Matrix: Soil Units: mg/kg Date Analyzed: 01/29/16 01:35 SURROGATE RECOVERY STUDY Amount True Control TPH by SW 8015B Found Limits Amount Recovery Flags [A] [B] %R %R [**D**] Analytes 1-Chlorooctane 114 99.8 114 70-135 o-Terphenyl 47.3 49.9 95 70-135 Lab Batch #: 986683 Sample: 523632-009 / SMP Batch: 1 Matrix: Soil Units: mg/kg Date Analyzed: 01/29/16 02:33 SURROGATE RECOVERY STUDY Amount True Control **TPH by SW 8015B** Found Limits Flags Amount Recovery [A] [**B**] %R %R [D] Analytes 1-Chlorooctane 101 99.9 101 70-135 o-Terphenyl 40.7 50.0 81 70-135 Lab Batch #: 986683 Sample: 523632-010 / SMP Batch: 1 Matrix: Soil Units: mg/kg Date Analyzed: 01/29/16 03:02 SURROGATE RECOVERY STUDY True Amount Control TPH by SW 8015B Found Amount Recovery Limits Flags [**B**] %R %R [A] [D] Analytes 1-Chlorooctane 100 99.6 100 70-135 o-Terphenyl 42.5 49.8 70-135 85 Lab Batch #: 986701 Sample: 523632-007 / SMP Batch: 1 Matrix: Soil Units: mg/kg Date Analyzed: 01/29/16 07:36 SURROGATE RECOVERY STUDY Amount True Control BTEX by EPA 8021B Found Amount Recovery Limits Flags [A] [B] %R %R [D] Analytes 1,4-Difluorobenzene 0.0358 0.0300 119 80-120 4-Bromofluorobenzene 0.0305 0.0300 102 80-120

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Junction Historical

Units:	mg/kg	Date Analyzed: 01/29/16 08:52			ECOUPDE			
units:	mg/kg	Date Analyzed: 01/29/10 08:52	SU	RROGATE R	ECOVERY	STUDY		
	ВТЕХ	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1,4-Difluor	obenzene		0.0354	0.0300	118	80-120		
4-Bromoflu	orobenzene		0.0291	0.0300	97	80-120		
Lab Batch	#: 986701	Sample: 523632-010 / SMP	Batcl	h: 1 Matrix	: Soil			
Units:	mg/kg	Date Analyzed: 01/29/16 09:09	SU	RROGATE R	ECOVERY S	STUDY		
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage	
1,4-Difluor	hanzana	Analytes	0.0260	0.0200		80.120		
4-Bromoflu			0.0360	0.0300	120	80-120		
	#: 986701	Sample: 523632-005 / SMP	0.0290 Batcl	0.0300 h: 1 Matrix	97 • Soil	80-120		
		-						
Units:	mg/kg	Date Analyzed: 01/29/16 09:24	SU	RROGATE R	ECOVERY	STUDY		
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage	
		Analytes			[D]			
1,4-Difluor	obenzene		0.0355	0.0300	118	80-120		
4-Bromoflu	orobenzene		0.0272	0.0300	91	80-120		
Lab Batch	#: 986701	Sample: 523632-008 / SMP	Batc	h: 1 Matrix	: Soil	<u> </u>		
Units:	mg/kg	Date Analyzed: 01/29/16 09:41	SU	RROGATE R	ECOVERY S	STUDY		
	втех	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1,4-Difluor			0.0348	0.0300	116	80-120		
4-Bromoflu			0.0241	0.0300	80	80-120		
	#: 987413	Sample: 523632-008 / SMP	Batcl					
Units:	mg/kg	Date Analyzed: 02/08/16 14:11	SU	RROGATE R	ECOVERY	STUDY		
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage	
1-Chlorooc	ana		114	99.8	114	70-135		
			114	44 X	114	1 /11-135		

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Junction Historical

Units:	malka	Date Analyzed: 01/28/16 08:45	~~		FOOTEST			
Units:	mg/kg	Date Analyzed: 01/28/10 08:43	SU	RROGATE R	ECOVERY S	STUDY		
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag	
		Analytes			[D]			
1,4-Difluorob	enzene		0.0339	0.0300	113	80-120		
4-Bromofluor	obenzene		0.0303	0.0300	101	80-120		
Lab Batch #	: 986683	Sample: 704096-1-BLK / B	LK Bate	h: 1 Matrix	: Solid			
Units:	mg/kg	Date Analyzed: 01/28/16 20:50	SU	RROGATE R	ECOVERY S	STUDY		
	TPH	l by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chloroocta	20	Anarytes	111	100	111	70-135		
o-Terphenyl			45.7	50.0	91	70-135		
Lab Batch #	• 987413	Sample: 704560-1-BLK / B			: Solid	70-133		
Units:	mg/kg	Date Analyzed: 02/07/16 22:46						
omis.	ing/ Kg	Date Analyzet. 02/07/10/22.40	SU	RROGATE R	LECOVERY	STUDY		
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage	
		Analytes			[D]			
1-Chloroocta	ne		121	100	121	70-135		
o-Terphenyl			61.2	50.0	122	70-135		
Lab Batch #	: 986701	Sample: 704095-1-BKS / B	KS Bate	h: 1 Matrix	: Solid			
Units:	mg/kg	Date Analyzed: 01/28/16 07:56	SU	RROGATE R	ECOVERY S	Y STUDY		
	BTEX	A polytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1.4-Difluorob		Analytes	0.0202	0.0200		00.120		
4-Bromofluor			0.0303	0.0300	101	80-120		
Lab Batch #		Sample: 704096-1-BKS / B	0.0298 KS Bate	0.0300	99 Solid	80-120		
Units:	mg/kg	Date Analyzed: 01/28/16 21:17		RROGATE R		TUDV		
	B	2 are filling 200, 01, 20, 10 21, 17	50	ANUGAIE K	LCOVERI	51001		
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag	
		Analytes			[D]			
1-Chloroocta	ne		119	100	119	70-135		
o-Terphenyl			42.5	50.0	85	70-135		

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Junction Historical

	#: 987413	Sample: 704560-1-BKS / B]			x: Solid		
U nits:	mg/kg	Date Analyzed: 02/07/16 23:10	SU	RROGATE R	RECOVERY	STUDY	
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooc	etane		127 100 127 7	70-135			
o-Terpheny	/1		62.8	50.0	126	70-135	
Lab Batch	#: 986701	Sample: 704095-1-BSD / BS	SD Bate	h: 1 Matrix	k: Solid		
Units:	mg/kg	Date Analyzed: 01/28/16 08:13	SU	RROGATE R	RECOVERY	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
140.0	1	Analytes	0.005.6	0.0200		00.100	
1,4-Difluor			0.0356	0.0300	119	80-120	
	orobenzene #: 986683	Secondary 704004 1 BSD / D	0.0293	0.0300	98	80-120	
		Sample: 704096-1-BSD / BS			x: Solid		
Units:	mg/kg	Date Analyzed: 01/28/16 21:45	SU	RROGATE R	RECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes	[**]		[D]	/011	
1-Chlorooc	etane		128	100	128	70-135	
o-Terpheny	/1		46.4	50.0	93	70-135	
Lab Batch	#: 987413	Sample: 704560-1-BSD / B	SD Bate	h: 1 Matrix	k: Solid	11	
Units:	mg/kg	Date Analyzed: 02/07/16 23:34	SU	RROGATE R	RECOVERY	STUDY	
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1 (11		Analytes	120	100		50.105	
1-Chlorooc			128	100	128	70-135	
o-Terpheny		Sample: 523632-010 S / MS	61.8	50.0	124	70-135	
oh Patak	mg/kg	-					
Lab Batch		Date Analyzed: 01/29/16 03:31	SU	RROGATE R	RECOVERY	STUDY	
	iiig/kg			1			
		I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
Lab Batch Units: 1-Chlorooc	TPE	I by SW 8015B Analytes	Found	Amount	•	Limits	Flags

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



Project Name: New McKee Junction Historical

	rders : 52363 #: 986701	Sample: 523632-001 S / MS	B Batcl		: AR157468 :: Soil		
Units:	mg/kg	Date Analyzed: 01/29/16 09:58	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluor	obenzene		0.0340	0.0340 0.0300 113 80-	80-120		
	iorobenzene		0.0291	0.0300	97	80-120	
Lab Batch	#: 987413	Sample: 524056-001 S / MS	Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 02/08/16 00:22	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooc	tana	Analytes	129	100		70.125	
			128	100	128	70-135	
o-Terpheny	#: 986683	Sample: 523632-010 SD / N	57.3 ISD Batcl	50.0 h: 1 Matrix	115 	70-135	
		•					
Units:	mg/kg	Date Analyzed: 01/29/16 04:00	SU	RROGATE R	ECOVERY S	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooc	tane		123	99.6	123	70-135	
o-Terpheny	/1		46.7	49.8	94	70-135	
Lab Batch	#: 986701	Sample: 523632-001 SD / N	ISD Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 01/29/16 10:15	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.4-Difluor	ohenzene	1 mary tes	0.0347	0.0300	116	80-120	
,	iorobenzene		0.0347	0.0300	101	80-120	
	#: 987413	Sample: 524056-001 SD / N				00 120	
Units:	mg/kg	Date Analyzed: 02/08/16 00:47		RROGATE R		STUDY	
	TPH	I by SW 8015B	Amount Found	True Amount	Recovery	Control Limits	Flag
		Analytes	[A]	[B]	%R [D]	%R	3
1-Chlorooc	tane		123	99.8	123	70-135	
o-Terpheny	rl		62.5	49.9	125	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B



BS / BSD Recoveries



Project Name: New McKee Junction Historical

Work Order #: 523632, 523632							Pro	ject ID: 4	AR157468		
Analyst: SYG	D	ate Prepar	red: 01/28/202	16			Date A	nalyzed: (01/28/2016		
Lab Batch ID: 986701 Sample: 704095-1-E	BKS	Batcl	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / 1	BLANK S	SPIKE DUP	LICATE	RECOVI	ERY STUI	ЭY	
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	0.0913	91	0.100	0.0935	94	2	70-130	35	
Toluene	<0.00200	0.100	0.0915	96	0.100	0.0950	95	1	70-130	35	
Ethylbenzene	<0.00100	0.100	0.103	103	0.100	0.103	103	0	71-129	35	
m,p-Xylenes	<0.00200	0.200	0.213	107	0.200	0.212	106	0	70-135	35	
o-Xylene	< 0.00100	0.100	0.101	101	0.100	0.102	102	1	71-133	35	
Analyst: PJB	D	ate Prepar	red: 01/28/202	16			Date A	nalvzed: ()1/28/2016		
Lab Batch ID: 986683 Sample: 704096-1-E		-	h #: 1					Matrix: S			
Units: mg/kg		BLAN	K /BLANK	SPIKE / 1	BLANK S	SPIKE DUP	LICATE	RECOVI	ERY STUI	DY	
TPH by SW 8015B 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	846	85	1000	877	88	4	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	1030	103	1000	1080	108	5	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



BS / BSD Recoveries



Project Name: New McKee Junction Historical

Work Order #: 523632, 523632							Proj	ect ID:	AR157468		
Analyst: ARM	D	ate Prepar	red: 02/07/201	16			Date A	nalyzed: (02/07/2016		
Lab Batch ID: 987413 Sample: 704560-1-E	BKS	Batc	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK S	SPIKE / 1	BLANK S	SPIKE DUP	LICATE	RECOVI	ERY STUE	ΟY	
TPH by SW 8015B	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	1180	118	1000	982	98	18	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	1040	104	1000	1120	112	7	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 / MSD Recoveries

Project Name: New McKee Junction Historical



Work Order # :	523632						Project II): AR157	468			
Lab Batch ID:	986701	QC- Sample ID:	523632	-001 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	01/29/2016	Date Prepared:	01/28/2	016	An	alyst: S	SYG					
Reporting Units:	mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
	BTEX by EPA 8021B	Parent Sample Result [A]	Spike Added	Spiked Sample Result [C]	Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes		[B]		[D]	[E]		[G]				
Benzene		<0.000992	0.0992	0.0695	70	0.100	0.0764	76	9	70-130	35	
Toluene		<0.00198	0.0992	0.0200	20	0.100	0.0201	20	0	70-130	35	X
Ethylbenzene		<0.000992	0.0992	0.00854	9	0.100	0.00965	10	12	71-129	35	X
m,p-Xylenes		<0.00198	0.198	0.0788	40	0.200	0.0809	40	3	70-135	35	X
o-Xylene		<0.000992	0.0992	0.0640	65	0.100	0.0637	64	0	71-133	35	X
Lab Batch ID:	986683	QC- Sample ID:	523632	-010 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	01/29/2016	Date Prepared:	01/28/2	016	An	alyst: I	ЪЪВ					
Reporting Units:	mg/kg		Ν	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
	TPH by SW 8015B	Parent Sample	Spike	Spiked Sample Result	Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
	Analytes	Result [A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
C6-C10 Gasolin	ne Range Hydrocarbons	<14.9	996	991	99	996	818	82	19	70-135	35	
C10-C28 Diese	el Range Hydrocarbons	<14.9	996	1270	128	996	1180	118	7	70-135	35	
Lab Batch ID:	987413	QC- Sample ID:	524056	-001 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	02/08/2016	Date Prepared:	02/07/2	016	An	alyst: A	ARM					
Reporting Units:	mg/kg		Ν	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
	TPH by SW 8015B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
			[B]	[.~]	[D]	[E]	account [1]	[G]		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	Analytes	[A]	լոյ									
C6-C10 Gasolin	Analytes ne Range Hydrocarbons	[A] <15.0	1000	983	98	998	1050	105	7	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/BRelative Percent Difference RPD = 200*|(C-F)/(C+F)| Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

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

	806-300-0140	806-3	Lubbock, Texas 79424	ck, Texa	ubbo		5827 50th Street	Lubbock Office = 5	Lubbo					
				1			P/O - Plastic or other		250 ml = Glass wide mouth	A/G - Amber Glass 1L	A/G-A	VOA - 40 ml vial	Container VO	
				SL - Sludge		C - Charcoal tube	A - Air Bag C - Ch	L-Liquid A	S - Soil	ter	W - Water	WW-Wastewater		Matrix
				Date:			veceived by (offuerture)							
				-					Date				Relinguished by (Signature)	Re
				Dat			Received by (Signature)	Time:	Date:				Kelinqùished by (Signature)	Reli
joel.lowry@terracon.com		11:35.	5	ר ד ד	ξ	64	Julian r	135	1-26-16			durt	N	x
Please Email Results to erin.loyd@terracon.com	NOTES:	0500	26-16	Pater		1	Realized by (Signature)	500	1-26-16 Date:				Relinquished by (Signature)	Re
			TRRP Laboratory Review Checklist	ratory Re	P Labo	TRR	24-Hour Rush		Date: 48-Hour Rush	L Normal			TURNAROUND TIME	Z
		×			 +	5 10	9.5	East SB			×		1/25/2016	
		××			щ	л л	4.5	East SB			×		1/25/2016	
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		× ×			1	5 10	9.5	South TT			×		1/25/2016	Γ
		x x			1	ა ა	4.5	South TT			×		1/25/2016	T
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		××			4	2	2	Facility ESW	R.		×		1/25/2016	1
		× ×			ц	2	2	Facility SSW	77		×		1/25/2016	1
		×			1	2 2		Facility NSW	F		×		1/25/2016	1
Lab Sample ID		80 80			4 oz Gla:	End Depth	Start Depth	Identifying Marks of Sample(s)	Identifying		Comp Grab	Time	Matrix Date	
8595 A				1	ss		c	listorical	New McKee Junction Historical	New N		ar157468	ar15	1
			ntainers	No. Type of Containers	No. 1		1 . 1		Project Name	Projec			Project Number	P
				4	ζ	2	Alarth						7	
						Jre	s Sign			NIY	Joel Lowry		Sampler's Name	S
Page 1 of 1		101		Joel Lowry New McKee Jct Historical	ee Jct	Joel Lowry New McKe	Contact: Jo PO/SO #: Ne			νry	Joel Lowry	87	Project Manager	σ
				8			Phone:				*	Lubbock	Office Location	0
TEMP OF COOLER				01	TX 797 1800	Midland, TX 79701 432-563-1800	43 M							
DUE DATE:	•	REQUESTED	-	Ave.	Florida	1211 W. Florida Ave.		J			i			
		ANAIVCIC		iec	norato	Xenco I aboratories	Laboratory: Xe							-

Responsive Resourceful Reliable



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: Terracon Consulting-Lubbock Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 01/26/2016 11:35:00 AM Temperature Measuring device used : r8 Work Order #: 523632 Comments Sample Receipt Checklist 2.6 #1 *Temperature of cooler(s)? #2 *Shipping container in good condition? Yes #3 *Samples received on ice? Yes #4 *Custody Seals intact on shipping container/ cooler? N/A #5 Custody Seals intact on sample bottles? N/A #6 *Custody Seals Signed and dated? N/A #7 *Chain of Custody present? Yes #8 Sample instructions complete on Chain of Custody? Yes #9 Any missing/extra samples? No #10 Chain of Custody signed when relinquished/ received? Yes #11 Chain of Custody agrees with sample label(s)? Yes #12 Container label(s) legible and intact? Yes #13 Sample matrix/ properties agree with Chain of Custody? Yes Yes #14 Samples in proper container/ bottle? #15 Samples properly preserved? Yes #16 Sample container(s) intact? Yes #17 Sufficient sample amount for indicated test(s)? Yes #18 All samples received within hold time? Yes #19 Subcontract of sample(s)? No #20 VOC samples have zero headspace (less than 1/4 inch bubble)? N/A #21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for N/A samples for the analysis of HEM or HEM-SGT which are verified by the analysts. #22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH? N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Date: 01/26/2016

Checklist reviewed by:

by: Carley Owens Carley Owens by: Mms Moah

Date: 01/27/2016

Remediation Summary and Risk-Based Closure Report New McKee Junction Sump
Lea County, New Mexico Plains SRS 2015-162
Terracon Project No. AR157452



APPENDIX D Photographs





PHOTO 1: View of surface staining from the initial release, facing northwest.



PHOTO 2: View of surface staining from the initial release, facing north.







PHOTO 3: View of excavation activities within the affected pasture, facing east.



PHOTO 4: View of hydroexcavation activities under facility piping, facing east.





PHOTO 5: View of the excavated area within the affected pasture, facing east.



PHOTO 6: View of portion of the excavated area within the facility before installation of new piping, facing southeast.





PHOTO 7: View of backfilling activities within the affected pasture, facing south.



PHOTO 8: View of excavation of affected soil adjacent to cathodic protection system, facing west.





PHOTO 9: View of the advancement of DT-1, facing northwest.









PHOTO 11: View of portion of excavated area, facing northwest.



PHOTO 12: View of newly installed piping and valve settings, facing south.





PHOTO 13: View of portion of the excavated area within the facility, facing east.



PHOTO 14: View of portion of the excavated area within the facility, facing west.





PHOTO 15: View of the affected facility after remediation activities, facing north.



PHOTO 16: View of the affected pasture after remediation activities, facing northwest.

Remediation Summary and Risk-Based Closure Report New McKee Junction Sump
Lea County, New Mexico Plains SRS 2015-162
Terracon Project No. AR157452



APPENDIX E

Release Notification and Corrective Action (NMOCD Form C-141) State of New Mexico Energy Minerals and Natural Resources

> Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

			OPERAT	OR	\boxtimes	Initial Report	Final Report
Name of Company	Plains Pipeline LP		Contact	Camille Bryant			
Address	2530 State Hwy. 214, Denver C	City, TX 79323	Telephone No	. (575) 441-1099			
Facility Name	New McKee Jct. Sump		Facility Type	Sump		· · ·	
Surface Owner BLM		Mineral Owner			L	ease No.	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	29	20S	38E				5 F	Lea

Latitude N 32.54213° Longitude W 103.17194°

NATURE OF RELEASE

Type of Release Crude Oil	Volume of Release 40 bbls	Volume Recovered 35 bbls					
Source of Release Sump	Date and Hour of Occurrence	Date and Hour of Discovery					
	8/28/2015 @ 09:00	8/28/2015 @ 09:25					
Was Immediate Notice Given?	If YES, To Whom?						
🛛 Yes 🗌 No 🔲 Not Required	Verbal notification to Kellie Jones						
By Whom? Camille Bryant	Date and Hour 8/28/2015 @ 15:04						
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse.						
🗆 Yes 🖾 No							
If a Watercourse was Impacted, Describe Fully.*	RECEIVED By OCD District 1 at 3:56 pm, Sep 02, 2015						
	(-)					
Describe Cause of Problem and Remedial Action Taken.* Check valve failed causing the sump to overfill resulting in a release of crude oil.							
Describe Area Affected and Cleanup Action Taken. The released crude oil impacted an area measuring approximately 30' x 60' inside the facility the released fluids then flowed west impacting an area measuring approximately 60' x 100'. The impacted area will be remediated as per applicable NMOCD guidelines.							
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal state, or local laws and/or regulations.							
	OIL CONSERVATION DIVISION						
and the second that							
Signature Manuel Camille Bryant	Approved by District Supervisor:						
Title: Remediation Coordinator	Approval Date: 09/02/2015	Expiration Date: 11/02/2015					
E-mail Address: cjbryant@paalp.com	Conditions of Approval:	Attached					
9,9,12015	Discrete site samples required. Delineate and 1RP 3841						
Date: 1 20 5 Phone: (575) 441-1099	-remediate per NMOCD guidelines.						
Attach Additional Sheets If Necessary	Geotagged photos of remediation rec	pJXK1524557231					
	Ensure BLM concurrence/approval.	-					

nJXK1524557021