

State of New Mexico  
Oil Conservation Division

Incident ID	nAPP2109537667
District RP	IRP-0124
Facility ID	
Application ID	

## Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

**Closure Report Attachment Checklist:** Each of the following items must be included in the closure report.

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Camille Bryant Title: Remediation Supervisor  
 Signature:  Date: 6/7/2021  
 email: cjbryant@paalp.com Telephone: 575-441-1099

### OCD Only

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_



## REMEDIATION SUMMARY AND SITE CLOSURE REQUEST

### **Monument 18**

**UNIT LETTER D, SECTION 7, TOWNSHIP 20 SOUTH, RANGE 37 EAST, NMPM**

**N 32.591869° W 103.298961°**

**LEA COUNTY, NEW MEXICO**

**NMOCD Reference #1RP-0124**

**NMOCD Incident # nAPP2109537667**

**SRS #: TNM Monument 18-Known**

Prepared for:

**Plains Pipeline, L.P.**

333 Clay Street, Suite 1600

Houston, Texas 77002

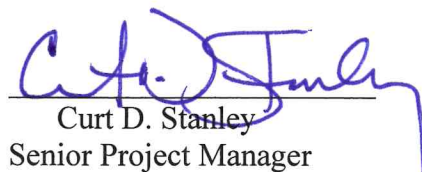
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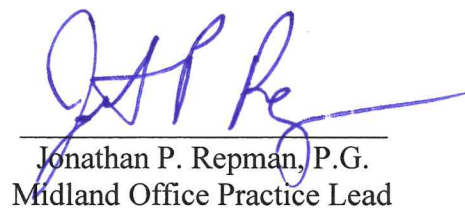
TRC Environmental Corporation

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June 2021

  
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## TABLE OF CONTENTS

1.0	INTRODUCTION AND BACKGROUND .....	1
2.0	SUMMARY OF REMEDIAL ACTIVITIES .....	1
3.0	QA/QC PROCEDURES .....	16
3.1	Soil Sampling .....	16
3.2	Decontamination of Equipment .....	16
3.3	Laboratory Protocol.....	16
4.0	SITE REVEGETATION.....	17
5.0	GROUND WATER REMEDIATION SUMMARY .....	17
6.0	SITE CLOSURE REQUEST .....	18
7.0	LIMITATIONS .....	18
8.0	DISTRIBUTION .....	19

## FIGURES

- Figure 1: Site Location Map  
 Figure 2: Excavation and Sample Location Map  
 Figure 3: Excavation and Sample Location Map with photographic aerial underlay

## TABLES

- Table 1: Concentrations of TDS and Chloride in Ground water  
 Table 2: Concentrations of BTEX and TPH in Soil

## APPENDICES

- Appendix A: Photographic Documentation  
 Appendix B: NMOCD and NMED Correspondence  
 Appendix C: Laboratory Analytical Reports  
 Appendix D: NMOCD Release Notification and Corrective Action (Form C-141).

## 1.0 INTRODUCTION AND BACKGROUND

On behalf of Plains Pipeline, L.P. (Plains), TRC Environmental Corporation (TRC) has prepared this *Remediation Summary and Site Closure Request* for the historical crude oil Release Site known as Monument 18 (SRS: TNM Monument 18-Known). The Release Site is located approximately three (3) miles southwest of Monument in Lea County, New Mexico in Unit Letter D, Section 7, Township 20 South, Range 37 East, NMPM. The Release Site GPS coordinates are N32.591869° W103.298961°. The Release Site is located on property owned by Jimmie T. Cooper of Monument, New Mexico. No information with respect to the Release date or volume of crude oil released and recovered is available, as the Release occurred while the pipeline was operated by Texas New Mexico Pipe Line Company (TNMPLC). A copy of New Mexico Oil Conservation Division (NMOCD) Release Notification and Corrective Action (Form C-141) is provided as Appendix D. A Site Location Map is provided as Figure 1. Photographic documentation is provided as Appendix A. Please reference Appendix B for NMOCD and New Mexico Environmental Department (NMED) correspondence.

The Monument 18 Release Site is a ground water Site, as well as a soil remediation Site and the static ground water levels within the nine (9) on-site monitor wells are approximately twenty-nine (29) feet below ground surface (bgs). There are no surface-water features located within a 1,000-foot radius of the Site.

Based on the depth to ground water at the Monument 18 Release Site, the *NMOCD Closure Criteria for Soils Impacted by a Release* are the most stringent closure criteria listed. Please note, past and recent laboratory analysis of Total Dissolved Solids (TDS) and chloride in ground water indicates ground water at the Monument 18 is non-potable and non-abatable. Please reference Table 1 for a summary of TDS and Chloride in Groundwater. Please reference a letter dated August 16, 1991 from the New Mexico Environmental Department (NMED), Hazardous and Radioactive Materials Bureau provided as Appendix B. Please reference the New Mexico Administrative Code 20.6.2.3103.

Based on the NMOCD Closure Criteria for Soils Impacted by a Release, the Closure Criteria for the Monument 18 Release Site are as follows:

- Benzene - 10 mg/kg
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) - 50 mg/kg
- Total Petroleum Hydrocarbons (TPH) – 100 mg/kg

Please note, NMAC 20.6.2.3103 sets forth the maximum allowable concentration of contaminants in ground water exhibiting a TDS of less than 10,000 mg/L. Based on the analysis of concentrations of TDS in past and recent ground water samples, the ground water beneath the Monument 18 Release Site is non-potable and non-abatable under the standards set forth in NMAC 20.6.2.3103.

## 2.0 SUMMARY OF REMEDIAL ACTIVITIES

**From March 9, 1997 through July 15, 1998**, four (4) soil borings (B18-1, B18-A, B18-B, and B18-C) were advanced at the Release Site. In addition, eight (8) monitor wells B18-3 (MW 18-



1), B18-2 (MW 18-2), B18-4 (MW 18-3), and MW 18-4 through MW 18-8, were installed at the Release Site. Please note, monitor wells MW-1, MW-2, and MW-3 were initially advanced and sampled as soil borings.

**On May 2, 1997**, following the installation of monitor wells MW-2 and MW-3, “wet chemistry” analysis was conducted on the monitor wells. The analytical results of Total Dissolved Solids (TDS) concentrations indicated TDS concentrations ranged from 16,300 mg/L in monitor well MW-2 to 17,200 mg/L in monitor well MW-3. The analytical results of chloride concentrations indicated chloride concentrations ranged from 757 mg/L in monitor well MW-2 to 7,680 mg/L in monitor well MW-3.

**On September 19, 1997**, following the installation of monitor wells MW-5 and MW-6, “wet chemistry” analysis was conducted on the monitor wells. The analytical results of TDS concentrations indicated TDS concentrations ranged from 22,000 mg/L in monitor well MW-6 to 23,000 mg/L in monitor well MW-5. The analytical results of chloride concentrations indicated chloride concentrations ranged from 5,100 mg/L in monitor well MW-5 to 8,600 mg/L in monitor well MW-6.

**On August 18, 1998**, following the installation of monitor wells MW-7 and MW-8, “wet chemistry” analysis was conducted on the monitor wells. The analytical results of TDS concentrations indicated TDS concentrations ranged from 19,200 mg/L in monitor well MW-7 to 19,900 mg/L in monitor well MW-8. The analytical results of chloride concentrations indicated chloride concentrations ranged from 11,100 mg/L in monitor well MW-7 to 22,600 mg/L in monitor well MW-8.

**On November 4, 2004**, two (2) additional monitor wells (MW-9 and MW-10) were installed to delineate the Release Site. Soil samples were collected at selected intervals and submitted to the laboratory for analysis. The analytical results of the collected soil samples will not be narrated in the text of the document, the analytical results are summarized in Table 2 (Concentrations of BTEX and TPH in Soil). The associated laboratory analytical reports are provided in Appendix C. Please reference KEI’s *Comprehensive Assessment Report* dated September 9, 1997, KEI’s *Subsurface Investigation Report* dated March 26, 1998, and KEI’s *Subsurface Investigation Report* dated October 29, 1998 for additional details.

Additional collection of ground water samples in 2016 and 2017 appears to confirm the presence of concentrations of TDS and chloride which exceed the New Mexico Water Quality Control Commission (NMWQCC) level of 10,000 mg/L for abatable water. Please reference Table 1 for Concentrations of TDS and Chloride in Ground water. Laboratory analytical reports are provided in Appendix C. Please reference a letter dated August 16, 1991 from NMED, Hazardous and Radioactive Materials Bureau provided as Appendix B.

**On September 13, 2005**, monitor well MW-2 was plugged and abandoned by a New Mexico licensed water well driller as approved by the NMOCD.

**On April 12, 2013**, A *Remediation Summary and Proposed Soil Closure Strategy* (Work Plan) dated March 2013 was submitted to the NMOCD. The Work Plan proposed soil remediation activities intended to progress the Site toward an NMOCD approved soil closure. Please

reference the Work Plan for additional details.

**On April 22, 2013**, Plains received approval from the NMOCD to commence the activities outlined in the Work Plan. Please reference the NMOCD correspondence provided in Appendix B.

Prior to commencing delineation activities at the Site, a New Mexico One-Call was placed, and all known pipelines were hand spotted using a hand shovel and/or a hydrovac. Pipelines operated by Plains Pipeline, LP, Southern Union Gas Services (formerly Regency Energy Partners and subsequently Energy Transfer Field Services (ETC)), DCP, Targa Resources, Rice Operating, Kinder Morgan, and Gary Morgan Operating were identified. Plains requested the Operators re-route the pipelines potentially affected by Plains delineation and excavation activities. Regency Energy Partners was unable to comply with Plains request until a later date and consequently, the Regency four (4) inch steel pipeline remained supported on "pipe stands" and a "soil plug" throughout the initial excavation activities. Please reference Figure 2 for an Excavation and Sample Location Map and Figure 3 for an Excavation and Sample Location Map with photographic aerial underlay. Please reference Table 2 for a summary of BTEX and TPH in Soil. Laboratory analytical reports are provided in Appendix D.

**On or about July 1, 2013**, initial remediation activities commenced at the Monument 18 Release Site. Following the identification of all on-site pipelines, a trackhoe was utilized to begin the delineation of the horizontal extent of the Release Site. Due to safety concerns and per the NMOCD approved 2013 Work Plan, the depth of the excavation was limited to approximately nineteen (19) feet bgs.

Investigation trenches were initially utilized to conduct the delineation activities. The initial investigation trench was located to the northwest of monitor well MW-4 and immediately east and parallel to the pipeline corridor located on the east side of Maddox Road. This area was the inferred release point based the surficially disturbed surface and the absence of mesquite trees. The investigation trench was advanced to a depth of approximately fifteen (15) feet bgs.

**On July 12, 2013**, a soil sample (North S/W @ 14') was collected from the north sidewall of an investigation trench in an effort to locate the northern extent of impact. The soil sample was analyzed for concentrations of benzene and BTEX using Method SW-846 8021B and TPH using Method SW-846 8015M. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the laboratory Reporting Limit (RL) and NMOCD regulatory guidelines. Based on the analytical results and existence of the Monument 18 ground water site, additional investigation was warranted to locate the surface expression of the Release. Excavated soil was temporarily staged adjacent to the excavation pending analytical results and disposition. Please reference Figures 2 and 3 for an Excavation and Sample Location Map and Excavation and Sample Location Map with photographic underlay, respectively. Table 2 summarizes Concentrations of BTEX and TPH in Soil. Laboratory analytical data is provided as Appendix C.

**On July 24, 2013**, a soil sample (ESW @ 14') was collected and submitted to the laboratory, the analytical results indicated the benzene concentration was less than the applicable laboratory RL and NMOCD regulatory guidelines. The soil sample exhibited a BTEX concentration of 0.0196 mg/kg and a TPH concentration of 164 mg/kg. Based on the analytical results, additional

excavation activities were warranted in the area represented by soil sample ESW @ 14'.

Soil removed from the excavation was stockpiled in approximately five hundred (500) cubic yard (cy) stockpiles and sampled and analyzed for concentrations of BTEX and TPH.

**On or about August 8, 2013**, DCP relocated a ten (10) inch diameter polyline from the pipeline corridor to the bar ditch on the east side of Maddox Road.

**On August 14, 2013**, two (2) five-point composite soil samples (SP-1 and SP-2) were collected from two (2) soil stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene and BTEX concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for both soil samples. TPH concentrations were 26.2 mg/kg and 22.1 mg/kg for soil samples SP-1 and SP-2, respectively and less than the NMOCD regulatory guidelines. Based on the analytical results, the stockpiles were transported to a bulk stockpile located at the northern extent of the project.

**On August 26, 2013**, vertical delineation of the Site began to a maximum depth of approximately nineteen (19) feet bgs.

**On August 29, 2013**, an investigation trench was advanced adjacent to monitor well MW-4 to a depth of approximately twenty-two (22) feet bgs and at approximately twenty-one (21) feet bgs, Phase Separated Hydrocarbon (PSH) was observed in the trench.

**On or about September 5, 2013**, two (2) PSH recovery trenches (South Trench and North Trench) were installed in the floor of the excavation, extending to approximately two (2) feet below the ground water interface. A "trash pump" was utilized to conduct bi-weekly recovery of PSH and dissolved-phase hydrocarbons from the recovery trenches.

**From the third quarter of 2013 through the second quarter of 2014**, approximately 1,834 barrels (bbls) of PSH and water were recovered from the north and south trenches and disposed of at an NMOCD approved disposal.

**On September 12, 2013**, five-point composite soil samples (NE Ramp SP and Central Ramp) were collected from two (2) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for both soil samples. Based on the analytical results, the stockpiles were transported to a bulk stockpile located at the north end of the project.

**On September 12, 2013**, fourteen (14) sidewall soil samples (ESW-1 @ 18', ESW-2 @ 18', ESW-3 @ 18', ESW-4 @ 18', SSW-1 @ 18', SSW-2 @ 18', SSW-3 @ 18', NSW-1 @ 18', NSW-2 @ 18', NSW-3 @ 18', WSW-1 @ 18', WSW-2 @ 18', WSW-3 @ 18', and WSW-4 @ 18') were collected from the excavation and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all soil samples. BTEX concentrations were less than the applicable laboratory RL, with the exception of soil samples WSW-1 @ 18', WSW-3 @ 18', and WSW-4 @ 18', which exhibited BTEX concentrations of

0.0386 mg/kg, 0.231 mg/kg, and 0.394 mg/kg, respectively. Based on the analytical results, BTEX concentrations were less than the NMOCD regulatory guidelines. TPH concentrations ranged from less than the applicable laboratory RL and NMOCD regulatory guidelines for soil samples ESW-1 @ 18', SSW-1 @ 18', SSW-2 @ 18', SSW-3 @ 18', and NSW-3 @ 18' to 7,540 mg/kg for soil sample WSW-3 @ 18'. Based on the analytical results, additional excavation activities were warranted in areas represented by soil samples ESW-2 @ 18', ESW-3 @ 18', ESW-4 @ 18', NSW-1 @ 18', WSW-1 @ 18', WSW-2 @ 18', WSW-3 @ 18', and WSW-4 @ 18'.

**On September 12, 2013**, eight (8) floor soil samples (Floor-1 @ 19' through Floor-8 @ 19') were collected from the excavation and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all soil samples. BTEX concentrations ranged from less than the laboratory RL for soil samples Floor-1 @ 19' and Floor-2 @ 19' to 58.8 mg/kg for soil sample Floor-5 @ 19'. TPH concentrations ranged from less than the applicable laboratory RL and NMOCD regulatory guidelines for soil samples Floor-1 @ 19' and Floor-2 @ 19' to 7,390 mg/kg for soil sample Floor-6 @ 19'. Based on the analytical results, additional excavation activities were warranted in areas represented by soil samples Floor-3 @ 19' through Floor-8 @ 19'.

**On October 7, 2013**, an NMOCD representative proposed additional excavation be conducted in the floor of the excavation in the area represented by soil samples Floor-5 @ 19' and Floor-6 @ 19'. The floor would be excavated approximately five (5) additional feet and a liner installed in the excavated area. The area would then be backfilled to approximately nineteen (19) feet bgs and a second liner would be installed across the impacted area. In addition, the west sidewall would be draped with an additional liner.

**On October 8, 2013**, thirteen (13) sidewall soil samples (ESW-2 @ 2', ESW-2 @ 10', ESW-2A @ 18', ESW-3 @ 2', ESW-3 @ 10', ESW-3A @ 18', NSW-1 @ 2', NSW-1 @ 10', NSW-1A @ 18', ESW-4 @ 2', ESW-4 @ 10', ESW-4A @ 18', and ESW-4B @ 18') were collected from the excavation and submitted to the laboratory for benzene, BTEX, and/or TPH analysis. The analytical results indicated benzene and BTEX concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all submitted soil samples. TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all soil samples, with the exception of soil sample ESW-4A @ 18' which exhibited a TPH concentration of 1,470 mg/kg. During excavation activities an additional one (1) foot of soil was excavated from the east sidewall east of soil sample ESW-4A @ 18', and a confirmation soil sample (ESW-4B @ 18') was collected and submitted to the laboratory. The analytical results indicated no additional excavation was warranted.

**On November 5, 2013**, an investigation trench (W. Trench) was advanced (with Landowner representative approval) on the west side of Maddox Road in Unit Letter A, Section 12, Township 20 South, Range 36 East. The trench was advanced to a depth of approximately eighteen (18) feet bgs. During the advancement of the investigation trench four (4) soil samples (W Trench @ 5' bgs, W Trench @ 10' bgs, W Trench @ 15' bgs, and W Trench @ 18' bgs) were collected and submitted to the laboratory for analysis. The laboratory analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL

and NMOCD regulatory guidelines.

**From the third quarter of 2014 through the fourth quarter of 2014**, approximately 7,205 bbls of PSH and water were recovered from the trenches and disposed of at an NMOCD approved disposal.

**During the first quarter of 2014**, excavation activities were on hold, due to Landowner representative negotiations.

**On June 16, 2014**, Plains representatives met with a representative of the NMOCD in the NMOCD – Santa Fe Office. The Plains representatives submitted and received NMOCD approval for the “Interim Remediation Summary and Amended Proposed Closure Strategy” (2014 Work Plan) dated June 11, 2014. Please reference the 2014 Work Plan for details.

**On June 26, 2014**, Plains representatives and the Environmental Bureau Chief, Oil Conversation Division, met with Mr. Jimmie B. Cooper (Landowner representative) at the Site. The Plains representatives verbally presented the details of 2014 Work Plan to the Landowner representative. The Environmental Bureau Chief, Oil Conversation Division, was present to answer the Landowner representatives’ questions, concerns and provide regulatory guidance. **The Environmental Bureau Chief, Oil Conservation Division indicated excavation to the west, into Maddox Road would not be required.**

On conclusion of the meeting, the Landowner representative requested the excavation continue to the ground water interface. To differentiate initial excavation activities (surface to nineteen (19) feet bgs) from additional Landowner representative requested excavation activities (nineteen (19) feet bgs to approximately one (1) foot below the ground water interface), the excavation activities which commenced on July 23, 2014 will be referred to as “Stage 2 Excavation Activities”.

**On July 14, 2014**, remediation activities resumed at the Release Site. The Regency, now ETC four (4) inch pipeline and the “soil plug” supporting the pipeline were removed after the pipeline was re-routed by ETC and placed above-ground in the Maddox Road east bar ditch. TRC personnel noted the soil plug exhibited a heavy hydrocarbon odor. Following the removal of the pipeline from the excavation, the pipe was stockpiled on the east side of the project footprint pending disposal.

Due to the depth of ground water (approximately twenty-nine (29) feet bgs) at the Site, excavation equipment could not excavate to the ground water interface from the ground surface. As an alternative, ramps were cut into the excavation sidewalls to allow excavation equipment to conduct the Stage 2 Excavation Activities from the excavation floor at approximately nineteen (19) feet bgs. Excavation activities continued on the east and north side wall of the excavation. Excavated soil was blended, mixed, and segregated based on the area excavated prior to the collection of the soil stockpiles.

**On July 21, 2014**, a trench was advanced vertically from the existing floor (approximately twelve (12) feet bgs) of the excavation and located approximately twelve (12) feet north of the existing south side wall. The trench was advanced to the ground water interface at approximately



twenty-nine (29) feet bgs. Excavated soil was evaluated using visual and olfactory techniques and at approximately eighteen (18) feet bgs the excavated soil exhibited a strong hydrocarbon odor. Excavated soil exhibiting a strong odor was segregated and staged adjacent to the excavation and the volume of soil was recorded on run tickets prior to being transported to C&C Landfarm. As the excavation continued to the north, an approximately twelve (12) foot wide bench was maintained on the excavation sidewalls at approximately twelve (12) feet bgs.

**On July 23, 2014**, five-point composite soil samples (SP-3, SP-4, SP-5, and SP-6) were collected from four (4) corresponding stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all soil samples. BTEX concentrations ranged from 0.00351 mg/kg for soil sample SP-5 to 0.00594 mg/kg for soil sample SP-3. TPH concentrations ranged from 89.4 mg/kg for soil sample SP-5 to 3,650 mg/kg for soil sample SP-3. Based on the analytical results, the volume of soil represented by soil samples SP-3, SP-4, and SP-6 was recorded on run tickets and transported to C&C Landfarm located near Monument, New Mexico. Soil represented by soil sample SP-5 was stockpiled in the bulk stockpile located at the north side of the project.

Based on visual and olfactory observations and the analytical results of soil sample SP-3, additional soil samples were not collected from the soil stockpiles generated from the Stage 2 Excavation Activities (depths greater than approximately eighteen (18) feet bgs). The volume of impacted soil excavated from the Stage 2 Excavation Activities was recorded on run tickets and transported to C&C Landfarm concurrent with excavation activities.

**On August 8, 2014**, a five-point composite soil sample (East Wall Stockpile [SP-8]) was collected from a stockpile and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated the benzene and BTEX concentration was less than the applicable laboratory RL and NMOCD regulatory guidelines for the soil sample. The TPH concentration was 60.3 mg/kg and based on the analytical results, soil represented by soil sample East Wall Stockpile (SP-8) was stockpiled in the bulk stockpile located at the north side of the project.

**On August 19, 2014**, five-point composite soil samples (SP-9 and SP-10) were collected from the two (2) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene and BTEX concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for both soil samples. TPH concentrations were 49.9 mg/kg and 66.4 mg/kg for soil samples SP-9 and SP-10, respectively. Based on the analytical results, the stockpiles were transported to a bulk stockpile located at the north end of the project. Excavation continued at the Site, predominately on the east sidewall of the existing excavation. The east and south sidewalls of the excavation exhibit irregularly spaced limited hydrocarbon impact at and just above the ground water interface.

**On September 2, 2014**, excavation activities shifted to the north sidewall of the existing excavation. Excavated soil not exhibiting hydrocarbon impact was segregated and sampled for concentrations of BTEX and TPH. The volume of excavated soil which exhibited hydrocarbon odor or staining was recorded on run tickets and transported to C&C Landfarm. The north sidewall of the excavation exhibited sporadically spaced hydrocarbon impact at and just above



the ground water interface.

**On October 1, 2014**, excavation activities shifted to the south sidewall of the existing excavation. Excavated soil not exhibiting hydrocarbon impact was segregated and sampled for concentrations of BTEX and TPH. The volume of excavated soil exhibiting hydrocarbon odor or staining was recorded on run tickets and transported to C&C Landfarm. The south sidewall of the excavation exhibited sporadically spaced hydrocarbon impact at and just above the ground water interface.

**On October 6, 2014**, an area on the south sidewall at the ground water interface was identified as exhibiting a strong odor and the volume of soil was recorded on run tickets and transported to C&C Landfarm.

**On October 13, 2014**, five-point composite soil samples (SP-11 and SP-12) were collected from two (2) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for both soil samples. Based on the analytical results, the stockpiles were transported to a bulk stockpile located at the north end of the project.

**On October 14, 2014**, excavation efforts shifted to the east sidewall at the ground water interface.

**On October 16, 2014**, an investigation trench, adjacent to monitor well MW-12 was advanced from the south sidewall of the excavation toward the south. The trench exhibited visually non-impacted soil from the surface to approximately eighteen (18) feet bgs. Soil at depths greater than approximately eighteen (18) feet bgs exhibit heavy hydrocarbon staining and odor.

**On October 21, 2014**, the activities associated with the southern excavation trench were completed and a berm was re-established around the excavation. In addition, the security fence around the Site was repaired.

During and after the completion of the Stage 2 Excavation Activities, PSH was observed on the water within the excavation. A vacuum truck was utilized to periodically remove PSH and dissolved phase impacted water. As of March 31, 2015, approximately 10,206 bbls of water and PSH were removed from the water within the excavation. The volume of PSH recovered from the trenches and excavation cannot be accurately determined.

**From the first quarter of 2015 through the fourth quarter of 2015**, approximately 3,490 bbls of PSH and water were recovered from the excavation and disposed of at an NMOCD approved disposal.

**On June 5, 2015**, Plains submitted the *Interim Remediation Summary and Revised Proposed Soil Closure Strategy* (2015 Work Plan) dated May 6, 2015, to the NMOCD Office in Santa Fe, New Mexico. The 2015 Work Plan was designed to advance the Monument 18 Release Site toward an NMOCD approved soil closure.

**On November 3, 2015**, the NMOCD Santa Fe Office approved the 2015 Work Plan as written. Please reference the *Interim Remediation Summary and Revised Proposed Soil Closure Strategy* dated May 6, 2015, for additional details.

**From the first quarter of 2016 through the fourth quarter of 2016**, approximately 2,160 bbls of PSH and water were recovered from the excavation and disposed of at an NMOCD approved disposal.

**On October 4, 2016**, Plains Representatives met with the Landowner representative to discuss the status of the Project and a timetable for future work at the Release Site. During the meeting, the Landowner representative expressed several requests which extended beyond the scope of the NMOCD approved 2015 Work Plan and were more stringent than the NMOCD regulatory guidelines. The Landowner representative requested the following modifications to the NMOCD approved 2015 Work Plan:

- Concentrations of TPH previously identify in the west sidewall of the excavation would be excavated to the west. Excavation to the west of the existing west sidewall would require encroachment into the Lea County Road 41 (Maddox Road) right-of-way and asphalt roadway.
- Excavate limited hydrocarbon stain at the ground water interface on the central portion of the east sidewall of the existing excavation.
- Excavate limited hydrocarbon stain at the ground water interface along the western half of the south sidewall of the existing excavation.

**On October 31, 2016**, Plains submitted an *Addendum to the Interim Remediation Summary and Revised Proposed Soil Closure Strategy* (Addendum) to the NMOCD. Please reference the NMOCD correspondence provided in Appendix B for the cover letter to the NMOCD.

**Please note, during 2017 excavation activities, soil represented by the above samples was excavated per the Landowner representatives' request, with the exception of soil represented by soil samples WSW-1 @ 18' through WSW-4 @ 18'.**

**From the first quarter of 2017 through the fourth quarter of 2017**, approximately 2,300 bbls of PSH and water were recovered from the excavation and disposed of at an NMOCD approved disposal.

**On January 10, 2017**, remediation activities commenced at the Release Site. Soil previously deemed suitable for backfill material was moved to the northern extent of the project footprint and stockpiled in a bulk stockpile. These activities allowed discrete five hundred (500) cubic yard stockpiles to be located along the eastern flank of the project footprint and analyzed for concentrations of benzene, BTEX, and TPH. Concurrently, soil removed from the excavation was stockpiled on the eastern flank of the project pending laboratory analysis. Discrete stockpiles were not disturbed pending laboratory analysis

**On January 20, 2017**, five-point composite soil samples (2017 SP-1 through 2017 SP-3) were

collected from three (3) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene and BTEX concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all three (3) soil samples. TPH concentrations ranged from less than the applicable laboratory RL for soil samples 2017 SP-2 and 2017 SP-3 to 28.9 mg/kg for soil sample 2017 SP-1. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project. A ramp was excavated on the east side of the excavation to approximately nineteen (19) feet bgs to allow excavation to the ground water interface (approximately twenty-nine (29) feet bgs).

Following the analytical results of the January 20, 2017 stockpile sampling event, excavated soil exhibiting significant hydrocarbon odor and/or staining was segregated on a poly liner and the volume of soil was recorded on run tickets and transported to C&C Landfarm. Excavated soil not exhibiting significant hydrocarbon odor and/or staining was stockpiled and sampled. On receipt of the analytical results, soil deemed suitable for use as backfill was pushed into the bulk stockpile and the volume of impacted soil was recorded on run tickets and transported to C&C Landfarm.

**On January 24, 2017**, five-point composite soil samples (2017 SP-4 through 2017 SP-8) were collected from five (5) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL for all five (5) soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project.

**On January 27, 2017**, Plains verbally requested an amendment to the *Addendum to the Interim Remediation Summary and Revised Proposed Soil Closure Strategy* (Addendum). Please reference the Addendum for additional details.

The previously submitted and NMOCD approved *Interim Remediation Summary and Revised Proposed Soil Closure Strategy* (2015 Work Plan) dated May 6, 2015, referenced the placement of approximately one (1) foot of gravel or equivalent material to be placed on the floor of the existing excavation and the installation of up to three (3) recovery sumps along the west sidewall of the existing excavation. As the Landowner representative requested full excavation of the release source and associated sporadic smear zone within the capillary fringe, Plains maintains the placement of the gravel or equivalent material and installation of the sumps is extraneous. Plains requested NMOCD guidance with regard to the necessity of the gravel and/or recovery sumps.

**On January 30, 2017**, Plains emailed the request to amend the Addendum and received written approval from the NMOCD. Please reference the NMOCD correspondence provided in Appendix B.

**On January 31, 2017**, five-point composite soil samples (2017 SP-9 through 2017 SP-14) were collected from six (6) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all six (6) soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project.

**On February 7, 2017**, Plains received an email approval from the NMOCD reaffirming the NMOCD approval of the request to amend the Addendum. Please reference the Addendum for additional details and the NMOCD correspondence provided in Appendix B.

**On February 9, 2017**, a polyliner was re-installed on the surface of the east side of the project area to allow impacted soil to be staged and the volume of impacted soil was recorded on run tickets and transported to the C&C Landfarm. The emplacement of the polyliner minimized the potential impact to the subsurface soil beneath. Following the emplacement of the liner, excavation of the south sidewall of the existing resumed.

**On February 17, 2017**, five-point composite soil samples (2017 SP-15 through 2017 SP-17) were collected from three (3) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all three (3) soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project. In addition, excavation activities resumed on the northeast sidewall of the existing excavation.

**On February 21, 2017**, an investigation trench was advanced from the northeast sidewall to the east. Following the advancement of the trench, crude oil was reportedly discovered on the floor of the excavation. Following the discovery of the crude, excavation efforts shifted to the northeast sidewall of the excavation. In addition, a four (4) inch diameter DCP polyline was removed from the east sidewall of the existing excavation. The removal of the DCP polyline was completed under the supervision of DCP field personnel.

**On February 22, 2017**, sloping of the east sidewall from grade to approximately nineteen (19) feet bgs commenced to allow additional excavation activities in the western and southern sectors of the excavation.

**On February 28, 2017**, five-point composite soil samples (2017 SP-18 through 2017 SP-22) were collected from five (5) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all five (5) soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project.

**On March 2, 2017**, five-point composite soil samples (2017 SP-23 through 2017 SP-26) were collected from four (4) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all four (4) soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project.

**On March 10, 2017**, in a meeting in the NMOCD Santa Fe Office with Plains representatives and NMOCD representatives, the NMOCD approved the temporary cessation of ground water sampling at the Monument 18 Release Site due to continuing excavation activities.

**On March 21, 2017**, five-point composite soil samples (2017 SP-27 through 2017 SP-30) were collected from four (4) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all four (4) soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project.

**On March 27, 2017**, a construction crew began rerouting the Rice Operating Pipeline located on the south side of the existing excavation. The Rice Operating crew was able to "Loop" the line to the south of the Monument 18 project and allow additional excavation to the south.

**On March 29, 2017**, the Landowner representative met with the TRC Field Supervisor and instructed the Supervisor to place impacted soil in Cell "J" of the C&C Landfarm.

**On May 4, 2017**, five-point composite soil samples (2017 SP-31 and 2017 SP-32) were collected from two (2) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for both soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project.

**On June 6, 2017**, five-point composite soil samples (2017 SP-33 and 2017 SP-34) were collected from two (2) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for soil sample 2017 SP-34. Based on the analytical results, the soil represented by soil sample 2017 SP-34 was transported to the bulk stockpile located at the north end of the project. The soil represented by soil sample 2017 SP-33 exhibited a benzene and BTEX concentration less than the applicable laboratory RL. The soil sample exhibited a TPH concentration of 293.3 mg/kg and the volume of soil was recorded on run tickets and transported to C&C Landfarm located near Monument, New Mexico.

**On July 5, 2017**, ten (10) confirmation sidewall soil samples (2017 ESW-1 @ 18', 2017 ESW-2 @ 18', 2017 ESW-3 @ 18', 2017 ESW-4 @ 18', 2017 ESW-5 @ 18', 2017 ESW-6 @ 18', 2017 ESW-7 @ 18', 2017 NSW-1 @ 18', 2017 NSW-2 @ 18', and 2017 NSW-3 @ 18') were collected from the existing north and east side excavation sidewalls and submitted to the laboratory for analysis of benzene, BTEX, and TPH concentrations. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all ten (10) soil samples. Based on the analytical results, no additional horizontal excavation was warranted on the north and east sidewalls of the existing excavation.

**On July 31, 2017**, Plains requested and received written NMOCD approval to modify the current Monument 18 Work Plan. Plains previously requested NMOCD approval to place washed caliche on the floor of the excavation and install a liner above the washed caliche. As a modification to the existing Work Plan, Plains would be backfilling the north and east quadrants of the existing excavation with non-impacted locally purchased soil or overburden soil deemed suitable by analysis for backfill. The existing excavation would be backfilled to approximately



fifteen (15) to eighteen (18) feet bgs. Please reference the NMOCD correspondence provided in Appendix B.

**On July 25, 2017**, the Landowner representative granted Plains verbal approval to proceed with the activities as detailed above.

**On August 10, 2017, through November 30, 2018**, backfilling of the north and east sides the existing excavation commenced. Soil contained in the bulk stockpile, and deemed suitable for use as backfill by analysis, was utilized to backfill the subject areas to nineteen (19) feet bgs. Soil utilized for backfill was compacted into the excavation using the rubber tires of the equipment.

**On or about May 1, 2018**, the Excel Powerlines located on the east side of Maddox Road were relocated to allow for additional excavation activities in the east bar ditch of Maddox Road.

**On May 9, 2018**, Plains representatives and a DCP representative met on Site to discuss the relocation of a large diameter water pipeline, currently located in the Maddox Road east bar ditch.

**On May 14, 2018**, Plains received the certified surveyors' plats for the ETC permanent reroute around the Monument 18 excavation and work area.

**On or about July 23, 2018**, Plains contractors commenced mining caliche from the Cooper Caliche Pit located northeast of Monument. Caliche was transported from the Cooper Caliche Pit for use as backfill material.

**On November 7, 2018**, Rice Operating rerouted a pipeline which was located to the south of the existing excavation.

**On November 27, 2018**, a five-point composite soil samples (2018 SP-35) was collected from one (1) stockpile and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene and BTEX concentrations were less than the applicable laboratory RL. The soil sample exhibited a TPH concentration of 358 mg/kg and the volume of soil was recorded on run tickets and transported to C&C Landfarm located near Monument, New Mexico.

**From November 30, 2018 through February 21, 2019**, Plains suspended work at the Site in anticipation of the relocation of the ETC and DCP pipelines.

**On December 3, 2018**, a permanent easement on the east side of the Site was executed by all affected parties for the ETC pipeline ROW.

**From February 21, 2019 through March 13, 2019**, an ETC contractor relocated the natural gas polyline, which had been temporarily relocated to the Maddox Road bar ditch, into a permanent right-of-way (ROW) located east of the project footprint.

**On April 5, 2019**, a Rice Operating contractor removed pipe located at the southern end of the



existing excavation.

**On April 11, 2019**, an ETC contractor removed a “dead leg” from the south side of the ETC natural gas pipeline. The removal of the “dead leg” allowed Plains to conduct excavation activities on the south side of the Plains existing excavation. Prior to the removal of the “dead leg”, TRC had “stripped out” the ETC steel pipeline and discovered a temporary pipeline clamp.

Plains contacted ETC and notified the ETC environmental group of the apparent release and ETC reportedly remediated the Release, transported the impacted soil off-site and sourced reportedly non-impacted caliche for use as backfill.

**On May 14, 2019**, five-point composite soil samples (2019 SP-36 through 2019 SP-41) were collected from six (6) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all six (6) soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project.

**On June 10, 2019**, five-point composite soil samples (2019 SP-42 and 2019 SP-43) were collected from two (2) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL for both soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project.

**On June 17, 2019**, a Rice Operating contractor removed pipe and polyline located at the southern end of the existing excavation.

**On June 24, 2019**, five-point composite soil samples (2019 SP-44 and 2019 SP-45) were collected from two (2) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL for both soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project.

**On June 27, 2019**, five-point composite soil samples (2019 SP-46 through 2019 SP-48) were collected from three (3) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL for all three (3) soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project.

**On July 25, 2019**, five-point composite soil samples (2019 SP-49 through 2019 SP-56) were collected from eight (8) stockpiles and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL for all eight (8) soil samples. Based on the analytical results, the stockpiles were transported to the bulk stockpile located at the north end of the project.

**During the third quarter of 2019**, approximately 960 bbls of PSH and water were recovered from the excavation and disposed of at an NMOCD approved disposal.

**On July 30, 2019**, a five-point composite soil sample (2019 SP-57) was collected from one (1) stockpile and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for the soil sample. Based on the analytical results, the stockpile was transported to the bulk stockpile located at the north end of the project.

**On August 12, 2019**, following the excavation activities focused on the south sidewall of the existing excavation, two (2) excavation sidewall soil samples (2019 SSW-1 @ 19' and 2019 SSW-2 @ 19') were collected and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines. Due to the extension of the existing excavation to the south, two (2) additional east sidewall soil samples (2019 ESW-1 @ 19' and 2019 ESW-2 @ 19') were collected and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines for all four (4) soil samples. Based on the analytical results, no additional horizontal excavation was warranted on the south or east sidewall of the existing excavation. Please note, soil sample 2019 ESW-2 @ 19' was collected on August 14, 2019.

**On August 14, 2019**, a five-point composite soil sample (2019 SP-58) was collected from one (1) stockpile and submitted to the laboratory for benzene, BTEX, and TPH analysis. The soil represented by soil sample 2019 SP-58 exhibited a benzene concentration less than the applicable laboratory RL and NMOCD regulatory guidelines and a BTEX concentration of 8.197 mg/kg. The soil sample exhibited a TPH concentration of 11,060 mg/kg and the volume of soil was recorded on run tickets and transported to C&C Landfarm located near Monument, New Mexico.

**On or about August 16, 2019**, excavation activities were completed on the south sidewall of the excavation.

**On January 14, 2020**, following the 2019 excavation, activities focused on the south sidewall of the existing excavation, two (2) excavation sidewall soil samples (2020-WSW-1 @ 18' and 2020-WSW-2 @ 18') were collected from the west sidewall of the existing excavation and submitted to the laboratory for benzene, BTEX, and TPH analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the applicable laboratory RL and NMOCD regulatory guidelines.

Following the collection of the above sidewall soil samples, backfill activities continued utilizing both soils deemed suitable for backfill by analysis and caliche purchased from the Landowner representative.

**On or about March 26, 2021**, placement of topsoil in upper two (2) to three (3) feet of the excavation and other disturbed areas commenced. On completion of the final backfilling and Site restoration activities, Plains will submit an Addendum documenting the final Site completion activities.

**On April 13, 2021**, the Rice Operating six (6) inch diameter polyline was re-established in the

original right-of-way, “detector tape” was applied to the polyline, pad sand was used to cushion the polyline and the pipeline trench was backfilled.

A total volume of approximately 40,380 cubic yards (cy) of impacted soil was recorded on run tickets and transported to C&C Landfarm located near Monument, New Mexico. Disposal run tickets are not included in this report and will be submitted on NMOCD request. A total of approximately 30,500 cy of soil was deemed suitable for use as backfill through laboratory analysis.

**On April 30, 2021**, a TRC Environmental Field Technician gauged monitor wells MW-3, MW-5, MW-6, MW-7, MW-9, and MW-10. Monitor well MW-1 was removed during excavation activities and monitor wells MW-4 and MW-8 could not be gauged due to an obstruction (likely a broken riser) in the monitor wells. The gauging event results indicated PSH was not observed in any of the gauged monitor wells.

**On or about May 12, 2021**, the large diameter DCP polyline was re-established in the original pipeline corridor by a DCP contractor.

### **3.0 QA/QC PROCEDURES**

#### **3.1 Soil Sampling**

Soil samples were obtained utilizing single-use, disposable, latex gloves, and clean sampling tools. The soil sample was placed in a disposable Ziploc sample bag. The bag was labeled. A portion of the soil sample was then placed in a sterile glass container equipped with a Teflon-lined lid furnished by the analytical laboratory. The container was filled to capacity to limit the amount of headspace present. Each container was labeled and placed on ice in an insulated cooler. Upon selection of samples for analysis, the cooler was sealed for shipment to the laboratory. Proper chain-of-custody documentation was maintained throughout the sampling process.

Soil samples were delivered to Xenco Laboratories in Midland, Texas, TraceAnalysis, Inc. in Midland, Texas, and Permian Basin Environmental Laboratory (Permian Lab) Midland, Texas for BTEX and TPH analyses using the methods described below.

- TPH concentrations in accordance with modified EPA Method 8015M GRO/DRO
- BTEX concentrations in accordance with EPA Method SW-846 8021B

#### **3.2 Decontamination of Equipment**

Soil sampling tools such as small hand shovels were washed with Liqui-Nox<sup>®</sup> detergent and rinsed with distilled water between the collection of soil samples.

#### **3.3 Laboratory Protocol**

The laboratory was responsible for proper QA/QC procedures after signing the chain-of-custody form.

## 4.0 SITE REVEGETATION

Following backfilling activities, the Monument 18 Release Site will be contoured reminiscent of the surrounding area. The disturbed area will be revegetated with a seed mixture approved by the Landowner representative and the seed will be sown at a time approved by the Landowner representative.

## 5.0 GROUND WATER REMEDIATION SUMMARY

**On March 10, 2017, in a meeting in the NMOCD Santa Fe Office with Plains representatives and NMOCD representatives, the NMOCD approved the temporary cessation of ground water sampling at the Monument 18 Release Site due to continuing excavation activities.**

As stated above, the NMOCD approved temporary cessation of groundwater sampling during 2017, please reference the 2017 Annual Monitoring Report for Monument 18 for Historical Groundwater Elevation Data and Historical BTEX Concentrations in Groundwater.

During excavation activities monitor well MW-3 was periodically gauged and ground water was recovered and disposed of at an NMOCD approved disposal.

**On September 5, 2018,** monitor well MW-3 exhibited a measurable thickness of PSH (0.02 feet) and has not exhibited measurable PSH since this event, comprising approximately ninety (90) gauging and recovery events.

**On November 12, 2019,** monitor well MW-3 was gauged, purged, and sampled for concentrations of BTEX. The analytical results indicated all BTEX constitute concentrations were less than the laboratory RL and NMOCD regulatory guidelines.

**On April 30, 2021,** a TRC environmental field technician gauged monitor wells MW-3, MW-5, MW-6, MW-7, MW-9, and MW-10. Monitor well MW-1 was removed during excavation activities and monitor wells MW-4 and MW-8 could not be gauged due to an obstruction (likely a broken riser) in the monitor wells. The gauging event results indicated PSH was not observed in any of the gauged monitor wells.

Based on the presence of concentrations of TDS and chloride in excess of the Standards for Ground Water of 10,000 mg/L or less (NMAC 20.6.2.3103), the excavation of significantly hydrocarbon impacted source material, the absence of measurable PSH in existing monitor wells, and the analytical results of a ground water sample collected from monitor well MW-3 on November 12, 2019, Plains requests the NMOCD grant ground water closure status to the Monument 18 Release Site. Concentrations of TDS and Chloride in excess of the NMAC 20.6.2.3103 standard was initially reported to the NMOCD in the 2016 Monument 18 Annual Monitoring Report. On NMOCD approval, plugging permits will be requested from the New Mexico Office of the State Engineer (NMOSE). On receipt of the plugging permits the remaining monitor wells will be plugged and abandoned by a New Mexico licensed water well driller. On receipt of the drillers plugging report, the reports will be forwarded to the NMOCD.

## **6.0 SITE CLOSURE REQUEST**

Based on Standards for Ground Water of 10,000 mg/L TDS Concentration or less (NMAC 20.6.2.3103) the ground water beneath the Monument 18 Release is deemed non-potable and non-abatable. Based on the analytical results of confirmation soil samples obtained from the floor and sidewalls of the excavation, TRC recommends Plains provide the NMOCD a copy of this Remediation Summary and Site Closure Request and request the NMOCD grant Site closure status to the Monument 18 Release Site.

## **7.0 LIMITATIONS**

TRC has prepared this Remediation Summary and Site Closure Request to the best of its ability. No other warranty, expressed or implied, is made or intended.

TRC has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. TRC has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. TRC has prepared this report in a professional manner, using the degree of skill and care exercised by similar environmental consultants. TRC also notes that the facts and conditions referenced in this report may change over time and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

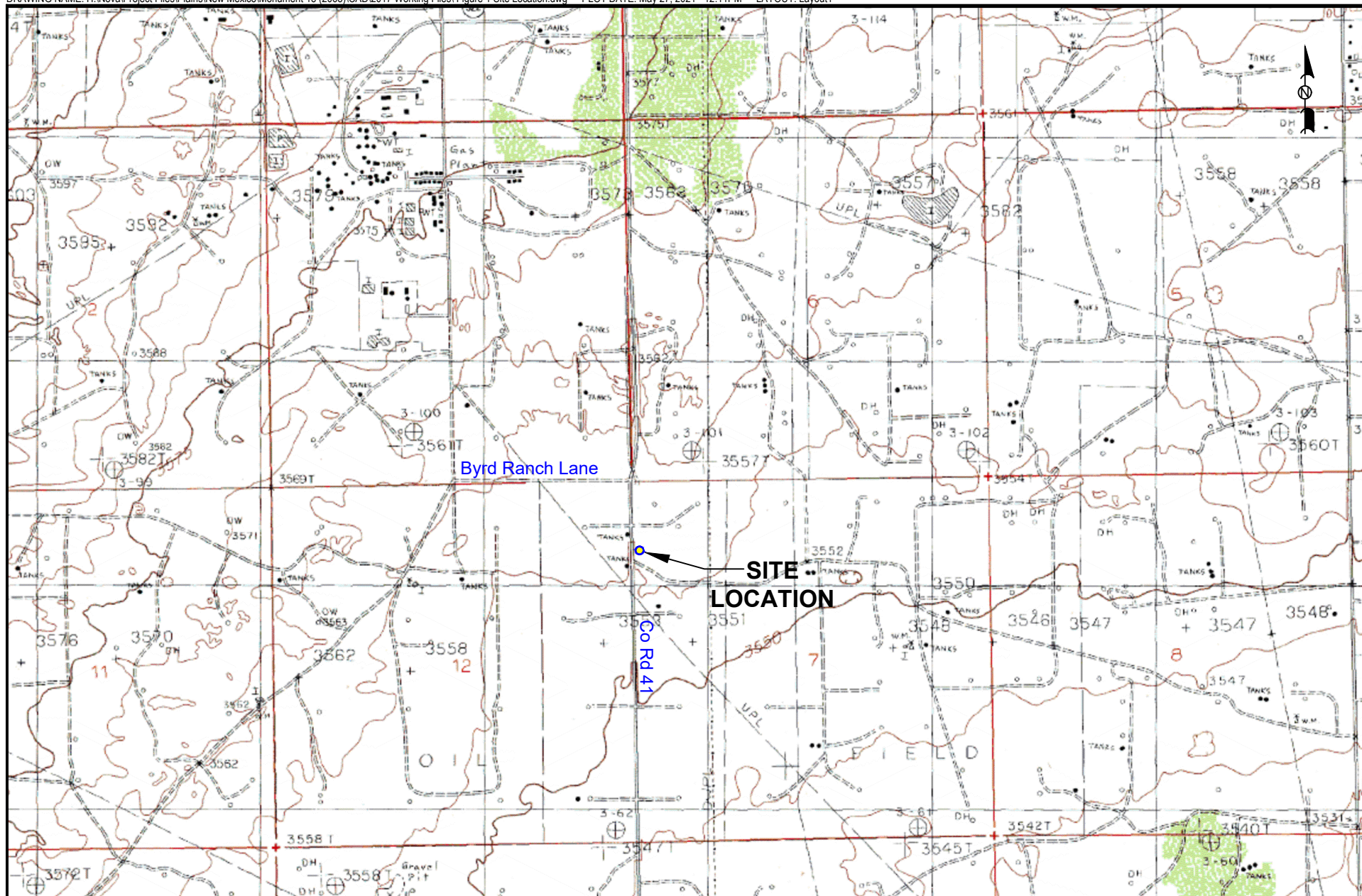
This report has been prepared for the benefit of Plains. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of TRC and/or Plains.

## 8.0 DISTRIBUTION

- Copy 1: New Mexico Energy, Minerals and Natural Resources Department  
Oil Conservation Division, District 1  
1625 French Drive  
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10 Desta Drive, Suite 150E  
Midland, Texas 79705  
cdstanley@trccompanies.com



## Figures



LEGEND:

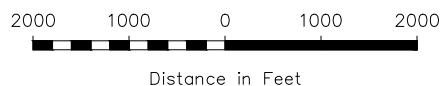


Figure 1  
Site Location Map  
Plains Pipeline, L.P.  
Monument 18  
NMOCD Reference # IRP-124-0  
Lea County, NM

Scale: 1" = 100'

CAD By: CS Checked By: CS

Draft: June 7, 2021

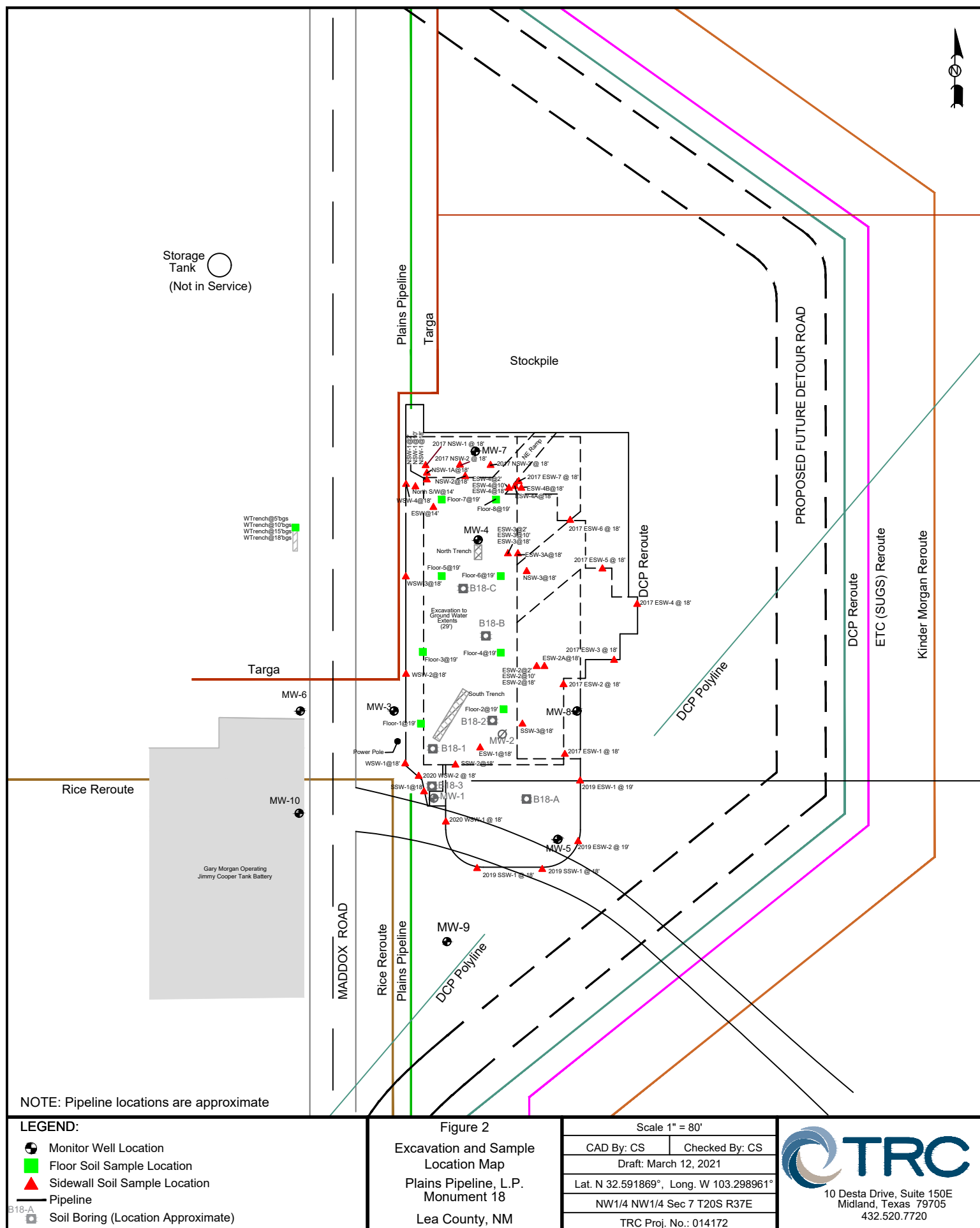
Lat. N 32.591869°, Long. W 103.298961°

NW1/4 NW1/4 Sec 7 T20S R37E

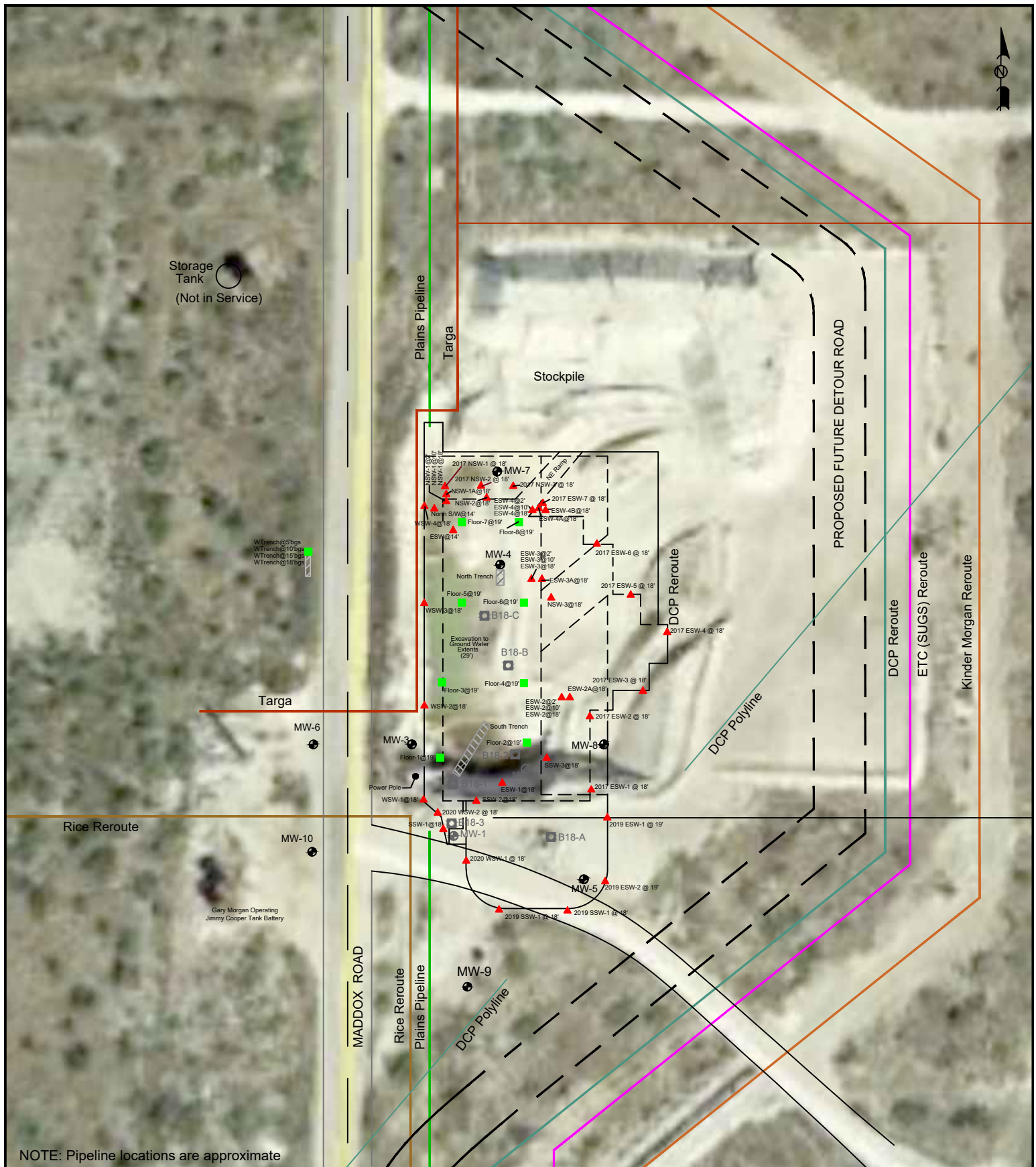
TRC Proj. No.: 014172



2057 Commerce Drive  
Midland, Texas 79703  
432.520.7720





**LEGEND:**

- Monitor Well Location
- Floor Soil Sample Location
- Sidewall Soil Sample Location
- Pipeline
- Soil Boring (Location Approximate)

Figure 3  
Excavation and Sample  
Location Map with Photographic  
Aerial Underlay  
Plains Pipeline, L.P.  
Monument 18  
Lea County, NM

Scale 1" = 80'

CAD By: CS

Checked By: CS

Draft: March 12, 2021

Lat. N 32.591869°, Long. W 103.298961°

NW1/4 NW1/4 Sec 7 T20S R37E

TRC Proj. No.: 014172



## Tables

**TABLE 1**  
**TDS and CHLORIDE CONCENTRATIONS IN GROUNDWATER**  
**PLAINS PIPELINE, L.P.**  
**MONUMENT 18**  
**LEA COUNTY, NEW MEXICO**  
**NMOCD REFERENCE NUMBER 1R-0124**

*All concentrations are reported in mg/L.*

SAMPLE LOCATION	SAMPLE DATE	EPA 160.1	EPA 300.0
		TDS	CHLORIDE
NMOCD REGULATORY GUIDELINE		10,000	250
MW - 1	02/01/16	13,400	7,550
MW - 2	05/02/97	16,300	757
MW - 3	05/02/97	17,200	7,680
MW - 3	02/01/16	14,300	6,910
MW - 5	09/19/97	23,000	5,100
MW - 5	02/01/16	12,100	6,590
MW - 5	08/02/17	13,900	7,260
MW - 6	09/19/97	22,000	8,600
MW - 6	02/01/16	12,900	7,070
MW - 7	08/18/98	19,200	11,100
MW - 7	02/01/16	11,800	5,820
MW - 8	08/18/98	19,900	22,600
MW - 9	02/01/16	12,500	6,590
MW - 9	08/02/17	12,700	7,100
MW-10	02/01/16	12,200	6,230



**TABLE 2  
CONCENTRATIONS OF BTEX AND TPH IN SOIL**

**MONUMENT #18  
PLAINS PIPELINE, L.P.  
LEA COUNTY, NM  
NMOCD Reference # 1RP-0124  
PLAINS SRS NUMBER: TNM MONUMENT 18-KNOWN**

SAMPLE LOCATION	SAMPLE DATE	SAMPLE DEPTH (feet)	SOIL STATUS	Methods: EPA SW 846-8021B, 5030					Methods:			
				BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	m,p,o-XYLENE (mg/kg)	TOTAL BTEX (mg/kg)	EPA SW 846-8015M or 418.1			
									GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total TPH (mg/kg)
B18-1	03/09/97	1 - 2'	Excavated	<0.050	0.348	0.865	<0.100	1.213	-	-	-	13500
B18-1	03/09/97	5 - 6'	Excavated	<0.20	4.82	<0.20	12.46	17.28	-	-	-	31500
B18-1	03/09/97	14-15'	Excavated	<0.20	1.92	0.92	8.64	11.48	-	-	-	10900
B18-1	03/09/97	34-35'	Excavated	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	929
B18-3 (MW 18-1)	03/14/97	1 - 2'	Excavated	<0.020	<0.020	<0.020	<0.040	<0.040	-	-	-	15.5
B18-3 (MW 18-1)	03/14/97	12 - 13'	Excavated	<0.020	<0.020	<0.020	<0.040	<0.040	-	-	-	13.0
B18-3 (MW 18-1)	03/14/97	26 - 27'	Excavated	0.348	0.880	0.660	1.974	3.862	-	-	-	2840
B18-2 (MW 18-2)	03/14/97	0 - 1'	Plugged and Excavated	<0.020	<0.020	<0.020	<0.040	<0.040	-	-	-	29.5
B18-2 (MW 18-2)	03/14/97	8 - 9'	Plugged and Excavated	<0.020	<0.020	<0.020	<0.040	<0.040	-	-	-	13.0
B18-2 (MW 18-2)	03/14/97	29 - 30'	Plugged and Excavated	2.15	2.74	8.33	6.75	19.97	-	-	-	12900
B18-2 (MW 18-2)	03/14/97	31 - 32'	Plugged and Excavated	1.05	1.48	3.03	2.79	8.35	-	-	-	3380
B18-4 (MW 18-3)	03/14/97	1 - 2'	In-Situ	<0.020	<0.020	<0.020	<0.040	<0.040	-	-	-	32.0
B18-4 (MW 18-3)	03/14/97	13 - 14'	In-Situ	<0.020	<0.020	<0.020	<0.040	<0.040	-	-	-	32.0
B18-4 (MW 18-3)	03/14/97	26 - 27'	In-Situ	<0.020	<0.020	<0.020	<0.040	<0.040	-	-	-	<10.0
B18-A (5-7')	09/11/97	5 - 7'	Excavated	<0.050	<0.050	<0.050	<0.100	<0.100	-	-	-	<10.2
B18-A (28-30')	09/11/97	28 - 30'	Excavated	<0.050	<0.050	0.134	0.586	0.677	-	-	-	<9.8
B18-B (5-7')	09/12/97	5 - 7'	Excavated	<0.050	<0.050	<0.050	<0.100	<0.100	-	-	-	<143
B18-B (15-17')	09/12/97	15 - 17'	Excavated	<0.50	1.96	14.35	27.45	48.64	-	-	-	7760
B-18-C (5-7')	09/12/97	5 - 7'	Excavated	<0.050	<0.050	<0.050	0.228	0.228	-	-	-	<99.6
B-18-C (10.5 - 12.5')	09/12/97	10.5 - 12.5'	Excavated	1.08	3.86	24.95	45.35	75.24	-	-	-	11400
MW-18-4	09/12/97	5 - 7'	Excavated	<0.050	<0.050	<0.050	<0.100	<0.100	-	-	-	<206
MW-18-4	09/12/97	8.5 - 10.5'	Excavated	1.18	2.48	12.95	16.38	32.99	-	-	-	5590
MW-18-4	09/12/97	20 - 22'	Excavated	<0.050	<0.050	<0.050	<0.100	<0.100	-	-	-	5310
MW-18-4	09/12/97	28 - 30'	Excavated	<0.050	<0.050	0.376	0.776	1.152	-	-	-	1050
MW-18-5	09/11/97	5 - 7'	Excavated	<0.050	<0.050	<0.050	0.111	0.111	-	-	-	<9.6
MW-18-5	09/11/97	33 - 34'	In-Situ	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	<9.6
MW-18-6	09/12/97	5 - 7'	In-Situ	<0.050	<0.050	<0.050	0.113	0.113	-	-	-	<10.1
MW-18-6	09/12/97	28 - 30'	In-Situ	<0.050	<0.050	<0.050	<0.100	<0.100	-	-	-	<10.1
MW-18-7	07/15/98	0 - 2'	Excavated	<0.020	<0.020	<0.020	<0.040	<0.040	-	-	-	7.0
MW-18-7	07/15/98	6 - 8'	Excavated	<0.020	<0.020	<0.020	<0.040	<0.040	-	-	-	10.5

**TABLE 2**  
**CONCENTRATIONS OF BTEX AND TPH IN SOIL**

**MONUMENT #18**  
**PLAINS PIPELINE, L.P.**  
**LEA COUNTY, NM**  
**NMOCD Reference # 1RP-0124**  
**PLAINS SRS NUMBER: TNM MONUMENT 18-KNOWN**

SAMPLE LOCATION	SAMPLE DATE	SAMPLE DEPTH (feet)	SOIL STATUS	Methods: EPA SW 846-8021B, 5030					Methods:			
				BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	m,p,o-XYLENE (mg/kg)	TOTAL BTEX (mg/kg)	EPA SW 846-8015M or 418.1			
									GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total TPH (mg/kg)
MW-18-7	07/15/98	28 - 30'	Excavated	<0.10	0.10	<0.010	0.11	0.11	-	-	-	369
MW 18-8	07/15/98	0 - 2'	Excavated	<0.020	<0.020	<0.020	<0.040	<0.020	-	-	-	9.6
MW 18-8	07/15/98	8' - 10'	Excavated	<0.020	<0.020	<0.020	<0.040	<0.020	-	-	-	7.3
MW 18-8	07/15/98	28' - 30'	In-Situ	<0.020	<0.020	<0.020	<0.040	<0.020	-	-	-	15.6
MW-9	11/04/04	10'	In-Situ	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<1	<50	-	<50
MW-9	11/04/04	20'	In-Situ	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<1	<50	-	<50
MW-9	11/04/04	30'	In-Situ	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<1	<50	-	<50
MW-10	11/04/04	15'	In-Situ	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<1	<50	-	<50
MW-10	11/04/04	30'	In-Situ	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<1	<50	-	<50
North S/W @ 14'	07/12/13	14'	In-Situ	<0.00199	<0.00398	<0.00199	<0.00398	<0.00398	<14.9	<14.9	<14.9	<14.9
ESW @ 14'	07/24/13	14'	Excavated	<0.00100	0.00245	0.00385	0.0133	0.0196	15.8	119	29.1	164
SP-1	08/14/13	-	Stockpiled	<0.000992	<0.00198	<0.000992	<0.000992	<0.00198	<15.0	26.2	<15.0	26.2
SP-2	08/14/13	-	Stockpiled	<0.000992	<0.00198	<0.000992	<0.000992	<0.00198	<15.0	22.1	<15.0	22.1
NE Ramp SP	09/12/13	-	Stockpiled	<0.00132	<0.00263	<0.00132	<0.00263	<0.00263	<19.8	<19.8	<19.8	<19.8
Central Ramp	09/12/13	-	Stockpiled	<0.00131	<0.00262	<0.00131	<0.00262	<0.00262	<19.7	<19.7	<19.7	<19.7
ESW-1 @ 18'	09/12/13	18'	Excavated	<0.00117	<0.00233	<0.00117	<0.00233	<0.00233	<17.5	<17.5	<17.5	<17.5
ESW-2 @ 18'	09/12/13	18'	Excavated	<0.00111	<0.00222	<0.00111	<0.00222	<0.00222	<16.8	611	<16.8	611
ESW-3 @ 18'	09/12/13	18'	Excavated	<0.00108	<0.00216	<0.00108	<0.00216	<0.00216	<16.2	981	<16.2	981
ESW-4 @ 18'	09/12/13	18'	Excavated	<0.00108	<0.00217	<0.00108	<0.00217	<0.00217	<81.4	884	<81.4	884
SSW-1 @ 18'	09/12/13	18'	Excavated	<0.00111	<0.00222	<0.00111	<0.00222	<0.00222	<16.7	<16.7	<16.7	<16.7
SSW-2 @ 18'	09/12/13	18'	Excavated	<0.00114	<0.00229	<0.00114	<0.00229	<0.00229	<17.2	<17.2	<17.2	<17.2
SSW-3 @ 18'	09/12/13	18'	Excavated	<0.00112	<0.00224	<0.00112	<0.00224	<0.00224	<16.8	<16.8	<16.8	<16.8
NSW-1 @ 18'	09/12/13	18'	Excavated	<0.00110	<0.00220	<0.00110	<0.00220	<0.00220	79.0	1,450	<16.5	1,530
NSW-2 @ 18'	09/12/13	18'	Excavated	<0.00110	<0.00219	<0.00110	<0.00219	<0.00219	<16.4	80.8	<16.4	80.8
NSW-3 @ 18'	09/12/13	18'	Excavated	<0.00103	<0.00206	<0.00103	<0.00206	<0.00206	<15.5	<15.5	<15.5	<15.5
WSW-1 @ 18'	09/12/13	18'	In-Situ	<0.00114	<0.00228	0.00478	0.0338	0.0386	299	1,320	<17.2	1,620
WSW-2 @ 18'	09/12/13	18'	In-Situ	<0.00117	<0.00233	<0.00117	<0.00233	<0.00233	279	1,230	<17.4	1,510
WSW-3 @ 18'	09/12/13	18'	In-Situ	<0.00118	0.00312	0.0395	0.188	0.231	2,060	5,480	<88.1	7,540
WSW-4 @ 18'	09/12/13	18'	In-Situ	<0.00115	<0.00230	0.023	0.371	0.394	1,470	4,320	<17.4	5,790
Floor-1 @ 19'	09/12/13	19'	Excavated	<0.00124	<0.00248	<0.00124	<0.00248	<0.00248	<18.6	<18.6	<18.6	<18.6
Floor-2 @ 19'	09/12/13	19'	Excavated	<0.00117	<0.00234	<0.00117	<0.00234	<0.00234	<17.6	<17.6	<17.6	<17.6
Floor-3 @ 19'	09/12/13	19'	Excavated	<0.00117	<0.00234	0.257	0.291	0.548	1,110	3,610	<17.7	4,720
Floor-4 @ 19'	09/12/13	19'	Excavated	<0.00118	<0.00236	0.00319	0.0115	0.0147	71.4	210	<17.8	281
Floor-5 @ 19'	09/12/13	19'	Excavated	<0.0588	<0.118	17.4	41.4	58.8	1,130	2,230	<88.2	3,360

TABLE 2  
CONCENTRATIONS OF BTEX AND TPH IN SOIL

MONUMENT #18  
PLAINS PIPELINE, L.P.  
LEA COUNTY, NM  
NMOCD Reference # 1RP-0124  
PLAINS SRS NUMBER: TNM MONUMENT 18-KNOWN

SAMPLE LOCATION	SAMPLE DATE	SAMPLE DEPTH (feet)	SOIL STATUS	Methods: EPA SW 846-8021B, 5030					Methods:			
				BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	m,p,o-XYLENE (mg/kg)	TOTAL BTEX (mg/kg)	EPA SW 846-8015M or 418.1			
									GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total TPH (mg/kg)
Floor-6 @ 19'	09/12/13	19'	Excavated	<0.0221	<0.0441	4.14	7.72	11.9	1,170	6,220	<83.1	<b>7,390</b>
Floor-7 @ 19'	09/12/13	19'	Excavated	<0.0257	<0.0514	1.97	5.78	7.75	583	1,470	<19.2	<b>2,050</b>
Floor-8 @ 19'	09/12/13	19'	Excavated	<0.00109	<0.00218	0.0255	0.0404	0.0659	247	3,920	<16.4	<b>4,170</b>
ESW-2 @ 2'	10/08/13	2'	Excavated	<0.00106	<0.00211	<0.00106	<0.00211	<0.00211	<15.8	<15.8	<15.8	<15.8
ESW-2 @ 10'	10/08/13	10'	Excavated	<0.00126	<0.00252	<0.00126	<0.00252	<0.00252	<19.0	<19.0	<19.0	<19.0
ESW-2A @ 18'	10/08/13	18'	Excavated	-	-	-	-	-	<18.6	<18.6	<18.6	<18.6
ESW-3 @ 2'	10/08/13	2'	Excavated	<0.00102	<0.00204	<0.00102	<0.00204	<0.00204	<15.3	<15.3	<15.3	<15.3
ESW-3 @ 10'	10/08/13	10'	Excavated	<0.00101	<0.00203	<0.00101	<0.00203	<0.00203	<15.2	<15.2	<15.2	<15.2
ESW-3A @ 18'	10/08/13	18'	Excavated	-	-	-	-	-	<16.7	<16.7	<16.7	<16.7
NSW-1 @ 2'	10/08/13	2'	Excavated	<0.00101	<0.00202	<0.00101	<0.00202	<0.00202	<15.1	<15.1	<15.1	<15.1
NSW-1 @ 10'	10/08/13	10'	Excavated	<0.00101	<0.00202	<0.00101	<0.00202	<0.00202	<15.2	<15.2	<15.2	<15.2
NSW-1A @ 18'	10/08/13	18'	Excavated	-	-	-	-	-	<18.8	<18.8	<18.8	<18.8
ESW-4 @ 2'	10/08/13	2'	Excavated	<0.00106	<0.00212	<0.00106	<0.00212	<0.00212	<15.9	<15.9	<15.9	<15.9
ESW-4 @ 10'	10/08/13	10'	Excavated	<0.00102	<0.00205	<0.00102	<0.00205	<0.00205	<15.3	<15.3	<15.3	<15.3
ESW-4A @ 18'	10/08/13	18'	Excavated	-	-	-	-	-	31.3	1,440	<16.4	<b>1,470</b>
ESW-4B @ 18'	10/08/13	18'	Excavated	-	-	-	-	-	<17.4	<17.4	<17.4	<17.4
W Trench @ 5' bgs	11/05/13	5'	In-Situ	<0.000996	<0.00199	<0.000996	<0.00199	<0.00199	<16.7	<16.7	<16.7	<16.7
W Trench @ 10' bgs	11/05/13	10'	In-Situ	<0.000994	<0.00199	<0.000994	<0.00199	<0.00199	<16.6	<16.6	<16.6	<16.6
W Trench @ 15' bgs	11/05/13	15'	In-Situ	<0.000990	<0.00198	<0.000990	<0.00198	<0.00198	<16.6	<16.6	<16.6	<16.6
W Trench @ 18' bgs	11/05/13	18'	In-Situ	<0.00100	<0.00200	<0.00100	<0.00200	<0.00200	<17.3	<17.3	<17.3	<17.3
SP-3	07/23/14	-	Hauled	<0.000996	<0.00199	0.0106	0.0488	0.0594	332	3,150	168	<b>3,650</b>
SP-4	07/23/14	-	Hauled	<0.000996	<0.00199	0.00187	0.0120	0.0139	<15.3	105	<15.3	<b>105</b>
SP-5	07/23/14	-	Stockpiled	<0.000998	<0.00200	<0.000998	0.00351	0.00351	<15.4	89.4	<15.4	89.4
SP-6	07/23/14	-	Hauled	<0.000994	<0.00199	<0.000994	0.00625	0.00625	20.2	716	72.4	<b>809</b>
East Wall Stockpile (SP-8)	08/08/14	-	Stockpiled	<0.00104	<0.00208	<0.00104	<0.00208	<0.00208	<15.6	60.3	<15.6	60.3
SP-9	08/19/14	-	Stockpiled	<0.00102	<0.00203	<0.00102	<0.00203	<0.00203	<15.3	49.9	<15.3	49.9
SP-10	08/19/14	-	Stockpiled	<0.00102	<0.00204	<0.00102	<0.00204	<0.00204	<15.4	66.4	<15.4	66.4
SP-11	10/13/14	-	Stockpiled	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<50.0	<50.0
SP-12	10/13/14	-	Stockpiled	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<50.0	<50.0
2017 SP-1	1/20/2017	-	Stockpiled	<0.0111	<0.0222	<0.0111	<0.0222	<0.0222	<27.8	28.9	<27.8	28.9
2017 SP-2	1/20/2017	-	Stockpiled	<0.0109	<0.0217	<0.0109	<0.0217	<0.0217	<27.2	<27.2	<27.2	<27.2
2017 SP-3	1/20/2017	-	Stockpiled	<0.0108	<0.0215	<0.0108	<0.0215	<0.0215	<26.9	<26.9	<26.9	<26.9
2017 SP-4	1/24/2017	-	Stockpiled	<0.0106	<0.0213	<0.0106	<0.0213	<0.0213	<26.6	<26.6	<26.6	<26.6
2017 SP-5	1/24/2017	-	Stockpiled	<0.0110	<0.0220	<0.0110	<0.0220	<0.0220	<27.5	<27.5	<27.5	<27.5

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CONCENTRATIONS OF BTEX AND TPH IN SOIL

MONUMENT #18  
PLAINS PIPELINE, L.P.  
LEA COUNTY, NM  
NMOCD Reference # 1RP-0124  
PLAINS SRS NUMBER: TNM MONUMENT 18-KNOWN

SAMPLE LOCATION	SAMPLE DATE	SAMPLE DEPTH (feet)	SOIL STATUS	Methods: EPA SW 846-8021B, 5030					Methods:			
				BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	m,p,o-XYLENE (mg/kg)	TOTAL BTEX (mg/kg)	EPA SW 846-8015M or 418.1			
									GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total TPH (mg/kg)
2017 SP-6	1/24/2017	-	Stockpiled	<0.0110	<0.0220	<0.0110	<0.0220	<0.0220	<27.5	<27.5	<27.5	<27.5
2017 SP-7	1/24/2017	-	Stockpiled	<0.0106	<0.0213	<0.0106	<0.0213	<0.0213	<26.6	<26.6	<26.6	<26.6
2017 SP-8	1/24/2017	-	Stockpiled	<0.0111	<0.0222	<0.0111	<0.0222	<0.0222	<27.8	<27.8	<27.8	<27.8
2017 SP-9	1/31/2017	-	Stockpiled	<0.0215	<0.0430	<0.0215	<0.0430	<0.0430	<26.9	<26.9	<26.9	<26.9
2017 SP-10	1/31/2017	-	Stockpiled	<0.0215	<0.0430	<0.0215	<0.0430	<0.0430	<26.9	<26.9	<26.9	<26.9
2017 SP-11	1/31/2017	-	Stockpiled	<0.0220	<0.0440	<0.0220	<0.0440	<0.0440	<27.5	<27.5	<27.5	<27.5
2017 SP-12	1/31/2017	-	Stockpiled	<0.0217	<0.0435	<0.0217	<0.0435	<0.0435	<27.2	<27.2	<27.2	<27.2
2017 SP-13	1/31/2017	-	Stockpiled	<0.0225	<0.0449	<0.0225	<0.0449	<0.0449	<28.1	<28.1	<28.1	<28.1
2017 SP-14	1/31/2017	-	Stockpiled	<0.0233	<0.0465	<0.0233	<0.0465	<0.0465	<29.1	<29.1	<29.1	<29.1
2017 SP-15	2/17/2017	-	Stockpiled	<0.00106	<0.00213	<0.00106	<0.00213	<0.00213	<26.6	<26.6	<26.6	<26.6
2017 SP-16	2/17/2017	-	Stockpiled	<0.00109	<0.00217	<0.00109	<0.00217	<0.00217	<27.2	<27.2	<27.2	<27.2
2017 SP-17	2/17/2017	-	Stockpiled	<0.00111	<0.00222	<0.00111	<0.00222	<0.00222	<27.8	<27.8	<27.8	<27.8
2017 SP-18	2/28/2017	-	Stockpiled	<0.0213	<0.0426	<0.0213	<0.0426	<0.0426	<26.6	<26.6	<26.6	<26.6
2017 SP-19	2/28/2017	-	Stockpiled	<0.00109	<0.0435	<0.0217	<0.0435	<0.0435	<27.2	<27.2	<27.2	<27.2
2017 SP-20	2/28/2017	-	Stockpiled	<0.0225	<0.0449	<0.0225	<0.0449	<0.0449	<28.1	<28.1	<28.1	<28.1
2017 SP-21	2/28/2017	-	Stockpiled	<0.0215	<0.0430	<0.0215	<0.0430	<0.0430	<26.9	<26.9	<26.9	<26.9
2017 SP-22	2/28/2017	-	Stockpiled	<0.0217	<0.0435	<0.0217	<0.0435	<0.0435	<27.2	<27.2	<27.2	<27.2
2017 SP-23	3/2/2017	-	Stockpiled	<0.0206	<0.0412	<0.0206	<0.0412	<0.0412	<25.8	<25.8	<25.8	<25.8
2017 SP-24	3/2/2017	-	Stockpiled	<0.0204	<0.0408	<0.0204	<0.0408	<0.0408	<25.5	<25.5	<25.5	<25.5
2017 SP-25	3/2/2017	-	Stockpiled	<0.0220	<0.0440	<0.0220	<0.0440	<0.0440	<27.5	<27.5	<27.5	<27.5
2017 SP-26	3/2/2017	-	Stockpiled	<0.0217	<0.0435	<0.0217	<0.0435	<0.0435	<27.2	<27.2	<27.2	<27.2
2017 SP-27	3/21/2017	-	Stockpiled	<0.0208	<0.0417	<0.0208	<0.0417	<0.0417	<26.0	<26.0	<26.0	<26.0
2017 SP-28	3/21/2017	-	Stockpiled	<0.0208	<0.0417	<0.0208	<0.0417	<0.0417	<26.0	<26.0	<26.0	<26.0
2017 SP-29	3/21/2017	-	Stockpiled	<0.0213	<0.0426	<0.0213	<0.0426	<0.0426	<26.6	<26.6	<26.6	<26.6
2017 SP-30	3/21/2017	-	Stockpiled	<0.0211	<0.0421	<0.0211	<0.0421	<0.0421	<26.3	<26.3	<26.3	<26.3
2017 SP-31	5/4/2017	-	Stockpiled	<0.0202	<0.0404	<0.0202	<0.0404	<0.0404	<25.3	<25.3	<25.3	<25.3
2017 SP-32	5/4/2017	-	Stockpiled	<0.0215	<0.0430	<0.0215	<0.0430	<0.0430	<26.9	<26.9	<26.9	<26.9
2017 SP-33	6/6/2017	-	Hauled	<0.00109	<0.00217	<0.00109	<0.00217	<0.00217	<27.2	204	89.2	293.2
2017 SP-34	6/6/2017	-	Stockpiled	<0.00106	<0.00213	<0.00106	<0.00213	<0.00213	<26.6	<26.6	<26.6	<26.6
2017 ESW-1 @ 18'	7/5/2017	18'	In-Situ	<0.00128	<0.00256	<0.00128	<0.00256	<0.00256	<32.1	<32.1	<32.1	<32.1
2017 ESW-2 @ 18'	7/5/2017	18'	In-Situ	<0.00118	<0.00235	<0.00118	<0.00235	<0.00235	<29.4	<29.4	<29.4	<29.4
2017 ESW-3 @ 18'	7/5/2017	18'	In-Situ	<0.00125	<0.00250	<0.00125	<0.00250	<0.00250	<31.2	<31.2	<31.2	<31.2
2017 ESW-4 @ 18'	7/5/2017	18'	In-Situ	<0.00112	<0.00225	<0.00112	<0.00225	<0.00225	<28.1	<28.1	<28.1	<28.1
2017 ESW-5 @ 18'	7/5/2017	18'	In-Situ	<0.00118	<0.00235	<0.00118	<0.00235	<0.00235	<29.4	<29.4	<29.4	<29.4

TABLE 2  
CONCENTRATIONS OF BTEX AND TPH IN SOIL

MONUMENT #18  
PLAINS PIPELINE, L.P.  
LEA COUNTY, NM  
NMOCD Reference # 1RP-0124  
PLAINS SRS NUMBER: TNM MONUMENT 18-KNOWN

SAMPLE LOCATION	SAMPLE DATE	SAMPLE DEPTH (feet)	SOIL STATUS	Methods: EPA SW 846-8021B, 5030					Methods:			
				BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	m,p,o-XYLENE (mg/kg)	TOTAL BTEX (mg/kg)	EPA SW 846-8015M or 418.1			
									GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total TPH (mg/kg)
2017 ESW-6 @ 18'	7/5/2017	18'	In-Situ	<0.00105	<0.00211	<0.00105	<0.00211	<0.00211	<26.3	<26.3	<26.3	<26.3
2017 ESW-7 @ 18'	7/5/2017	18'	In-Situ	<0.00123	<0.00247	<0.00123	<0.00247	<0.00247	<30.9	<30.9	<30.9	<30.9
2017 NSW-1 @ 18'	7/5/2017	18'	In-Situ	<0.00128	<0.00256	<0.00128	<0.00256	<0.00256	<32.1	<32.1	<32.1	<32.1
2017 NSW-2 @ 18'	7/5/2017	18'	In-Situ	<0.00106	<0.00213	<0.00106	<0.00213	<0.00213	<26.6	<26.6	<26.6	<26.6
2017 NSW-3 @ 18'	7/5/2017	18'	In-Situ	<0.00114	<0.00227	<0.00114	<0.00227	<0.00227	<28.4	<28.4	<28.4	<28.4
2018 SP-35	11/27/2018	-	Hauled	<0.00109	<0.0109	<0.00543	<0.0217	<0.0217	<27.2	261	96.5	358
2019 SP-36	5/14/2019	-	Stockpiled	<0.0233	<0.0233	<0.0233	<0.0465	<0.0465	<29.1	<29.1	<29.1	<29.1
2019 SP-37	5/14/2019	-	Stockpiled	<0.0227	<0.0227	<0.0227	<0.0455	<0.0455	<28.4	<28.4	<28.4	<28.4
2019 SP-38	5/14/2019	-	Stockpiled	<0.0227	<0.0227	<0.0227	<0.0455	<0.0455	<28.4	<28.4	<28.4	<28.4
2019 SP-39	5/14/2019	-	Stockpiled	<0.0208	<0.0208	<0.0208	<0.0417	<0.0417	<26.0	<26.0	<26.0	<26.0
2019 SP-40	5/14/2019	-	Stockpiled	<0.0208	<0.0208	<0.0208	<0.0417	<0.0417	<26.0	<26.0	<26.0	<26.0
2019 SP-41	5/14/2019	-	Stockpiled	<0.0222	<0.0222	<0.0222	0.0444	<0.0444	<27.8	<27.8	<27.8	<27.8
2019 SP-42	6/10/2019	-	Stockpiled	<0.00101	<0.00101	<0.00101	<0.00202	<0.00202	<25.3	<25.3	<25.3	<25.3
2019-SP-43	6/10/2019	-	Stockpiled	<0.00114	<0.00114	<0.00114	<0.00227	<0.00227	<28.4	<28.4	<28.4	<28.4
2019-SP-44	6/24/2019	-	Stockpiled	<0.00100	<0.00100	<0.00100	<0.00200	<0.00200	<26.9	<26.9	<26.9	<26.9
2019-SP-45	6/24/2019	-	Stockpiled	<0.00100	<0.00100	<0.00100	<0.00200	<0.00200	<26.9	<26.9	<26.9	<26.9
2019-SP-46	6/27/2019	-	Stockpiled	<0.00100	<0.00100	<0.00100	<0.00200	<0.00200	<26.9	<26.9	<26.9	<26.9
2019-SP-47	6/27/2019	-	Stockpiled	<0.00100	<0.00100	<0.00100	<0.00200	<0.00200	<26.0	<26.0	<26.0	<26.0
2019-SP-48	6/27/2019	-	Stockpiled	<0.00100	<0.00100	<0.00100	<0.00200	<0.00200	<27.8	<27.8	<27.8	<27.8
2019-SP-49	7/25/2019	-	Stockpiled	<0.00114	<0.00114	<0.00114	<0.00227	<0.00227	<28.4	<28.4	<28.4	<28.4
2019-SP-50	7/25/2019	-	Stockpiled	<0.00108	<0.00108	<0.00108	<0.00215	<0.00215	<26.9	<26.9	<26.9	<26.9
2019-SP-51	7/25/2019	-	Stockpiled	<0.00108	<0.00108	<0.00108	<0.00215	<0.00215	<26.9	<26.9	<26.9	<26.9
2019-SP-52	7/25/2019	-	Stockpiled	<0.00108	<0.00108	<0.00108	<0.00215	<0.00215	<26.9	<26.9	<26.9	<26.9
2019-SP-53	7/25/2019	-	Stockpiled	<0.00109	<0.00109	<0.00109	<0.00217	<0.00217	<27.2	<27.2	<27.2	<27.2
2019-SP-54	7/25/2019	-	Stockpiled	<0.00110	<0.00110	<0.00110	<0.00220	<0.00220	<27.5	<27.5	<27.5	<27.5
2019-SP-55	7/25/2019	-	Stockpiled	<0.00109	<0.00109	<0.00109	<0.00217	<0.00217	<27.2	<27.2	<27.2	<27.2
2019-SP-56	7/25/2019	-	Stockpiled	<0.00106	<0.00106	<0.00106	<0.00213	<0.00213	<26.6	<26.6	<26.6	<26.6
2019-SP-57	7/30/2019	-	Stockpiled	<0.00114	<0.00114	<0.00114	<0.00227	<0.00227	<28.4	<28.4	<28.4	<28.4
2019 ESW-1 @ 19'	8/12/2019	19'	In-Situ	<0.00109	<0.00109	<0.00109	<0.00217	<0.00217	<27.2	<27.2	<27.2	<27.2
2019 SSW-1 @ 19'	8/12/2019	19'	In-Situ	<0.00108	<0.00108	<0.00108	<0.00215	<0.00215	<26.9	<26.9	<26.9	<26.9
2019 SSW-2 @ 19'	8/12/2019	19'	In-Situ	<0.00110	<0.00110	<0.00110	<0.00220	<0.00220	<27.5	<27.5	<27.5	<27.5
2019 ESW-2 @ 19'	8/14/2019	19'	In-Situ	<0.00118	<0.00118	<0.00118	<0.00235	<0.00235	<29.4	<29.4	<29.4	<29.4

**TABLE 2**  
**CONCENTRATIONS OF BTEX AND TPH IN SOIL**

**MONUMENT #18**  
**PLAINS PIPELINE, L.P.**  
**LEA COUNTY, NM**  
**NMOCD Reference # 1RP-0124**  
**PLAINS SRS NUMBER: TNM MONUMENT 18-KNOWN**

SAMPLE LOCATION	SAMPLE DATE	SAMPLE DEPTH (feet)	SOIL STATUS	Methods: EPA SW 846-8021B, 5030					Methods:			
				BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	m,p,o-XYLENE (mg/kg)	TOTAL BTEX (mg/kg)	EPA SW 846-8015M or 418.1			
									GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total TPH (mg/kg)
2019-SP-58	8/14/2019	-	Hauled	<0.0244	0.698	1.49	6.009	8.197	1880	7690	1490	11,060
2020-WSW-1 @ 18'	1/14/2020	18'	In-Situ	<0.00111	<0.00111	<0.00111	<0.00222	<0.00222	<27.8	<27.8	<27.8	<27.8
2020-WSW-2 @ 18'	1/14/2020	18'	In-Situ	<0.00109	<0.00109	<0.00109	<0.00217	<0.00217	<27.2	<27.2	<27.2	<27.2



## Appendices

# Appendix A

## Photographic Documentation



## Photographic Documentation

Client: Plains Pipeline, L.P.  
Project Name: Monument 18

Prepared by: TRC Environmental Corporation  
Location: Lea County, New Mexico

### Photograph No. 1

Date:  
October 6, 2013

Direction:  
Looking west

Description:  
Initial excavation  
activities.  
ET/SUGS Pipeline  
on pipe stands and  
plug for support.  
Monitor well MW-3  
right of power pole  
at middle of photo.





## Photographic Documentation

Client: Plains Pipeline, L.P.  
Project Name: Monument 18

Prepared by: TRC Environmental Corporation  
Location: Lea County, New Mexico

### Photograph No. 2

Date:  
October 6, 2013

Direction:  
Looking southwest

Description:  
Initial excavation activities. South Trench located at bottom left of photo. ET/SUGS pipeline on pipestand at upper right of photo.







## Photographic Documentation

Client: Plains Pipeline, L.P.  
Project Name: Monument 18

Prepared by: TRC Environmental Corporation  
Location: Lea County, New Mexico

### Photograph No. 3

Date:  
October 7, 2013

Direction:  
Looking northwest

Description:  
Excavation  
activities in  
progress.  
Abandoned  
storage tank and  
unlined production  
pit on west side of  
Maddox Road at  
photo center.  
Monitor well MW-7  
at photo center.





## Photographic Documentation

Client: Plains Pipeline, L.P.  
Project Name: Monument 18

Prepared by: TRC Environmental Corporation  
Location: Lea County, New Mexico

### Photograph No. 4

Date:  
April 26, 2017

Direction:  
Looking northeast

Description:  
Excavation  
activities in  
progress.







## Photographic Documentation

Client: Plains Pipeline, L.P.  
Project Name: Monument 18

Prepared by: TRC Environmental Corporation  
Location: Lea County, New Mexico

### Photograph No. 5

**Date:**  
May 22, 2017

**Direction:**  
Looking northwest

**Description:**  
Excavation  
activities in  
progress.





## Photographic Documentation

Client: Plains Pipeline, L.P.  
Project Name: Monument 18

Prepared by: TRC Environmental Corporation  
Location: Lea County, New Mexico

### Photograph No. 6

Date:  
June 17, 2017

Direction:  
Looking north

Description:  
Excavation in  
progress. PSH and  
water recovery in  
progress.







## Photographic Documentation

Client: Plains Pipeline, L.P.  
Project Name: Monument 18

Prepared by: TRC Environmental Corporation  
Location: Lea County, New Mexico

### Photograph No. 7

**Date:**  
February 21, 2018

**Direction:**  
Looking southwest

**Description:**  
Backfill activities  
in progress.





## Photographic Documentation

Client: Plains Pipeline, L.P.  
Project Name: Monument 18

Prepared by: TRC Environmental Corporation  
Location: Lea County, New Mexico

### Photograph No. 8

Date:  
August 5, 2019

Direction:  
Looking north

Description:  
Backfill and  
excavation  
activities in  
progress. Monitor  
wells MW-4 and  
MW-7 at photo  
right.







## Photographic Documentation

Client: Plains Pipeline, L.P.  
Project Name: Monument 18

Prepared by: TRC Environmental Corporation  
Location: Lea County, New Mexico

### Photograph No. 9

Date:  
August 28, 2019

Direction:  
Looking south

Description:  
Backfill activities  
in progress.  
Monitor wells MW-  
7 and MW-4 at  
photo left.







## Photographic Documentation

Client: Plains Pipeline, L.P.  
Project Name: Monument 18

Prepared by: TRC Environmental Corporation  
Location: Lea County, New Mexico

### Photograph No. 10

**Date:**  
October 28, 2019

**Direction:**  
Looking southwest

**Description:**  
Backfill activities  
in progress.







## Photographic Documentation

Client: Plains Pipeline, L.P.  
Project Name: Monument 18

Prepared by: TRC Environmental Corporation  
Location: Lea County, New Mexico

### Photograph No. 11

**Date:**  
January 21, 2020

**Direction:**  
Looking southwest

**Description:**  
Backfill activities  
in progress.



## Appendix B

### NMOCD and NMED Correspondence

Tomás 'Doc' Oberding PhD  
 Hydrologist, Adv-District 1  
 Oil Conservation Division, EMNRD  
 (505) 476-3403  
 E-Mail: [tomas.oberding@state.nm.us](mailto:tomas.oberding@state.nm.us)  
 一期一会

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

**From:** Camille J Bryant [mailto:CJBryant@paalp.com]  
**Sent:** Monday, January 30, 2017 7:28 AM  
**To:** Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>  
**Cc:** Jeffrey P Dann <jpdann@paalp.com>; 'Stanley, Curtis D.' <CDStanley@trcsolutions.com>  
**Subject:** FW: Plains Monument 18 Release Site Addendum

Tomas,

Pursuant to our conversation on Friday, January 27, 2017, please find the attached Plains Marketing, L.P. *Addendum to the Interim Remediation Summary and Revised Proposed Soil Closure Strategy* (Workplan) for the TNM Monument 18 Release Site (NMOCD Ref.#1R-0124). At this time, Plains respectfully requests NMOCD approval to amend the attached Workplan:

Page 2 of the Workplan details the installation of a liner installed above the gravel or equivalent material. Plains is requesting NMOCD approval to place washed caliche on the floor of the excavation, the remaining portion of the excavation will be backfilled with caliche purchased from the landowner. The upper portion of the excavation will be backfilled with soil deemed suitable by the landowner.

Please contact me with any questions or concerns.

Respectfully,

**Camille J. Bryant**  
 Remediation Coordinator  
 Plains All American  
 2530 State Highway 214  
 Denver City, Texas 79323  
 Office: 806.592.2555  
 Cell: 575.441.1099  
 Fax: 806.592.7479  
 Email: [cjbryant@paalp.com](mailto:cjbryant@paalp.com)

---

**From:** Camille J Bryant  
**Sent:** Monday, October 31, 2016 2:19 PM  
**To:** Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us> (Tomas.Oberding@state.nm.us)  
**Subject:** Plains Monument 18 Release Site Addendum

Tomas;

Please find attached the Plains Marketing, L.P. Addendum to the Interim Remediation Summary and Revised Proposed Soil Closure Strategy, dated October 31, 2016, for the TNM Monument 18 Release Site (NMOCD Ref. # 1R-0124). This Addendum describes proposed remediation activities to be conducted at the site. With NMOCD approval, Plains will commence with the described activities.

---

Please contact me with any questions or concerns.

Respectfully submitted,

**Camille J. Bryant**

Remediation Coordinator  
Plains All American  
2530 State Highway 214  
Denver City, Texas 79323  
Office: 806.592.2555  
Cell: 575.441.1099  
Fax: 806.592.7479

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**Stanley, Curtis D.**

**From:** Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>  
**Sent:** Monday, July 31, 2017 12:07 PM  
**To:** Camille J Bryant  
**Cc:** Jeffrey P Dann; Stanley, Curtis D.  
**Subject:** RE: Plains Monument 18 Release Site Addendum

Aloha Camille et al,

Thank you for the updates and the conversation this morning.

As per the conversation the OCD approves work described below for this site.

Please keep us informed.

Mahalo

-Doc

Tomáš 'Doc' Oberding PhD  
 Hydrologist, Adv-District 1  
 Oil Conservation Division, EMNRD  
 (505) 476-3403  
 E-Mail: [tomas.oberding@state.nm.us](mailto:tomas.oberding@state.nm.us)  
 一期一会

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

**From:** Camille J Bryant [mailto:CJBryant@paalp.com]  
**Sent:** Monday, July 31, 2017 10:19 AM  
**To:** Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>  
**Cc:** Jeffrey P Dann <jpdann@paalp.com>; 'Stanley, Curtis D.' <CDStanley@trcsolutions.com>  
**Subject:** RE: Plains Monument 18 Release Site Addendum

Tomas,

As per our phone conversation on Monday, July 31, 2017, Plains requested and received NMOCD approval to modify the current Monument 18 (1R-124) Workplan. Plains previously requested NMOCD approval to place washed caliche on the floor of the excavation and install a liner above the washed caliche. As a modification to the existing Workplan, Plains will be backfilling the north and east quadrants of the existing excavation with non-impacted locally purchased soil or overburden soil deemed suitable by analysis for backfill. The existing excavation will be backfilled to approximately fifteen (15) to eighteen (18) below ground surface (bgs). The Landowner (Jimmie Cooper) gave Plains verbal approval to proceed with these activities on Tuesday, July 25, 2017.

On NMOCD approval Plains will commence with backfilling activities of the northern and eastern quadrants of the excavation.

Please contact me with any questions or concerns.

Respectfully,

**Camille J. Bryant**  
Remediation Coordinator  
Plains All American  
577 US Highway 385 North  
Seminole, Texas 79360  
Office: 432.758.8139  
Cell: 575.441.1099

---

**From:** Oberding, Tomas, EMNRD [<mailto:Tomas.Oberding@state.nm.us>]  
**Sent:** Tuesday, February 07, 2017 9:24 AM  
**To:** Camille J Bryant  
**Cc:** Jeffrey P Dann; 'Stanley, Curtis D.'  
**Subject:** RE: Plains Monument 18 Release Site Addendum [External]

Ms. Bryant,

Thank you for the patience.  
The OCD approves the additional work as described.  
Please keep me informed.  
Mahalo  
-Doc

Tomáš 'Doc' Oberding PhD  
Hydrologist, Adv-District 1  
Oil Conservation Division, EMNRD  
(505) 476-3403  
E-Mail: [tomas.oberding@state.nm.us](mailto:tomas.oberding@state.nm.us)  
一期一会

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

**From:** Camille J Bryant [<mailto:CJBryant@paalp.com>]  
**Sent:** Monday, January 30, 2017 7:28 AM  
**To:** Oberding, Tomas, EMNRD <[Tomas.Oberding@state.nm.us](mailto:Tomas.Oberding@state.nm.us)>  
**Cc:** Jeffrey P Dann <[jpdann@paalp.com](mailto:jpdann@paalp.com)>; 'Stanley, Curtis D.' <[CDStanley@trcsolutions.com](mailto:CDStanley@trcsolutions.com)>  
**Subject:** FW: Plains Monument 18 Release Site Addendum

Tomas,

Pursuant to our conversation on Friday, January 27, 2017, please find the attached Plains Marketing, L.P. *Addendum to the Interim Remediation Summary and Revised Proposed Soil Closure Strategy (Workplan)* for the TNM Monument 18 Release Site (NMOCD Ref.#1R-0124). At this time, Plains respectfully requests NMOCD approval to amend the attached Workplan:

Page 2 of the Workplan details the installation of a liner installed above the gravel or equivalent material. Plains is requesting NMOCD approval to place washed caliche on the floor of the excavation, the remaining portion of the excavation will be backfilled with caliche purchased from the landowner. The upper portion of the excavation will be backfilled with soil deemed suitable by the landowner.

Please contact me with any questions or concerns.

Respectfully,

**Camille J. Bryant**

Remediation Coordinator  
Plains All American  
2530 State Highway 214  
Denver City, Texas 79323  
Office: 806.592.2555  
Cell: 575.441.1099  
Fax: 806.592.7479  
Email: [cjbryant@paalp.com](mailto:cjbryant@paalp.com)

---

**From:** Camille J Bryant

**Sent:** Monday, October 31, 2016 2:19 PM

**To:** Oberding, Tomas, EMNRD <[Tomas.Oberding@state.nm.us](mailto:Tomas.Oberding@state.nm.us)> ([Tomas.Oberding@state.nm.us](mailto:Tomas.Oberding@state.nm.us))

**Subject:** Plains Monument 18 Release Site Addendum

Tomas;

Please find attached the Plains Marketing, L.P. Addendum to the Interim Remediation Summary and Revised Proposed Soil Closure Strategy, dated October 31, 2016, for the TNM Monument 18 Release Site (NMOCD Ref. # 1R-0124). This Addendum describes proposed remediation activities to be conducted at the site. With NMOCD approval, Plains will commence with the described activities.

Please contact me with any questions or concerns.

Respectfully submitted,

**Camille J. Bryant**

Remediation Coordinator  
Plains All American  
2530 State Highway 214  
Denver City, Texas 79323  
Office: 806.592.2555  
Cell: 575.441.1099  
Fax: 806.592.7479

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**Stanley, Curtis D.**

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**From:** Camille J Bryant <CJBryant@paalp.com>  
**Sent:** Monday, February 13, 2017 10:55 AM  
**To:** Stanley, Curtis D.  
**Subject:** FW: Plains Monument 18 Release Site Addendum

---

**From:** Oberding, Tomas, EMNRD [mailto:Tomas.Oberding@state.nm.us]  
**Sent:** Tuesday, February 07, 2017 9:24 AM  
**To:** Camille J Bryant  
**Cc:** Jeffrey P Dann; 'Stanley, Curtis D.'  
**Subject:** RE: Plains Monument 18 Release Site Addendum [External]

Ms. Bryant,

Thank you for the patience.  
 The OCD approves the additional work as described.  
 Please keep me informed.  
 Mahalo  
 -Doc

Tomáš 'Doc' Oberding PhD  
 Hydrologist, Adv-District 1  
 Oil Conservation Division, EMNRD  
 (505) 476-3403  
 E-Mail: [tomas.oberding@state.nm.us](mailto:tomas.oberding@state.nm.us)  
 一期一会

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

**From:** Camille J Bryant [mailto:CJBryant@paalp.com]  
**Sent:** Monday, January 30, 2017 7:28 AM  
**To:** Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>  
**Cc:** Jeffrey P Dann <jpdann@paalp.com>; 'Stanley, Curtis D.' <CDStanley@trcsolutions.com>  
**Subject:** FW: Plains Monument 18 Release Site Addendum

Tomas,

Pursuant to our conversation on Friday, January 27, 2017, please find the attached Plains Marketing, L.P. *Addendum to the Interim Remediation Summary and Revised Proposed Soil Closure Strategy (Workplan)* for the TNM Monument 18 Release Site (NMOCD Ref.#1R-0124). At this time, Plains respectfully requests NMOCD approval to amend the attached Workplan:

Page 2 of the Workplan details the installation of a liner installed above the gravel or equivalent material. Plains is requesting NMOCD approval to place washed caliche on the floor of the excavation, the remaining portion of



the excavation will be backfilled with caliche purchased from the landowner. The upper portion of the excavation will be backfilled with soil deemed suitable by the landowner.

Please contact me with any questions or concerns.

Respectfully,

---

**Camille J. Bryant**

Remediation Coordinator  
Plains All American  
2530 State Highway 214  
Denver City, Texas 79323  
Office: 806.592.2555  
Cell: 575.441.1099  
Fax: 806.592.7479  
Email: [cjbryant@paalp.com](mailto:cjbryant@paalp.com)

---

**From:** Camille J Bryant

**Sent:** Monday, October 31, 2016 2:19 PM

**To:** Oberding, Tomas, EMNRD <[Tomas.Oberding@state.nm.us](mailto:Tomas.Oberding@state.nm.us)> ([Tomas.Oberding@state.nm.us](mailto:Tomas.Oberding@state.nm.us))

**Subject:** Plains Monument 18 Release Site Addendum

Tomas;

Please find attached the Plains Marketing, L.P. Addendum to the Interim Remediation Summary and Revised Proposed Soil Closure Strategy, dated October 31, 2016, for the TNM Monument 18 Release Site (NMOCD Ref. # 1R-0124). This Addendum describes proposed remediation activities to be conducted at the site. With NMOCD approval, Plains will commence with the described activities.

Please contact me with any questions or concerns.

Respectfully submitted,

**Camille J. Bryant**

Remediation Coordinator  
Plains All American  
2530 State Highway 214  
Denver City, Texas 79323  
Office: 806.592.2555  
Cell: 575.441.1099  
Fax: 806.592.7479

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**Oberding, Tomas, EMNRD**

---

**From:** Oberding, Tomas, EMNRD  
**Sent:** Monday, January 30, 2017 8:20 AM  
**To:** Camille J Bryant  
**Cc:** Jeffrey P Dann; 'Stanley, Curtis D.'  
**Subject:** RE: Plains Monument 18 Release Site Addendum

Aloha Camille et al,

Thank you for the update on the situation at this site.  
 The OCD does not stand in opposition to the amendment.

Please keep us informed.  
 Mahalo  
 -Doc

Tomáš 'Doc' Oberding PhD  
 Hydrologist, Adv-District 1  
 Oil Conservation Division, EMNRD  
 (505) 476-3403  
 E-Mail: [tomas.oberding@state.nm.us](mailto:tomas.oberding@state.nm.us)

一期一会

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

**From:** Camille J Bryant [mailto:CJBryant@paalp.com]  
**Sent:** Monday, January 30, 2017 7:28 AM  
**To:** Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>  
**Cc:** Jeffrey P Dann <jpdann@paalp.com>; 'Stanley, Curtis D.' <CDStanley@trcsolutions.com>  
**Subject:** FW: Plains Monument 18 Release Site Addendum

Tomas,

Pursuant to our conversation on Friday, January 27, 2017, please find the attached Plains Marketing, L.P. *Addendum to the Interim Remediation Summary and Revised Proposed Soil Closure Strategy (Workplan)* for the TNM Monument 18 Release Site (NMOCD Ref.#1R-0124). At this time, Plains respectfully requests NMOCD approval to amend the attached Workplan:

Page 2 of the Workplan details the installation of a liner installed above the gravel or equivalent material. Plains is requesting NMOCD approval to place washed caliche on the floor of the excavation, the remaining portion of the excavation will be backfilled with caliche purchased from the landowner. The upper portion of the excavation will be backfilled with soil deemed suitable by the landowner.

Please contact me with any questions or concerns.

Respectfully,

**Camille J. Bryant**  
Remediation Coordinator  
Plains All American  
2530 State Highway 214  
Denver City, Texas 79323  
Office: 806.592.2555  
Cell: 575.441.1099  
Fax: 806.592.7479  
Email: [cjbryant@paalp.com](mailto:cjbryant@paalp.com)

---

**From:** Camille J Bryant  
**Sent:** Monday, October 31, 2016 2:19 PM  
**To:** Oberding, Tomas, EMNRD <[Tomas.Oberding@state.nm.us](mailto:Tomas.Oberding@state.nm.us)> ([Tomas.Oberding@state.nm.us](mailto:Tomas.Oberding@state.nm.us))  
**Subject:** Plains Monument 18 Release Site Addendum

Tomas;

Please find attached the Plains Marketing, L.P. Addendum to the Interim Remediation Summary and Revised Proposed Soil Closure Strategy, dated October 31, 2016, for the TNM Monument 18 Release Site (NMOCD Ref. # 1R-0124). This Addendum describes proposed remediation activities to be conducted at the site. With NMOCD approval, Plains will commence with the described activities.

Please contact me with any questions or concerns.

Respectfully submitted,

**Camille J. Bryant**  
Remediation Coordinator  
Plains All American  
2530 State Highway 214  
Denver City, Texas 79323  
Office: 806.592.2555  
Cell: 575.441.1099  
Fax: 806.592.7479

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**Stanley, Curtis D.**

---

**From:** Camille J Bryant <CJBryant@paalp.com>  
**Sent:** Tuesday, November 03, 2015 12:48 PM  
**To:** Stanley, Curtis D.  
**Subject:** FW: Plains Monument 18 Release Site 1R-123

See below

**From:** Oberding, Tomas, EMNRD [mailto:Tomas.Oberding@state.nm.us]  
**Sent:** Tuesday, November 03, 2015 9:23 AM  
**To:** Camille J Bryant  
**Subject:** RE: Plains Monument 18 Release Site 1R-123

Aloha Camille,

Thank you for the updates on this site. After review of the documentation, the OCD approves the plan as written in the revision date may 6, 2015.

Please keep me updated as the situation warrants.

Mahalo

-Doc

Tomáš 'Doc' Oberding PhD  
Hydrologist, Adv-District 1  
Oil Conservation Division, EMNRD  
(505) 476-3403  
E-Mail: [tomas.oberding@state.nm.us](mailto:tomas.oberding@state.nm.us)  
一期一会

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

**From:** Camille J Bryant [mailto:CJBryant@paalp.com]  
**Sent:** Thursday, October 29, 2015 1:24 PM  
**To:** Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>  
**Subject:** Plains Monument 18 Release Site 1R-123

Tomas,

Please find attached, for your review, the Interim Remediation Summary and Revised Proposed Soil Closure Strategy for the Plains Monument 18 Release Site 1R-123. This report documents activities to be conducted to progress the site towards and NMOCD approved closure. Please contact me with any questions.

Respectfully submitted,

**Camille J. Bryant**  
Remediation Coordinator  
Plains All American

2530 State Highway 214  
Denver City, Texas 79323  
Office: 806.592.2555  
Cell: 575.441.1099  
Fax: 806.592.7479  
Email: [cjbryant@paalp.com](mailto:cjbryant@paalp.com)

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**Camille Bryant**

**From:** Jeffrey P Dann <jpdann@paalp.com>  
**Sent:** Friday, September 06, 2013 9:50 AM  
**To:** 'Camille Bryant'  
**Subject:** FW: Proposed Actions Approval (1R-124) - Plains Monument 18 Release Site

See below

**Jeffrey P. Dann, P.G.**

Senior Environmental Remediation and Compliance Specialist  
 Plains All American Pipeline, L.P.  
 333 Clay Street, Suite 1600  
 Houston, TX 77002  
 office - 713-646-4657  
 fax - 713-646-4310  
 cell - 713-201-3548  
 email - [jpdann@paalp.com](mailto:jpdann@paalp.com)

**From:** Hansen, Edward J., EMNRD [<mailto:edwardj.hansen@state.nm.us>]  
**Sent:** Monday, April 22, 2013 9:42 AM  
**To:** Jason Henry  
**Cc:** Leking, Geoffrey R, EMNRD; Jeffrey P Dann  
**Subject:** Proposed Actions Approval (1R-124) - Plains Monument 18 Release Site

**RE: Remediation Summary and Proposed Soil Closure Strategy  
 for the Plains Marketing's  
 Monument 18 Release Site (1R-124)  
 Unit D, Section 7, T20S, R37E, NMPM, Lea County, New Mexico  
 Proposed Actions Approval**

Dear Mr. Henry:

The New Mexico Oil Conservation Division (OCD) has received the Remediation Summary and Proposed Soil Closure Strategy (including Proposed Actions) for the Monument 18 Release Site, dated March 2013, and has conducted a review of the Proposed Actions. The Proposed Actions indicate that Plains Marketing (Plains) has partially met the requirements of 19.15.29 NMAC (Rule 29; formerly, Rule 116) for a remediation plan. Therefore, the OCD hereby conditionally approves the Proposed Actions as specified for above-referenced site in accordance with 19.15.29 NMAC:

Plains must follow OCD Guidance (1993) for Remediation of Leaks, Spills and Releases.

Plains must obtain OCD approval prior to backfilling the excavation at the site.

Plains must submit to the OCD a report of the corrective actions within 180 days.

Please be advised that OCD approval of this plan does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD

approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen  
Hydrologist  
Environmental Bureau

---



August 16, 1991

Dear Sir:

This letter is to inform you of Climax Chemical Company's petition to the New Mexico Environment Department's Hazardous and Radioactive Materials Bureau (HRMB) requesting Alternate Concentration Limits for hazardous constituents present in the groundwater below the Climax Chemical facility west of Monument, New Mexico. Groundwater samples taken from the upper-most aquifer below Climax Chemical Company's Monument, New Mexico plant contain Cadmium, Silver, 1,1,1, Trichloroethylene and Ethylene Dichloride in concentrations above the safe drinking water standards. Climax Chemical has provided evidence that Alternate Concentration Limits should be granted because the contamination does not pose a threat to human health or the environment. The requested limits are above the safe drinking water standard and could pose a danger to human health should individuals drink, eat or inhale significant amounts of contaminated water or soils. The health of individuals who do not intend to use the groundwater or come in contact with it would not be threatened.

Climax Chemical Company's Monument, New Mexico plant is located three miles west of Monument, New Mexico in Lea County. The plant is a producer of hydrochloric acid and sodium sulfate. Immediately adjacent to and downgradient of Climax Chemical is the Warren Petroleum Company (Chevron) refinery. The upper-most aquifer beneath the refinery has been significantly impacted by hydrocarbon contamination. Due to past oil-field brine contamination of this same aquifer the Oil Conservation Division (OCD) of the New Mexico Energy Minerals and Natural Resources Department is only requiring the refinery to recover hydrocarbon product floating on top of the groundwater within the aquifer.

Climax Chemical Company's argument for granting the Alternate Concentration Limits is: "the water downgradient from Climax Chemical has been contaminated beyond usability by the petroleum industry through brine disposal and hydrocarbon leakage. The addition of Heavy Metal and Volatile Organic contamination above the safe drinking water standard as the Climax plume moves through this area will not adversely affect the usability of the aquifer, since it is already unusable without the effect of Climax's constituents."

At this time the HRMB has no evidence that landowners are using groundwater from the contaminated aquifer. Should you now be using or anticipate using groundwater from the upper-most aquifer beneath your property and have questions or comments concerning the petition for granting of Climax Chemical Company's petition request for Alternate Concentration Limits please contact Steve Alexander



at 827-2929 or write: New Mexico Environment Department, Hazardous and Radioactive Materials Bureau, 1190 Saint Francis Drive, P.O. Box 26110, Santa Fe, New Mexico, 87502, Attention: Steve Alexander. Please respond within thirty (30) days following receipt of this notification.

Sincerely,

Steven M. Alexander, Water Resources Specialist  
Hazardous and Radioactive Materials Bureau  
New Mexico Environment Department

## Appendix C

# Laboratory Analytical Reports


**CERTIFICATE OF ANALYSIS SUMMARY 1-70588**

**K.E.I. Consultants, Inc.**  
**Project Name: TNMPL Monument**

Project ID: 610057-02-18  
 Project Manager: Ann Baker  
 Project Location: Site 18

Date Received in Lab: Mar 11, 1997 10:30 by RT  
 Date Report Faxed: Mar 27, 1997

**XENCO contact:** Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID:	170588-001	170588-002	170588-003	170588-004		
	Field ID:	B18-1	B18-1	B18-1	B18-1		
	Depth:	1-2'	5-6'	14-15'	34-35'		
<b>BTEX Analyzed by EPA 8020</b>		Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)					
		Mar 12, 1997	Mar 12, 1997	Mar 13, 1997	Mar 12, 1997		
Benzene		< 0.050	< 0.20	< 0.20	< 0.050		
Toluene		0.348	4.82	1.92	< 0.050		
Ethylbenzene		0.865	< 0.20	0.92	< 0.050		
m,p-Xylenes		< 0.100	12.46	8.64	< 0.100		
o-Xylene		< 0.050	< 0.20	< 0.20	< 0.050		
Total BTEX		1.213	17.28	11.48	< 0.300		
<b>SPLP Volatiles by 1312/8260</b>		Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)					
		Mar 24, 1997					
Benzene		< 0.025					
Bromobenzene		< 0.025					
Bromodichloromethane		< 0.025					
Bromoform		< 0.025					
Bromomethane		< 0.025					
n-Butylbenzene		< 0.025					
sec-Butylbenzene		< 0.025					
tert-Butylbenzene		< 0.025					
Carbon Tetrachloride		< 0.025					
Chloroethane		< 0.050					
Chloroform		< 0.025					
Chloromethane		< 0.050					
2-Chlorotoluene		< 0.025					
4-Chlorotoluene		< 0.025					
1,2-Dibromo-3-chloropropane		< 0.025					
Dibromochloromethane		< 0.025					
1,2-Dibromoethane		< 0.025					

This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc..

The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories. Xenco Laboratories, however, assumes no responsibility and makes no warranty to the end use of the data hereby presented.

Edward Yonemoto, Ph.D.  
 QA/QC Manager

Page 74 of 613  
Received by 6/8/2021 12:12:24 PM  
Released to Imaging: 6/8/2021 2:45:07 PM



# CERTIFICATE OF ANALYSIS SUMMARY 1-70588

K.E.I. Consultants, Inc.  
Project Name: TNMPL Monument

Project ID: 610057-02-18  
Project Manager: Ann Baker  
Project Location: Site 18

Date Received in Lab: Mar 11, 1997 10:30 by RT  
Date Report Faxed: Mar 27, 1997

XENCO contact: Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID:	170588-001	170588-002	170588-003	170588-004		
	Field ID:	B18-1	B18-1	B18-1	B18-1		
	Depth:	1-2'	5-6'	14-15'	34-35'		
Dibromomethane			< 0.025				
1,2-Dichlorobenzene			< 0.025				
1,3-Dichlorobenzene			< 0.025				
1,4-Dichlorobenzene			< 0.025				
Dichlorodifluoromethane			< 0.025				
1,1-Dichloroethane			< 0.025				
1,2-Dichloroethane			< 0.025				
1,1-Dichloroethene			< 0.025				
cis-1,2-Dichloroethene			< 0.025				
trans-1,2-Dichloroethene			< 0.025				
1,2-Dichloropropane			< 0.025				
1,3-Dichloropropane			< 0.025				
2,2-Dichloropropane			< 0.025				
1,1-Dichloropropene			< 0.025				
Ethylbenzene			< 0.025				
Hexachlorobutadiene			< 0.025				
Isopropylbenzene			< 0.025				
p-Isopropyltoluene			< 0.025				
Methylene chloride			< 0.025				
Naphthalene			< 0.025				
n-Propylbenzene			< 0.025				
Styrene			< 0.025				
1,1,1,2-Tetrachloroethane			< 0.025				
1,1,2,2-Tetrachloroethane			< 0.025				
Tetrachloroethene			< 0.025				
Toluene			< 0.025				
1,2,3-Trichlorobenzene			< 0.025				
1,2,4-Trichlorobenzene			< 0.025				

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Edward H. Yonemoto, Ph.D.  
QA/QC Manager





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**K.E.I. Consultants, Inc.**  
**Project Name: TNMPL Monument**

Project ID: 610057-02-18  
 Project Manager: Ann Baker  
 Project Location: Site 18

Date Received in Lab: Mar 11, 1997 10:30 by RT  
 Date Report Faxed: Mar 27, 1997

**XENCO contact:** Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID:	170588-001	170588-002	170588-003	170588-004		
	Field ID:	B18-1	B18-1	B18-1	B18-1		
	Depth:	1-2'	5-6'	14-15'	34-35'		
1,1,1-Trichloroethane			< 0.025				
1,1,2-Trichloroethane			< 0.025				
Trichloroethene			< 0.025				
Trichlorofluoromethane			< 0.025				
1,2,3-Trichloropropane			< 0.025				
1,2,4-Trimethylbenzene			0.086				
1,3,5-Trimethylbenzene			0.043				
Vinyl chloride			< 0.025				
o-Xylene			< 0.025				
m,p-Xylenes			0.029				
Bromochloromethane			< 0.025				
Chlorobenzene			< 0.025				
MTBE			< 0.050				
SPLP Semivolatiles by 1312/8270		Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)					
			Mar 21, 1997				
Acenaphthene			< 0.028				
Acenaphthylene			< 0.028				
Anthracene			< 0.028				
Benzo[a]anthracene			< 0.028				
Benzo[a]pyrene			< 0.028				
Benzo[b]fluoranthene			< 0.028				
Benzo[ghi]perylene			< 0.028				
Benzo[k]fluoranthene			< 0.028				
Butyl benzyl phthalate			< 0.028				
Carbazole			< 0.028				
4-Chloroaniline			< 0.028				

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Edward K. Yonemoto, Ph.D.  
 QA/QC Manager

Page 76 of 613  
Received by GEM 6/8/2021 12:11:00 PM  
Released to Imaging: 6/8/2021 2:45:07 PM



# CERTIFICATE OF ANALYSIS SUMMARY 1-70588

K.E.I. Consultants, Inc.  
Project Name: TNMPL Monument

Project ID: 610057-02-18  
Project Manager: Ann Baker  
Project Location: Site 18

Date Received in Lab: Mar 11, 1997 10:30 by RT  
Date Report Faxed: Mar 27, 1997

XENCO contact: Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID:	170588-001	170588-002	170588-003	170588-004		
	Field ID:	B18-1	B18-1	B18-1	B18-1		
	Depth:	1-2'	5-6'	14-15'	34-35'		
bis [2-Chloroethoxy] methane			< 0.028				
bis [2-Chloroethyl] ether			< 0.028				
bis [2-Chloroisopropyl] ether			< 0.028				
2-Chloronaphthalene			< 0.028				
2-Chlorophenol			< 0.028				
4-Chlorophenyl-phenyl ether			< 0.028				
Chrysene			< 0.028				
Dibenzofuran			< 0.028				
Dibenzo[a,h]anthracene			< 0.028				
1,2-Dichlorobenzene			< 0.028				
1,3-Dichlorobenzene			< 0.028				
1,4-Dichlorobenzene			< 0.028				
3,3'-Dichlorobenzidine			< 0.028				
2,4-Dichlorophenol			< 0.028				
Diethyl phthalate			< 0.028				
2,4-Dimethylphenol			< 0.028				
Dimethyl phthalate			< 0.028				
4,6-Dinitro-2-methylphenol			< 0.069				
2,4-Dinitrophenol			< 0.069				
2,4-Dinitrotoluene			< 0.028				
2,6-Dinitrotoluene			< 0.028				
Di-n-octyl phthalate			< 0.028				
bis [2-Ethylhexyl] phthalate			< 0.028				
Fluoranthene			< 0.028				
Fluorene			< 0.028				
Hexachlorobenzene			< 0.028				
Hexachlorobutadiene			< 0.028				
Hexachlorocyclopentadiene			< 0.028				

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Edward H. Yonemoto, Ph.D.  
QA/QC Manager

Page 77 of 613  
Released by EDD: 6/8/2021 12:11:33 PM  
Released to Imaging: 6/8/2021 2:45:07 PM



# CERTIFICATE OF ANALYSIS SUMMARY 1-70588

K.E.I. Consultants, Inc.  
Project Name: TNMPL Monument

Project ID: 610057-02-18  
Project Manager: Ann Baker  
Project Location: Site 18

Date Received in Lab: Mar 11, 1997 10:30 by RT  
Date Report Faxed: Mar 27, 1997

XENCO contact: Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID:	170588-001	170588-002	170588-003	170588-004		
	Field ID:	B18-1	B18-1	B18-1	B18-1		
	Depth:	1-2'	5-6'	14-15'	34-35'		
Hexachloroethane			< 0.028				
Indeno[1,2,3-cd]pyrene			< 0.028				
Isophorone			< 0.028				
2-Methylnaphthalene			< 0.028				
2-Methylphenol			< 0.028				
4-Methylphenol			< 0.028				
Naphthalene			< 0.028				
2-Nitroaniline			< 0.069				
3-Nitroaniline			< 0.069				
4-Nitroaniline			< 0.069				
Nitrobenzene			< 0.028				
2-Nitrophenol			< 0.028				
4-Nitrophenol			< 0.028				
N-Nitroso-di-n-propylamine			< 0.028				
N-Nitrosodiphenylamine			< 0.028				
Pentachlorophenol			< 0.069				
Phenanthrene			< 0.028				
Phenol			< 0.028				
Pyrene			< 0.028				
Pyridine			< 0.028				
1,2,4-Trichlorobenzene			< 0.028				
2,4,5-Trichlorophenol			< 0.069				
2,4,6-Trichlorophenol			< 0.028				
4-Bromophenyl-phenylether			< 0.028				
4-Chloro-3-Methylphenol			< 0.028				
Di-n-butyl phthalate			0.033				

This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc..

The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories. Xenco Laboratories, however, assumes no responsibility and makes no warranty to the end use of the data hereby presented.

Edward H. Yonemoto, Ph.D.  
QA/QC Manager

Page 78 of 613  
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# CERTIFICATE OF ANALYSIS SUMMARY 1-70588

K.E.I. Consultants, Inc.

Project Name: TNMPL Monument

Project ID: 610057-02-18

Project Manager: Ann Baker

Project Location: Site 18

Date Received in Lab: Mar 11, 1997 10:30 by RT

Date Report Faxed: Mar 27, 1997

XENCO contact: Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID:	170588-001	170588-002	170588-003	170588-004		
	Field ID:	B18-1	B18-1	B18-1	B18-1		
	Depth:	1-2'	5-6'	14-15'	34-35'		
TPH Analyzed by EPA 418.1		Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)					
		Mar 13, 1997	Mar 13, 1997	Mar 13, 1997	Mar 13, 1997		
Total Petroleum Hydrocarbons		13500	31500	10900	929		
SPLP TPH by 1312/418.1		Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)					
			Mar 25, 1997				
Total Petroleum Hydrocarbons			1.9				

This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc..

The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories. Xenco Laboratories, however, assumes no responsibility and makes no warranty to the end use of the data hereby presented.

Edward H. Yonemoto, Ph.D.  
QA/QC Manager

Page 79 of 613  
Received by QA 6/8/2021 12:21:04 PM  
Released to Imaging: 6/8/2021 2:45:07 PM



# Certificate Of Quality Control for Batch : 17A29A79

**SW- 846 5030/3020 BTEX**

Date Validated: Mar 13, 1997 15:30

Analyst: IF

Date Analyzed: Mar 12, 1997 09:55

Matrix: Solid

QA/QC Manager: Edward H. Yonemoto, Ph.D.

## BLANK SPIKE ANALYSIS

Parameter	[A]	[B]	[C]	[D]	[E]	[F]	[G] Qualifier
	Blank Result	Blank Spike Result	Blank Spike Amount	Method Detection Limit	QC	LIMITS	
	ppm	ppm	ppm	ppm	Blank Spike Recovery %	Recovery Range %	
Benzene	< 0.0010	0.0808	0.1000	0.0010	80.8	65-135	
Toluene	< 0.0010	0.0866	0.1000	0.0010	86.6	65-135	
Ethylbenzene	< 0.0010	0.0806	0.1000	0.0010	80.6	65-135	
m,p-Xylenes	< 0.0020	0.1730	0.2000	0.0020	86.5	65-135	
o-Xylene	< 0.0010	0.0886	0.1000	0.0010	88.6	65-135	

Blank Spike Recovery [E] =  $100 \times (B-A)/(C)$

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

  
Edward H. Yonemoto, Ph.D.  
QA/QC Manager





# Certificate Of Quality Control for Batch : 17A29A79

SW- 846 5030/8020 IFTX

Date Validated: Mar 13, 1997 15:30  
 Date Analyzed: Mar 12, 1997 14:36  
 QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: IF  
 Matrix: Solid

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 170587-002	Parameter	[A] Sample Result ppm	[B] Matrix Spike Result ppm	[C] Matrix Spike Duplicate Result ppm	[D] Matrix Spike Amount ppm	[E] Method Detection Limit ppm	Matrix Limit Relative Difference %	[F] QC		[G] QC Matrix Spike Recovery %	[H] QC M.S.D. Recovery %	[I] Matrix Spike Recovery Range %	[J] Qualifier
								Spike Relative Difference %					
	Benzene	< 0.050	2.025	1.895	2.000	0.050	25.0	6.6		101.3	94.8	65-135	
	Toluene	< 0.050	2.180	2.110	2.000	0.050	25.0	3.3		109.0	105.5	65-135	
	Ethylbenzene	< 0.050	1.925	1.860	2.000	0.050	25.0	2.4		96.3	94.0	65-135	
	m,p-Xylenes	< 0.100	4.330	4.210	4.000	0.100	25.0	2.8		108.3	105.3	65-135	
	o-Xylene	< 0.050	2.130	2.085	2.000	0.050	25.0	2.1		106.5	104.3	65-135	

Spike Relative Difference [F] =  $200 \cdot (B-C)/(B+C)$   
 Matrix Spike Recovery [G] =  $100 \cdot (B-A)/[D]$   
 M.S.D. = Matrix Spike Duplicate  
 M.S.D. Recovery [H] =  $100 \cdot (C-A)/[D]$   
 N.D. = Below detection limit or not detected  
 All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.  
 QA/QC Manager



Certificate Of Quality Control for Batch : 17A29A80

SW- 346 5030/3020 IRTX

Date Validated: Mar 13, 1997 16:25  
Date Analyzed: Mar 13, 1997 10:27  
QA/QC Manager: Edward H. Yonemoto, Ph.D.  
Analyst: IF  
Matrix: Solid

BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY												
Parameter	[A] Blank Result  ppm	[B] Blank Spike Result  ppm	[C] Blank Spike Duplicate Result  ppm	[D] Blank Spike Amount  ppm	[E] Method Detection Limit  ppm	Blank Limit Relative Difference  %	[F]	[G]	[H]	[I]	[J]  Qualifier	
							QC	QC	QC	Blank Spike Recovery Range  %		
Benzene	< 0.0010	0.1000	0.0966	0.1000	0.0010	25.0	3.5	100.0	96.6	65-135		
Toluene	< 0.0010	0.1110	0.1020	0.1000	0.0010	25.0	8.5	111.0	102.0	65-135		
Ethylbenzene	< 0.0010	0.1070	0.1040	0.1000	0.0010	25.0	2.8	107.0	104.0	65-135		
m,p-Xylenes	< 0.0020	0.2110	0.2030	0.2000	0.0020	25.0	3.9	105.5	101.5	65-135		
o-Xylene	< 0.0010	0.1110	0.0999	0.1000	0.0010	25.0	10.5	111.0	99.9	65-135		

Spike Relative Difference [F] =  $200 \cdot (B-C) / (B+C)$   
Blank Spike Recovery [G] =  $100 \cdot (B-A) / [D]$   
B.S.D. = Blank Spike Duplicate  
B.S.D. Recovery [H] =  $100 \cdot (C-A) / [D]$   
N.D. = Below detection limit or not detected  
All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.  
QA/QC Manager



**Certificate Of Quality Control for Batch : 17A23A33**

**1312/8260 Volatile Organic Analysis**

Date Validated: Mar 25, 1997 18:15  
 Date Analyzed: Mar 24, 1997 17:41  
 QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: CE  
 Matrix: Solid

MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY												
Q.C. Sample ID 170583- 002	Parameter	[A]	[B]	[C]	[D]	[E]	Matrix	[F]	[G]	[H]	[I]	[J]
		Sample Result mg/L	Matrix Spike Result mg/L	Matrix Spike Duplicate Result mg/L	Matrix Spike Amount mg/L	Method Detection Limit mg/L	Limit Relative Difference %	QC	QC	M.S.D. Recovery %	Matrix Spike Recovery Range %	Qualifier
	Benzene	< 0.0050	0.2200	0.2180	0.2500	0.0050	21.0	0.9	88.0	87.2	66-142	
	Chlorobenzene	< 0.0050	0.2425	0.2400	0.2500	0.0050	21.0	1.0	97.0	96.0	60-133	
	1,1-Dichloroethene	< 0.0200	0.2145	0.2010	0.2500	0.0200	22.0	6.5	85.8	80.4	59-172	
	Toluene	< 0.0050	0.2240	0.2225	0.2500	0.0050	21.0	0.7	89.6	89.0	59-139	
	Trichloroethene	< 0.0150	0.2170	0.2170	0.2500	0.0150	24.0	0.0	86.8	86.8	62-137	

Spike Relative Difference [F] =  $100 \cdot (B-C)/(B+C)$   
 Matrix Spike Recovery [G] =  $100 \cdot (B-A)/D$   
 M.S.D. = Matrix Spike Duplicate  
 M.S.D. Recovery [H] =  $100 \cdot (C-A)/D$   
 N.D. = Below detection limit or not detected  
 All results are based on MDL and validated for QC purposes

*[Signature]*  
 Edward H. Yonemoto, Ph.D.  
 QA/QC Manager



**Certificate Of Quality Control for Batch : 17A34A53**

**1312/8270 Semivolatiles (SPEAP)**

Date Validated: Mar 24, 1997 11:45  
 Date Analyzed: Mar 21, 1997 16:53  
 QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: MM  
 Matrix: Solid

BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY												
Parameter	[A] Blank Result mg/L	[B] Blank Spike Result mg/L	[C] Blank Spike Duplicate Result mg/L	[D] Blank Spike Amount mg/L	[E] Method Detection Limit mg/L	Blank Limit Relative Difference %	[F]	[G]	[H]	[I]	[J] Qualifier	
							QC	QC	QC	Blank Spike Recovery Range %		
							Spike Relative Difference %	Blank Spike Recovery %	B.S.D. Recovery %			
Acenaphthene	< 0.0030	0.0477	0.0451	0.0500	0.0030	19.0	5.6	95.4	90.2	46-118		
4-Chloro-3-Methylphenol	< 0.0040	0.0141	0.0176	0.0500	0.0040	33.0	22.1	28.2	35.2	23-97		
2-Chlorophenol	< 0.0050	0.0362	0.0418	0.0500	0.0050	50.0	14.4	72.4	83.6	27-123		
1,4-Dichlorobenzene	< 0.0040	0.0479	0.0471	0.0500	0.0040	27.0	1.7	95.8	94.2	36-97		
2,4-Dinitrotoluene	< 0.0050	0.0429	0.0410	0.0500	0.0050	47.0	4.5	85.8	82.0	24-96		
N-Nitroso-di-n-propylamine	< 0.0040	0.0471	0.0461	0.0500	0.0040	38.0	2.1	94.2	92.2	41-116		
4-Nitrophenol	< 0.0040	0.0102	0.0089	0.0500	0.0040	50.0	13.6	20.4	17.8	10-80		
Pentachlorophenol	< 0.0090	0.0449	0.0471	0.0500	0.0090	47.0	4.8	89.8	94.2	9-103		
Phenol	< 0.0040	0.0110	0.0130	0.0500	0.0040	35.0	16.7	22.0	26.0	12-89		
Pyrene	< 0.0020	0.0512	0.0492	0.0500	0.0020	36.0	4.0	102.4	98.4	26-127		
1,2,4-Trichlorobenzene	< 0.0050	0.0439	0.0438	0.0500	0.0050	23.0	0.2	87.8	87.6	39-98		

Spike Relative Difference [F] =  $200 \cdot (B-C) / (B+C)$   
 Blank Spike Recovery [G] =  $100 \cdot (B-A) / [D]$   
 B.S.D. = Blank Spike Duplicate  
 B.S.D. Recovery [H] =  $100 \cdot (C-A) / [D]$   
 N.D. = Below detection limit or not detected  
 All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.  
 QA/QC Manager

Page 84 of 613  
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# Certificate Of Quality Control for Batch : 17A07B76

## EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Mar 14, 1997 10:15

Analyst: CG

Date Analyzed: Mar 13, 1997 17:26

Matrix: Solid

QA/QC Manager: Edward H. Yonemoto, Ph.D.

MATRIX DUPLICATE ANALYSIS						
Q.C. Sample ID 170533- 001	[A] Sample Result  ppm	[B] Duplicate Result  ppm	[C] Method Detection Limit  ppm	[D]	[E]	[F] Qualifier
				QC Relative Difference  %	LIMITS Relative Difference  %	
Parameter						
Total Petroleum Hydrocarbons	< 7.50	< 7.50	7.50	N.C	30.0	

Relative Difference [D] =  $200 \times (B-A)/(B+A)$

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

  
Edward H. Yonemoto, Ph.D.  
QA/QC Manager



Page 85 of 613  
Received by GEM 6/8/2021 12:12:23 PM



# Certificate Of Quality Control for Batch : 17A07B76

## EPA 413.1 Total Petroleum Hydrocarbons

Date Validated: Mar 14, 1997 10:15

Analyst: CG

Date Analyzed: Mar 13, 1997 17:28

Matrix: Solid

QA/QC Manager: Edward H. Yonemoto, Ph.D.

### BLANK SPIKE ANALYSIS

Parameter	[A] Blank Result  ppm	[B] Blank Spike Result  ppm	[C] Blank Spike Amount  ppm	[D] Method Detection Limit  ppm	[E]	[F]	[G]  Qualifier
					QC	LIMITS	
					Blank Spike Recovery	Recovery Range	
					%	%	
Total Petroleum Hydrocarbons	< 7.50	201	202	7.50	99.5	65-135	

Blank Spike Recovery [E] =  $100 \times (B-A)/(C)$

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

  
Edward H. Yonemoto, Ph.D.  
QA/QC Manager



Certificate Of Quality Control for Batch : 17A07C11

EPA 1312/113.1 SPIKE TYPE

Date Validated: Mar 26, 1997 10:00  
Date Analyzed: Mar 25, 1997 15:15  
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: OG  
Matrix: Solid

BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY

Parameter	[A]	[B]	[C]	[D]	[E]	Blank Limit Relative Difference %	[F]	[G]	[H]	[I]	Qualifier
	Blank Result  ppm	Blank Spike Result  ppm	Blank Spike Duplicate Result  ppm	Blank Spike Amount  ppm	Method Detection Limit  ppm		QC	QC	QC	Blank Spike Recovery Range %	
							Spike Relative Difference %	Blank Spike Recovery %	B.S.D. Recovery %		
Total Petroleum Hydrocarbons	< 0.73	4.03	3.93	4.04	0.73	25.0	2.5	99.8	97.3	65-135	

Spike Relative Difference [F] =  $200 \times (B-C)/(B+C)$   
Blank Spike Recovery [G] =  $100 \times (B-A)/D$   
B.S.D. = Blank Spike Duplicate  
B.S.D. Recovery [H] =  $100 \times (C-A)/D$   
N.D. = Below detection limit or not detected  
All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.  
QA/QC Manager





CHAIN OF CUSTODY RECORD  
AND ANALYSIS REQUEST FORM

1381 Meadowlark Suite L Houston, Texas 77082  
(713) 589-0892 Fax (713) 589-0895

Page 1 of 1

Lab. Batch # 70588-H

Contractor: <b>CEI</b> Phone: (214) 680-3767										No. of CONTAINERS: 2										Contractor COC # 0002									
Address: <b>5309 WURZBACH STE 100 San Antonio TX 78238</b>										Carrier: <b>ALTELL</b>										Quote #: <b>7205</b>									
Project Name: <b>TNMP - MONUMENT</b>										Project Director: <b>PAUL HARTNETT</b>										Turn-around: <b>48 hrs</b>									
Project Location: <b>Site 18</b>										Project Manager: <b>ANN BAKER</b>										ASP: <b>40 hrs</b>									
Sample Signature: <b>[Signature]</b>										Project No: <b>610057-18-02-18</b>										Standard: <b>40 hrs</b>									
SAMPLE CHARACTERIZATION										PRESERVATIVE										OTHER									
Field ID	Date	Time	DEPTH	SOIL	WATER	COMPS	GRA	Container	Other	PTI No.	Waste Oil	Unit	Dies	Ker	Unknown	Task No.	Sample Description												
B18-1 1-2'	3/9/97	1130	1-2'	X				X48	GY								B18-1, 1-2												
B18-1 5-6'		1135	5-6'														B18-1, 5-6												
B18-1 14-15'		1145	14-15'														B18-1, 14-15												
B18-1 34-35'		1230	34-35'														B18-1, 34-35												
No. of CONTAINERS: 2																													
Remarks: <b>Hold 8oz. pending TPI results</b>																													
Requested by: <b>[Signature]</b> DATE: <b>3/9/97</b> TIME: <b>1730</b>																													
Received by: <b>[Signature]</b> DATE: <b>3-11-97</b> TIME: <b>1030</b>																													
Requested For Laboratory by: <b>[Signature]</b>																													



**CERTIFICATE OF ANALYSIS SUMMARY 1-70661**

**K.E.I. Consultants, Inc.**

Project ID: 610057-2-18  
 Project Manager: Ann Baker  
 Project Location: Site 18

Project Name: *TNMPL Monument*

Date Received in Lab : Mar 20, 1997 11:30 by CC

Date Report Faxed: Apr 7, 1997

XENCO contact : Carlos Castro/Edward Yonemoto

**Analysis Requested**

Lab ID:  
 Field ID:  
 Depth:

**BTEX by EPA 8020**

**Date Analyzed - Analytical Results**

ppm (mg/L - mg/Kg)

	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997
Benzene	< 0.020	< 0.020	2.15	1.05	< 0.020	< 0.020	< 0.020	0.348	< 0.020	< 0.020
Toluene	< 0.020	< 0.020	2.74	1.48	< 0.020	< 0.020	< 0.020	0.880	< 0.020	< 0.020
Ethylbenzene	< 0.020	< 0.020	8.33	3.03	< 0.020	< 0.020	< 0.020	0.660	< 0.020	< 0.020
m,p-Xylenes	< 0.040	< 0.040	6.13	2.48	< 0.040	< 0.040	< 0.040	1.550	< 0.040	< 0.040
o-Xylene	< 0.020	< 0.020	0.62	0.31	< 0.020	< 0.020	< 0.020	0.424	< 0.020	< 0.020
Total BTEX	< 0.120	< 0.120	19.97	8.35	< 0.120	< 0.120	< 0.120	3.862	< 0.120	< 0.120

**Total Petroleum Hydrocarbons by EPA 418.1**

**Date Analyzed - Analytical Results**

ppm (mg/L - mg/Kg)

	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997	Mar 20, 1997
Total Petroleum Hydrocarbons	29.5	13.0	12900	3380	15.5	13.0	2840
							32.0
							23.0

This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc. The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories, however, assumes no responsibility and makes no warranty to the end user of the data hereby presented.

Edward Yonemoto, Ph.D.  
 QA/QC Manager





CERTIFICATE OF ANALYSIS SUMMARY 1-70661

Project ID: 610057-2-18 Project Manager: Ann Baker Project Location: Site 18		<b>K.E.I. Consultants, Inc.</b> Project Name: TMMPL Monument Date Received in Lab: Mar 20, 1997 11:30 by CC Date Report Faxed: Apr 7, 1997 XENCO contact: Carlos Castro/Edward Yonemoto					
Analysis Requested	Lab ID: Field ID: Depth:	170661-010 B18-4 26-27'	Date Analyzed - Analytical Results				ppm (mg/L - mg/Kg)
	BTEX by EPA 8020						
Benzene		Mar 20, 1997					
Toluene		< 0.020					
Ethylbenzene		< 0.020					
m,p-Xylenes		< 0.020					
o-Xylene		< 0.040					
Total BTEX		< 0.020					
Total Petroleum Hydrocarbons by EPA 418.1			Date Analyzed - Analytical Results				ppm (mg/L - mg/Kg)
Total Petroleum Hydrocarbons		Mar 20, 1997					
		< 10.0					
<p>This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc.. The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories, however, assumes no responsibility and makes no warranty to the end use of the data hereby presented.</p> <p><i>Edward K. Yonemoto, Ph.D.</i> QA/QC Manager</p>							

# AGRA EARTH & ENVIRONMENTAL, INC.

12758 Cimarron Path, Suite 128  
San Antonio, Texas 78249

Tele: 210-699-6595  
Fax: 210-699-6597

## REPORT OF ORGANIC CONTENT

CLIENT: Xenco Laboratories  
5309 Wurzbach, Suite 104  
San Antonio, TX 78238  
Attn: Carlos A. Castro, Ph.D

PROJECT NO: 6-729-0257  
REPORT NO: T-0991  
AUTHORIZATION: Client  
REPORT DATE: 4/01/97

PROJECT: Xenco Miscellaneous Testing

SERVICES: Tested for Organic content.

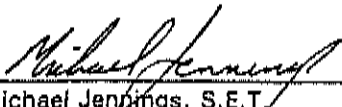
## PROJECT DATA

CONTRACTOR: N/A  
TEST FOR: N/A  
MATERIAL: See Below  
METHOD OF TEST: ASTM D2974

DATE SAMPLED: N/A  
SAMPLED BY: Client  
SAMPLE LOCATION: See Below

## REPORT OF TESTS

DESCRIPTION	LOCATION	MOISTURE PERCENT	ORGANIC CONTENT PERCENT
Brown Sand	B18-2, 8-9'	3.5	0.9

  
Michael Jennings, S.E.T.

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# Certificate Of Quality Control for Batch : 17A25A93

**SW- 846 5030/3020 BTEX**

Date Validated: Mar 21, 1997 09:00

Analyst: CB

Date Analyzed: Mar 20, 1997 20:16

Matrix: Solid

QA/QC Manager: Edward H. Yonemoto, Ph.D.

## BLANK SPIKE ANALYSIS

Parameter	[A] Blank Result  ppm	[B] Blank Spike Result  ppm	[C] Blank Spike Amount  ppm	[D] Method Detection Limit  ppm	[E]	[F]	[G]  Qualifier
					QC	LIMITS	
					Blank Spike Recovery	Recovery Range	
					%	%	
Benzene	< 0.0010	0.1130	0.1000	0.0010	113.0	65-135	
Toluene	< 0.0010	0.1110	0.1000	0.0010	111.0	65-135	
Ethylbenzene	< 0.0010	0.1100	0.1000	0.0010	110.0	65-135	
m,p-Xylenes	< 0.0020	0.2270	0.2000	0.0020	113.5	65-135	
o-Xylene	< 0.0010	0.1090	0.1000	0.0010	109.0	65-135	

Blank Spike Recovery [E] =  $100 \times (B-A)/(C)$

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

Edward H. Yonemoto, Ph.D.  
QA/QC Manager



**Certificate Of Quality Control for Batch : 17A25A93**

**SW- 846 5030/8020 IRTX**

Date Validated: Mar 21, 1997 09:00  
 Date Analyzed: Mar 20, 1997 20:34  
 QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: CB  
 Matrix: Solid

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY**

Q.C. Sample ID 170661-001	Parameter	[A] Sample Result ppm	[B] Matrix Spike Result ppm	[C] Matrix Spike Duplicate Result ppm	[D] Matrix Spike Amount ppm	[E] Method Detection Limit ppm	[F] Matrix Limit Relative Difference %	[G]		[H]		[I] Matrix Spike Recovery Range %	[J] Qualifier
								QC	Matrix Spike Recovery %	QC	M.S.D. Recovery %		
	Benzene	< 0.020	2.640	2.480	2.000	0.020	25.0	6.3	132.0	124.0	124.0	65-135	
	Toluene	< 0.020	2.580	2.420	2.000	0.020	25.0	5.6	128.0	121.0	121.0	65-135	
	Ethylbenzene	< 0.020	2.600	2.440	2.000	0.028	25.0	6.3	130.0	122.0	122.0	65-135	
	m,p-Xylenes	< 0.040	5.280	5.000	4.000	0.040	25.0	5.4	132.0	125.0	125.0	65-135	
	o-Xylene	< 0.020	2.540	2.420	2.000	0.020	25.0	4.8	127.0	121.0	121.0	65-135	

Spike Relative Difference [F] =  $200 \cdot (B-C) / (B+C)$   
 Matrix Spike Recovery [G] =  $100 \cdot (B-A) / [D]$   
 M.S.D. = Matrix Spike Duplicate  
 M.S.D. Recovery [H] =  $100 \cdot (C-A) / [D]$   
 N.D. = Below detection limit or not detected  
 All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.  
 QA/QC Manager



# Certificate Of Quality Control for Batch : 17A30B02

## EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Mar 21, 1997 12:00

Date Analyzed: Mar 20, 1997 15:50

QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: HL

Matrix: Solid

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 170661-001	[A] Sample Result ppm	[B] Matrix Spike Result ppm	[C] Matrix Spike Duplicate Result ppm	[D] Matrix Spike Amount ppm	[E] Method Detection Limit ppm	Matrix Limit		[F] QC	[G] QC	[H] QC	[I] Matrix Spike Recovery Range %	[J] Qualifier
						Relative Difference %	Difference %					
Total Petroleum Hydrocarbons	29.50	226	219	198	7.50	30.0	3.1		99.4	95.9	65-135	

Spike Relative Difference [F] =  $200 \cdot (B-C)/(B+C)$ Matrix Spike Recovery [G] =  $100 \cdot (B-A)/[D]$ 

M.S.D. = Matrix Spike Duplicate

M.S.D. Recovery [H] =  $100 \cdot (C-A)/[D]$ 

N.D. = Below detection limit or not detected

All results are based on MDL and validated for QC purposes

Houston - Dallas - San Antonio

Edward H. Yonemoto, Ph.D.  
QA/QC Manager





# Certificate Of Quality Control for Batch : 17A30B02

## EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Mar 21, 1997 12:00

Analyst: HL

Date Analyzed: Mar 20, 1997 15:41

Matrix: Solid

QA/QC Manager: Edward H. Yonemoto, Ph.D.

### BLANK SPIKE ANALYSIS

Parameter	(A)	(B)	(C)	(D)	(E)	(F)	(G)
	Blank	Blank Spike	Blank	Method	QC	LIMITS	Qualifier
	Result	Result	Spike	Detection	Blank Spike	Recovery	
	ppm	ppm	Amount	Limit	Recovery	Range	
			ppm	ppm	%	%	
Total Petroleum Hydrocarbons	< 7.50	189	198	7.50	95.6	65-135	

Blank Spike Recovery (E) =  $100 \times (B-A)/(C)$

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

Edward H. Yonemoto, Ph.D.  
QA/QC Manager



# ANALYTICAL CHAIN OF CUSTODY REPORT CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 610057-2-18  
Project Manager: Ann Baker  
Project Location: Site 18

Project Name: TNMPL Monument

XENCO COC#: 1-70661

Date Received in Lab: Mar 20, 1997 11:30 by CC

XENCO contact : Carlos Castro/Edward Yonemolo

Date and Time									
Field ID	Lab. ID	Method Name	Method ID	Units	Turn Around	Sample Collected	Addition Requested	Extraction	Analysis
1 B18-2 (0-1')	170661-001	BTEX	SW-846	ppm	Standard	Mar 14, 1997 09:10		Mar 20, 1997 by CB	Mar 20, 1997 20:34 by CB
2		TPH	EPA 418.1	ppm	Standard	Mar 14, 1997 09:10		Mar 20, 1997 by HL	Mar 20, 1997 15:50 by HL
3 B18-2 (8-9')	170661-002	BTEX	SW-846	ppm	Standard	Mar 14, 1997 09:16		Mar 20, 1997 by CB	Mar 20, 1997 21:26 by CB
4		TPH	EPA 418.1	ppm	Standard	Mar 14, 1997 09:16		Mar 20, 1997 by HL	Mar 20, 1997 15:53 by HL
5		Org. Content	ASTM D2974	ppm	Standard	Mar 14, 1997 09:16	Mar 26, 1997 14:00		
6 B18-2 (29-30')	170661-003	BTEX	SW-846	ppm	Standard	Mar 14, 1997 10:20		Mar 20, 1997 by CB	Mar 20, 1997 21:43 by CB
7		TPH	EPA 418.1	ppm	Standard	Mar 14, 1997 10:20		Mar 20, 1997 by HL	Mar 20, 1997 15:56 by HL
8 B18-2 (31-32')	170661-004	BTEX	SW-846	ppm	Standard	Mar 14, 1997 10:22		Mar 20, 1997 by CB	Mar 20, 1997 22:01 by CB
9		TPH	EPA 418.1	ppm	Standard	Mar 14, 1997 10:22		Mar 20, 1997 by HL	Mar 20, 1997 15:59 by HL
10 B18-3 (1-2')	170661-005	BTEX	SW-846	ppm	Standard	Mar 14, 1997 10:35		Mar 20, 1997 by CB	Mar 20, 1997 22:18 by CB
11		TPH	EPA 418.1	ppm	Standard	Mar 14, 1997 10:35		Mar 20, 1997 by HL	Mar 20, 1997 15:02 by HL
12 B18-3 (12-13')	170661-006	BTEX	SW-846	ppm	Standard	Mar 14, 1997 10:59		Mar 20, 1997 by CB	Mar 20, 1997 22:35 by CB
13		TPH	EPA 418.1	ppm	Standard	Mar 14, 1997 10:59		Mar 20, 1997 by HL	Mar 20, 1997 16:05 by HL
14 B18-3 (25-27')	170661-007	BTEX	SW-846	ppm	Standard	Mar 14, 1997 11:35		Mar 20, 1997 by CB	Mar 20, 1997 22:53 by CB
15		TPH	EPA 418.1	ppm	Standard	Mar 14, 1997 11:35		Mar 20, 1997 by HL	Mar 20, 1997 16:08 by HL
16 B18-4 (1-2')	170661-008	BTEX	SW-846	ppm	Standard	Mar 14, 1997 11:40		Mar 20, 1997 by CB	Mar 20, 1997 23:10 by CB
17		TPH	EPA 418.1	ppm	Standard	Mar 14, 1997 11:40		Mar 20, 1997 by HL	Mar 20, 1997 16:11 by HL
18 B18-4 (13-14')	170661-009	BTEX	SW-846	ppm	Standard	Mar 14, 1997 12:02		Mar 20, 1997 by CB	Mar 20, 1997 23:27 by CB
19		TPH	EPA 418.1	ppm	Standard	Mar 14, 1997 12:02		Mar 20, 1997 by HL	Mar 20, 1997 18:14 by HL
20 B18-4 (25-27')	170661-010	BTEX	SW-846	ppm	Standard	Mar 14, 1997 12:42		Mar 20, 1997 by CB	Mar 20, 1997 23:45 by CB
21		TPH	EPA 418.1	ppm	Standard	Mar 14, 1997 12:42		Mar 20, 1997 by HL	Mar 20, 1997 16:17 by HL



CHAIN OF CUSTODY RECORD  
AND ANALYSIS REQUEST FORM

11051 Meadowlark Suite L Houston, Texas 77062  
(713) 589-0692 Fax (713) 589-0695

Page 1 of 1  
Lab. Batch # 170661-SA

Contractor <b>KCS</b>		Phone (210) 6803767		No coolers this shipment		Contractor COC # 0012			
Address <b>5309 WURZBACH ST 100 San Antonio TX 78238</b>				Carrier		Quote #:			
Project Name <b>TANMUL MONUMENT</b>		Project Director <b>PHIL HARRIS</b>		Airtail No.		PO No: 7205			
Project Location <b>SITE 18</b>		Project Manager <b>Ann Baker</b>							
Sample Signature		Project No. <b>610057-2-18</b>							
CONTAINERS									
No of C O N T A I N E R S									
Total									
BTEX (GROSS) 802									
TPH (482)									
Please Hold									
Turn around									
* ASAP									
* 24 hrs									
* 48 hrs									
Standard									
ID #									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
Remarks									
1012 802.									
HAW 802 Pending TPH									
Via UPS									

Field ID	Date	Time	Signature	DATE	TIME	Signature	DATE	TIME	Remarks
BIA-2 0-1	3/14/17	0910		3/18/97	1200		3-20-97	11:30	
BIA-2 8-9	3/16/17	0916							
BIA-2 29-30	10/20	29-30							
BIA-2 31-32	10/22	31-32							
BIA-3 1-2	10/35	1-2							
BIA-3 12-13	10/58	12-13							
BIA-3 26-27	11/36	26-27							
BIA-4 1-2	11/40	1-2							
BIA-4 13-14	12/02	13-14							
BIA-4 26-27	12/42	26-27							

Received by Laboratory by

Received For Laboratory by

\* Pre-scheduling is recommended

Pink (Contractor), Yellow & White (Lab)



# CERTIFICATE OF ANALYSIS SUMMARY 1-72149

## K.E.I. Consultants, Inc.

Project ID: 610057 Site #18  
Project Manager: Mike Chapa  
Project Location: Monument Site #18

Project Name: 610057 Site #18

Date Received in Lab : Sep 16, 1997 10:40 by AS

Date Report Faxed: Sep 30, 1997

XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested		Lab ID: Field ID: Depth:	172149-001 MW18-5 5-7	172149-002 MW18-5 33-34	172149-003 MW18-6 5-7	172149-004 MW18-6 28-30	172149-005 MW18-4 5-7	172149-006 MW18-4 8.5-10.5	172149-007 MW18-4 20-22	172149-008 MW18-4 28-30	172149-009 B18-A 5-7
TPH-DRO (Diesel) by EPA 8015 M			Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)								
Total Petroleum Hydrocarbons			Sep 21, 1997 < 9.6	Sep 21, 1997 < 9.6	Sep 21, 1997 < 10.1	Sep 21, 1997 < 10.1	Sep 21, 1997 < 206	Sep 22, 1997 5590	Sep 22, 1997 5310	Sep 22, 1997 1050	Sep 22, 1997 < 10.2
BTEX by EPA 8020			Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)								
Benzene			Sep 18, 1997 < 0.050	Sep 18, 1997 < 0.050	Sep 18, 1997 < 0.050	Sep 18, 1997 < 0.050	Sep 18, 1997 < 0.050	Sep 19, 1997 1.18	Sep 18, 1997 < 0.050	Sep 18, 1997 < 0.050	Sep 22, 1997 < 0.050
Toluene			< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	2.48	< 0.050	< 0.050	< 0.050
Ethylbenzene			< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	12.95	< 0.050	0.376	< 0.050
m,p-Xylenes			0.111	< 0.100	0.113	< 0.100	< 0.100	13.35	< 0.100	0.715	< 0.100
o-Xylene			< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	3.03	< 0.050	0.161	< 0.050
Total BTEX			0.111	< 0.300	0.113	< 0.300	< 0.300	32.99	< 0.300	1.252	< 0.300

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Edward Yonemoto, Ph.D.  
QA/QC Manager



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Project Manager: Mike Chapa  
Project Location: Monument Site #18

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XENCO contact: Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID: Field ID: Depth:	Date Analyzed - Analytical Results					ppm (mg/L - mg/Kg)	
		Sep 22, 1997	Sep 22, 1997	Sep 22, 1997	Sep 22, 1997	Sep 22, 1997		
TPH-DRO (Diesel) by EPA 8015 M	172149-010 B18-A 28-30	172149-011 B18-B 5-7	172149-012 B18-B 15-17	172149-013 B18-C 5-7	172149-014 B18-C 10.5-12.5			
Total Petroleum Hydrocarbons	< 9.8	< 143	7760	< 99.6	11400			
BTEX by EPA 8020								
Benzene	Sep 19, 1997	Sep 18, 1997	Sep 19, 1997	Sep 19, 1997	Sep 19, 1997			
	< 0.050	< 0.050	< 0.50	< 0.050	1.08			
Toluene	< 0.050	< 0.050	1.96	< 0.050	3.86			
Ethylbenzene	0.134	< 0.050	14.35	< 0.050	24.95			
m,p-Xylenes	0.232	< 0.100	27.45	0.228	39.90			
o-Xylene	0.354	< 0.050	4.88	< 0.050	5.45			
Total BTEX	0.720	< 0.300	48.64	0.228	75.24			
Volatile Organic Analysis by EPA 8260								
Benzene					Sep 26, 1997			
Bromobenzene					0.8			
Bromodichloromethane					< 0.5			
Bromoform					< 0.5			
Bromomethane					< 0.5			

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Project Name: 610057 Site #18

Date Received in Lab : Sep 16, 1997 10:40 by AS

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XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested		Lab ID: Field ID: Depth:	172149-010 B18-A 28-30	172149-011 B18-B 5-7	172149-012 B18-B 15-17	172149-013 B18-C 5-7	172149-014 B18-C 10.5-12.5	ppm (mg/L - mg/Kg)	
			Date Analyzed - Analytical Results						
							Sep 26, 1997		
n-Butylbenzene							3.8		
sec-Butylbenzene							5.8		
tert-Butylbenzene							< 0.5		
Carbon Tetrachloride							< 0.5		
Chloroethane							< 1.0		
Chloroform							< 0.5		
Chloromethane							< 1.0		
2-Chlorotoluene							< 0.5		
4-Chlorotoluene							< 0.5		
1,2-Dibromo-3-chloropropane							< 0.5		
Dibromochloromethane							< 0.5		
1,2-Dibromoethane							< 0.5		
Dibromomethane							< 0.5		
1,2-Dichlorobenzene							< 0.5		
1,3-Dichlorobenzene							< 0.5		
1,4-Dichlorobenzene							< 0.5		
Dichlorodifluoromethane							< 0.5		

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Analysis Requested	Lab ID: Field ID: Depth:	Date Analyzed - Analytical Results				ppm (mg/L - mg/Kg)			
		172149-010 B18-A 28-30	172149-011 B18-B 5-7	172149-012 B18-B 15-17	172149-013 B18-C 5-7	172149-014 B18-C 10.5-12.5			
1,1-Dichloroethane						Sep 26, 1997	< 0.5		
1,2-Dichloroethane							< 0.5		
1,1-Dichloroethene							< 0.5		
cis-1,2-Dichloroethene							< 0.5		
trans-1,2-Dichloroethene							< 0.5		
1,2-Dichloropropane							< 0.5		
1,3-Dichloropropane							< 0.5		
2,2-Dichloropropane							< 0.5		
1,1-Dichloropropene							< 0.5		
cis-1,3-Dichloropropene							< 0.5		
trans-1,3-Dichloropropene							< 0.5		
Ethylbenzene							** 20.0		
Hexachlorobutadiene							< 0.5		
Isopropylbenzene							8.0		
p-Isopropyltoluene							4.3		
Methylene chloride							< 1.0		
Naphthalene							5.8		

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Edward H. Yonemoto, Ph.D.  
QA/QC Manager



# CERTIFICATE OF ANALYSIS SUMMARY 172149

## K.E.I. Consultants, Inc.

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 Project Manager: Mike Chapa  
 Project Location: Monument Site #18

Project Name: 610057 Site #18

Date Received in Lab : Sep 16, 1997 10:40 by AS

Date Report Faxed: Sep 30, 1997

XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID: Field ID: Depth:	Date Analyzed - Analytical Results						ppm (mg/L - mg/Kg)	
		172149-010 B18-A 28-30	172149-011 B18-B 5-7	172149-012 B18-B 15-17	172149-013 B18-C 5-7	172149-014 B18-C 10.5-12.5			
n-Propylbenzene						Sep 26, 1997			
Styrene						10.8			
1,1,1,2-Tetrachloroethane						< 0.5			
1,1,2,2-Tetrachloroethane						< 0.5			
Tetrachloroethene						< 0.5			
Toluene						< 0.5			
1,2,3-Trichlorobenzene						< 0.5			
1,2,4-Trichlorobenzene						< 0.5			
1,1,1-Trichloroethane						< 0.5			
1,1,2-Trichloroethane						< 0.5			
Trichloroethane						< 0.5			
Trichlorofluoromethane						< 0.5			
1,2,3-Trichloropropane						< 0.5			
1,2,4-Trimethylbenzene						25.5			
1,3,5-Trimethylbenzene						10.8			
Vinyl chloride						< 0.5			
o-Xylene						< 0.5			

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 QA/QC Manager



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## K.E.I. Consultants, Inc.

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Project Manager: Mike Chapa

Project Location: Monument Site #18

Project Name: 610057 Site #18

Date Received in Lab : Sep 16, 1997 10:40 by AS

Date Report Faxed: Sep 30, 1997

XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID: Field ID: Depth:	172149-010	172149-011	172149-012	172149-013	172149-014	ppm (mg/L - mg/Kg)
		B18-A 28-30	B18-B 5-7	B18-B 15-17	B18-C 5-7	B18-C 10.5-12.5	
m,p-Xylenes						Sep 26, 1997 25.1	
Bromochloromethane						< 0.5	
Chlorobenzene						< 0.5	
MTBE						< 1.0	
** Result beyond calibration limits							

Semivolatiles (SVOCs TCL) by EPA 8270	Date Analyzed - Analytical Results						ppm (mg/L - mg/Kg)
					Sep 26, 1997		
Acenaphthene					< 167		
Acenaphthylene					< 167		
Anthracene					< 167		
Benzo(a)anthracene					< 167		
Benzo(a)pyrene					< 167		
Benzo(b)fluoranthene					< 167		
Benzo(g,h,i)perylene					< 167		
Benzo(k)fluoranthene					< 167		
Butyl benzyl phthalate					< 167		

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QA/QC Manager



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XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID: Field ID: Depth:	Date Analyzed - Analytical Results					ppm (mg/L - mg/Kg)	
		172149-010 B18-A 28-30	172149-011 B18-B 5-7	172149-012 B18-B 15-17	172149-013 B18-C 5-7	172149-014 B18-C 10.5-12.5		
Carbazole							Sep 26, 1997	
4-Chloroaniline							< 167	
bis [2-Chloroethoxy] methane							< 167	
bis [2-Chloroethyl] ether							< 167	
bis [2-Chloroisopropyl] ether							< 167	
2-Chloronaphthalene							< 167	
2-Chlorophenol							< 167	
4-Chlorophenyl-phenyl ether							< 167	
Chrysene							< 167	
Dibenzofuran							< 167	
Dibenzo(a,h)anthracene							< 167	
1,2-Dichlorobenzene							< 167	
1,3-Dichlorobenzene							< 167	
1,4-Dichlorobenzene							< 167	
3,3'-Dichlorobenzidine							< 167	
2,4-Dichlorophenol							< 167	
Diethyl phthalate							< 167	

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Edward M. Yonemoto, Ph.D.  
QA/QC Manager





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Date Received in Lab : Sep 16, 1997 10:40 by AS

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Analysis Requested	Lab ID: Field ID: Depth:	Date Analyzed - Analytical Results				ppm (mg/L - mg/Kg)			
		172149-010 B18-A 28-30	172149-011 B18-B 5-7	172149-012 B18-B 15-17	172149-013 B18-C 5-7	172149-014 B18-C 10.5-12.5			
2,4-Dimethylphenol						Sep 26, 1997	< 167		
Dimethyl phthalate							< 167		
4,6-Dinitro-2-methylphenol							< 417		
2,4-Dinitrophenol							< 417		
2,4-Dinitrotoluene							< 167		
2,6-Dinitrotoluene							< 167		
Di-n-octyl phthalate							< 167		
bis [2-Ethylhexyl] phthalate							< 167		
Fluoranthene							< 167		
Fluorene							< 167		
Hexachlorobenzene							< 167		
Hexachlorobutadiene							< 167		
Hexachlorocyclopentadiene							< 167		
Hexachloroethane							< 167		
Indeno(1,2,3-cd)pyrene							< 167		
Isophorone							< 167		
2-Methylnaphthalene							< 167		

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QA/QC Manager



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Project Location: Monument Site #18

Project Name: 610057 Site #18

Date Received in Lab : Sep 16, 1997 10:40 by AS

Date Report Faxed: Sep 30, 1997

XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested		Lab ID: Field ID: Depth:	172149-010 B18-A 28-30	172149-011 B18-B 5-7	172149-012 B18-B 15-17	172149-013 B18-C 5-7	172149-014 B18-C 10.5-12.5	ppm (mg/L - mg/Kg)		
			Date Analyzed - Analytical Results							
							Sep 26, 1997			
2-Methylphenol							< 167			
4-Methylphenol							< 167			
Naphthalene							< 167			
2-Nitroaniline							< 417			
3-Nitroaniline							< 417			
4-Nitroaniline							< 417			
Nitrobenzene							< 167			
2-Nitrophenol							< 167			
4-Nitrophenol							< 167			
N-Nitroso-di-n-propylamine							< 167			
N-Nitrosodiphenylamine							< 167			
Pentachlorophenol							< 417			
Phenanthrene							< 167			
Phenol							< 167			
Pyrene							< 167			
Pyridine							< 167			
1,2,4-Trichlorobenzene							< 167			

This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc.. The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories, however, assumes no responsibility and makes no warranty to the end use of the data hereby presented.

Edward H. Yonemoto, Ph.D.  
QA/QC Manager



# CERTIFICATE OF ANALYSIS SUMMARY 1-72149

## K.E.I. Consultants, Inc.

Project ID: 610057 Site #18  
Project Manager: Mike Chapa  
Project Location: Monument Site #18

Date Received in Lab : Sep 16, 1997 10:40 by AS

Date Report Faxed: Sep 30, 1997

XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID: Field ID: Depth:	Date Analyzed - Analytical Results					ppm (mg/L - mg/Kg)	
		172149-010 B18-A 28-30	172149-011 B18-B 5-7	172149-012 B18-B 15-17	172149-013 B18-C 5-7	172149-014 B18-C 10.5-12.5		
2,4,5-Trichlorophenol						Sep 26, 1997 < 417		
2,4,6-Trichlorophenol						< 167		
4-Bromophenyl-phenylether						< 167		
4-Chloro-3-Methylphenol						< 167		
Di-n-butyl phthalate						< 167		
SPLP TPH by 1312/418.1								
Total Petroleum Hydrocarbons						Sep 26, 1997 4.6		

This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc.. The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories, however, assumes no responsibility and makes no warranty to the end use of the data hereby presented.

Edward H. Yonemoto, Ph.D.  
QA/QC Manager



**Certificate Of Quality Control for Batch: 17A02C28**

**SW- 346 3015 M TPH- DRO (Diesel)**

Date Validated: Sep 23, 1997 17:05

Date Analyzed: Sep 21, 1997 18:29

QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: LC

Matrix: Solid

Q.C. Sample ID 172147- 003  Parameter		MATRIX DUPLICATE ANALYSIS					MATRIX SPIKE ANALYSIS						
		[A] Sample Result mg/kg	[B] Duplicate Result mg/kg	[C] Method Detection Limit mg/kg	[D]		[E]	[F] Matrix Spike Result mg/kg	[G] Matrix Spike Amount mg/kg	[H]		[I] LIMITS Recovery Range %	[J] Qualifier
					QC	Relative Difference %	LIMITS			Matrix Spike Recovery %			
					Relative Difference %		Relative Difference %						
Total Petroleum Hydrocarbons		< 10.00	< 10.00	10.00	N.C	30.0	330	400	82.5	65-135			

Relative Difference [D] =  $200 \times (B-A)/(B+A)$   
 Matrix Spike Recovery [H] =  $100 \times (F-A)/(G)$   
 N.C. = Not calculated, data below detection limit  
 N.D. = Below detection limit  
 All results are based on MDL and validated for QC purposes only

*Edward H. Yonemoto*  
 Edward H. Yonemoto, Ph.D.  
 QA/QC Manager


**Certificate Of Quality Control for Batch: 17A02C28**
**SW- 846 8015 M TPH- DRO (Diesel)**

Date Validated: Sep 23, 1997 17:05

Analyst: LC

Date Analyzed: Sep 21, 1997 15:12

Matrix: Solid

QA/QC Manager: Edward H. Yonemoto, Ph.D.

**BLANK SPIKE ANALYSIS**

Parameter	[A]	[B]	[C]	[D]	[E]	[F]	[G] Qualifier
	Blank Result	Blank Spike Result	Blank Spike Amount	Method Detection Limit	QC	LIMITS	
	mg/kg	mg/kg	mg/kg	mg/kg	Blank Spike Recovery %	Recovery Range %	
Total Petroleum Hydrocarbons	< 10.00	87.65	100	10.00	87.7	65-135	

 Blank Spike Recovery [E] =  $100 \times (B-A)/(C)$ 

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

  
 Edward H. Yonemoto, Ph.D.  
 QA/QC Manager





# Certificate Of Quality Control for Batch: 17A02C29

**SW- 346 3015 M TPH- DRO (Diesel)**

Date Validated: Sep 23, 1997 17:10

Date Analyzed: Sep 22, 1997 09:41

QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: LC

Matrix: Solid

Q.C. Sample ID 172148- 003		MATRIX DUPLICATE ANALYSIS					MATRIX SPIKE ANALYSIS						
		[A] Sample Result mg/kg	[B] Duplicate Result mg/kg	[C] Method Detection Limit mg/kg	[D]		[E] LIMITS Relative Difference %	[F] Matrix Spike Result mg/kg	[G] Matrix Spike Amount mg/kg	[H]		[I] LIMITS Recovery Range %	[J] Qualifier
					QC	Relative Difference %				Matrix Spike Recovery %	Recovery Range %		
Parameter		< 10.00	< 10.00	10.00	N.C.		30.0	213	200	106.5		65-135	
Total Petroleum Hydrocarbons													

Relative Difference [D] =  $200 \cdot (B-A)/(B+A)$

Matrix Spike Recovery [H] =  $100 \cdot (F-A)/[G]$

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

Edward H. Yonemoto, Ph.D.  
QA/QC Manager


**Certificate Of Quality Control for Batch: 17A02C29**
**SW- 846 8015 M TPH- DRO (Diesel)**

Date Validated: Sep 23, 1997 17:10

Analyst: LC

Date Analyzed: Sep 20, 1997 15:12

Matrix: Solid

QA/QC Manager: Edward H. Yonemoto, Ph.D.

**BLANK SPIKE ANALYSIS**

Parameter	[A]	[B]	[C]	[D]	[E]	[F]	Qualifier
	Blank	Blank Spike	Blank	Method	QC	LIMITS	
	Result	Result	Spike	Detection	Blank Spike	Recovery	
	mg/kg	mg/kg	Amount	Limit	Recovery	Range	
			mg/kg	mg/kg	%	%	
Total Petroleum Hydrocarbons	< 10.00	87.65	100	10.00	87.7	65-135	

 Blank Spike Recovery [E] =  $100 \times (B-A)/(C)$ 

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

  
 Edward H. Yonemoto, Ph.D.  
 QA/QC Manager



# Certificate Of Quality Control for Batch : 17A29C79

SW- 846 5030/8020 RTX

Date Validated: Sep 23, 1997 14:30

Date Analyzed: Sep 22, 1997 13:48

QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: OR

Matrix: Solid

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 172220- 006	Parameter	[A] Sample Result ppm	[B] Matrix Spike Result ppm	[C] Matrix Spike Duplicate Result ppm	[D] Matrix Spike Amount ppm	[E] Method Detection Limit ppm	Matrix Limit Relative Difference %	[F] QC		[G] QC	[H] QC		[I] Matrix Spike Recovery Range %	[J] Qualifier
								Spike Relative Difference %		Matrix Spike Recovery %	M.S.D. Recovery %			
	Benzene	< 0.050	1.815	1.905	2.000	0.050	20.0	0.5		95.8	95.3		65-135	
	Toluene	< 0.050	1.875	1.885	2.000	0.050	20.0	0.5		93.8	94.3		65-135	
	Ethylbenzene	< 0.050	1.980	2.010	2.000	0.050	20.0	1.5		99.0	100.5		65-135	
	m,p-Xylenes	< 0.100	4.085	4.180	4.000	0.100	20.0	2.3		102.1	104.5		65-135	
	o-Xylene	< 0.050	1.865	1.910	2.000	0.050	20.0	2.4		93.3	95.5		65-135	

Spike Relative Difference [F] =  $200 \cdot (B-C)/(B+C)$

Matrix Spike Recovery [G] =  $100 \cdot (B-A)/[D]$

M.S.D. = Matrix Spike Duplicate

M.S.D. Recovery [H] =  $100 \cdot (C-A)/[D]$

N.D. = Below detection limit or not detected

All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.  
QA/QC Manager

Houston - Dallas - San Antonio


**Certificate Of Quality Control for Batch : 17A29C79**
**SW- 346 5030/8020 BTEX**

Date Validated: Sep 23, 1997 14:30

Analyst: OR

Date Analyzed: Sep 22, 1997 10:36

Matrix: Solid

QA/QC Manager: Edward H. Yonemoto, Ph.D.

**BLANK SPIKE ANALYSIS**

Parameter	[A]	[B]	[C]	[D]	[E]	[F]	[G]
	Blank Result	Blank Spike Result	Blank Spike Amount	Method Detection Limit	QC	LIMITS	Qualifier
	ppm	ppm	ppm	ppm	Blank Spike Recovery %	Recovery Range %	
Benzene	< 0.0010	0.0902	0.1000	0.0010	90.2	65-135	
Toluene	< 0.0010	0.0877	0.1000	0.0010	87.7	65-135	
Ethylbenzene	< 0.0010	0.0927	0.1000	0.0010	92.7	65-135	
m,p-Xylenes	< 0.0020	0.1900	0.2000	0.0020	95.0	65-135	
o-Xylene	< 0.0010	0.0878	0.1000	0.0010	87.8	65-135	

 Blank Spike Recovery [E] =  $100 \times (B-A)/(C)$ 

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

  
 Edward H. Yonemoto, Ph.D.  
 QA/QC Manager


**Certificate Of Quality Control for Batch : 17A29C77**
**SW- 846 5030/3020 BTEX**
**Date Validated:** Sep 22, 1997 10:05

**Analyst:** OR

**Date Analyzed:** Sep 19, 1997 10:04

**Matrix:** Solid

**QA/QC Manager:** Edward H. Yonemoto, Ph.D.

**BLANK SPIKE ANALYSIS**

Parameter	(A)	(B)	(C)	(D)	(E)	(F)	(G) Qualifier
	Blank Result	Blank Spike Result	Blank Spike Amount	Method Detection Limit	QC	LIMITS	
	ppm	ppm	ppm	ppm	Blank Spike Recovery %	Recovery Range %	
Benzene	< 0.0010	0.0857	0.1000	0.0010	85.7	65-135	
Toluene	< 0.0010	0.0855	0.1000	0.0010	65.5	65-135	
Ethylbenzene	< 0.0010	0.0924	0.1000	0.0010	92.4	65-135	
m,p-Xylenes	< 0.0020	0.1880	0.2000	0.0020	94.0	65-135	
o-Xylene	< 0.0010	0.0876	0.1000	0.0010	87.6	65-135	

Blank Spike Recovery [E] =  $100 \times (B-A)/(C)$ 

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

  
Edward H. Yonemoto, Ph.D.  
QA/QC Manager

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Page 1





# Certificate Of Quality Control for Batch : 17A29C77

SW- 846 5030/3020 RTX

Date Validated: Sep 22, 1997 10:05

Date Analyzed: Sep 19, 1997 13:22

QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: OR

Matrix: Solid

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 172152- 002	Parameter	[A] Sample Result ppm	[B] Matrix Spike Result ppm	[C] Matrix Spike Duplicate Result ppm	[D] Matrix Spike Amount ppm	[E] Method Detection Limit ppm	[F] Matrix Limit Relative Difference %	[G]		[H]		[I] Matrix Spike Recovery Range %	[J] Qualifier
								QC	Matrix Spike Recovery %	QC	M.S.D. Recovery %		
	Benzene	< 0.050	1.690	1.785	2.000	0.050	20.0	5.5	84.5	89.3	89.3	65-135	
	Toluene	< 0.050	1.790	1.880	2.000	0.050	20.0	5.5	89.0	94.0	94.0	65-135	
	Ethylbenzene	< 0.050	2.045	2.170	2.000	0.050	20.0	5.9	102.3	108.5	108.5	65-135	
	m,p-Xylenes	< 0.100	4.165	4.410	4.000	0.100	20.0	5.7	104.1	110.3	110.3	65-135	
	o-Xylene	< 0.050	2.005	2.125	2.000	0.050	20.0	5.8	100.3	106.3	106.3	65-135	

Spike Relative Difference [F] =  $200 \cdot (B-C) / (B+C)$

Matrix Spike Recovery [G] =  $100 \cdot (B-A) / [D]$

M.S.D. = Matrix Spike Duplicate

M.S.D. Recovery [H] =  $100 \cdot (C-A) / [D]$

N.D. = Below detection limit or not detected

All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.  
QA/QC Manager

Houston - Dallas - San Antonio


**Certificate Of Quality Control for Batch : 17A29C76**
**SW- 846 5030/8020 BTEX**
**Date Validated:** Sep 19, 1997 17:15

**Analyst:** OR

**Date Analyzed:** Sep 18, 1997 12:41

**Matrix:** Solid

**QA/QC Manager:** Edward H. Yonemoto, Ph.D.

**BLANK SPIKE ANALYSIS**

Parameter	[A]	[B]	[C]	[D]	[E]	[F]	[G]
	Blank	Blank Spike	Blank	Method	QC	LIMITS	Qualifier
	Result	Result	Spike	Detection	Blank Spike	Recovery	
	ppm	ppm	Amount	Limit	Recovery	Range	
			ppm	ppm	%	%	
Benzene	< 0.0010	0.0896	0.1000	0.0010	89.6	65-135	
Toluene	< 0.0010	0.0887	0.1000	0.0010	88.7	65-135	
Ethylbenzene	< 0.0010	0.0952	0.1000	0.0010	95.2	65-135	
m,p-Xylenes	< 0.0020	0.1930	0.2000	0.0020	96.5	65-135	
o-Xylene	< 0.0010	0.0901	0.1000	0.0010	90.1	65-135	

Blank Spike Recovery [E] =  $100 \times (B-A)/(C)$ 

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

  
Edward H. Yonemoto, Ph.D.  
QA/QC Manager

Houston - Dallas - San Antonio

Page 1



# Certificate Of Quality Control for Batch : 17A29C76

SW- 346 5030/8020 RTEX

Date Validated: Sep 19, 1997 17:15

Date Analyzed: Sep 18, 1997 15:46

QA/QC Manager: Edward H. Yonemolo, Ph.D.

Analyst: OR

Matrix: Solid

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 172147-004	Parameter	{A} Sample Result ppm	{B} Matrix Spike Result ppm	{C} Matrix Spike Duplicate Result ppm	{D} Matrix Spike Amount ppm	{E} Method Detection Limit ppm	Matrix Limit Relative Difference %	{F} QC		{G} QC Matrix Spike Recovery %	{H} QC M.S.D. Recovery %	{I} Matrix Spike Recovery Range %	{J} Qualifier
								Spike Relative Difference %					
	Benzene	< 0.050	1.420	1.550	2.000	0.050	20.0	9.4		71.0	78.0	65-135	
	Toluene	< 0.050	1.520	1.615	2.000	0.050	20.0	6.1		76.0	80.6	65-135	
	Ethylbenzene	< 0.050	1.855	1.845	2.000	0.050	20.0	0.5		92.8	92.3	65-135	
	m,p-Xylenes	< 0.100	3.705	3.710	4.000	0.100	20.0	0.1		92.6	92.6	65-135	
	o-Xylene	< 0.050	1.680	1.825	2.000	0.050	20.0	8.3		84.0	91.3	65-135	

Spike Relative Difference [F] =  $200 \cdot (B-C)/(B+C)$

Matrix Spike Recovery [G] =  $100 \cdot (B-A)/D$

M.S.D. = Matrix Spike Duplicate

M.S.D. Recovery [H] =  $100 \cdot (C-A)/D$

N.D. = Below detection limit or not detected

All results are based on MDL and validated for QC purposes

Edward H. Yonemolo, Ph.D.  
QA/QC Manager

Houston - Dallas - San Antonio



# Certificate Of Quality Control for Batch : 17A01D61

## SW846- 8260 Volatile Organic Analysis

Date Validated: Sep 29, 1997 16:45

Date Analyzed: Sep 26, 1997 14:30

QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: CE

Matrix: Solid

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 172149- 014	Parameter	[A] Sample Result mg/Kg	[B] Matrix Spike Result mg/Kg	[C] Matrix Spike Duplicate Result mg/Kg	[D] Matrix Spike Amount mg/Kg	[E] Method Detection Limit mg/Kg	Matrix Limit Relative Difference %	[F] QC		[G] QC		[H] QC		[I] Matrix Spike Recovery Range %	[J] Qualifier
								Spike Relative Difference %		Matrix Spike Recovery %		M.S.D. Recovery %			
	Benzene	0.84	5.97	6.05	5.00	0.10	20.0	1.3		102.6		104.2		66-142	
	Chlorobenzene	< 0.10	4.89	5.09	5.00	0.10	20.0	4.0		97.8		101.8		60-133	
	1,1-Dichloroethene	< 0.40	4.46	4.54	5.00	0.40	25.0	1.8		89.2		90.8		59-172	
	Toluene	< 0.10	4.93	4.98	5.00	0.10	20.0	1.0		98.6		99.6		59-139	
	Trichloroethene	< 0.30	4.92	5.03	5.00	0.30	20.0	2.2		98.4		100.6		62-137	

Spike Relative Difference [F] =  $100 \times (B - C) / (B + C)$ Matrix Spike Recovery [G] =  $100 \times (B - A) / [D]$ 

M.S.D. = Matrix Spike Duplicate

M.S.D. Recovery [H] =  $100 \times (C - A) / [D]$ 

N.D. = Below detection limit or not detected

All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.  
QA/QC Manager

Houston - Dallas - San Antonio



# Certificate Of Quality Control for Batch: 17A34E65

SW846-8270 PAHs by GC-MS (610 List)

Date Validated: Sep 27, 1997 11:46

Date Analyzed: Sep 26, 1997 03:48

QA/QC Manager: Edward H. Yonemolo, Ph.D.

Analyst: LC

Matrix: Solid

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 172201-001	Parameter	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]
		Sample Result mg/Kg	Matrix Spike Result mg/Kg	Matrix Spike Duplicate Result mg/Kg	Matrix Spike Amount mg/Kg	Method Detection Limit mg/Kg	Matrix Limit Relative Difference %	QC	Matrix Spike Recovery	Matrix Spike Recovery Range %	Qualifier
								Spike Relative Difference %	QC		
	Acenaphthene	< 0.133	2.687	2.807	3.333	0.133	4.4	80.6	84.2	31-137	
	4-Chloro-3-Methylphenol	< 0.253	2.227	2.353	3.333	0.253	5.5	66.8	70.6	26-103	
	2-Chlorophenol	< 0.333	2.227	2.433	3.333	0.333	8.8	66.8	73.0	25-102	
	1,4-Dichlorobenzene	< 0.280	2.693	2.880	3.333	0.280	6.7	80.8	86.4	28-104	
	2,4-Dinitrotoluene	< 0.333	2.713	2.833	3.333	0.333	4.3	81.4	85.0	28-89	
	N-Nitroso-di-n-propylamine	< 0.267	2.967	3.093	3.333	0.267	4.2	89.0	92.8	41-126	
	4-Nitrophenol	< 0.267	0.640	0.787	3.333	0.267	20.6	19.2	23.6	11-114	
	Pentachlorophenol	< 0.573	1.393	1.507	3.333	0.573	7.9	41.8	45.2	17-109	
	Phenol	< 0.247	2.513	2.680	3.333	0.247	6.4	75.4	80.4	26-90	
	Pyrene	< 0.133	2.040	2.107	3.333	0.133	3.2	61.2	63.2	35-142	
	1,2,4-Trichlorobenzene	< 0.360	2.573	2.687	3.333	0.360	4.3	77.2	80.6	38-107	

Spike Relative Difference [F] =  $200 \times (B - C) / (B + C)$

Matrix Spike Recovery [G] =  $100 \times (B - A) / D$

M.S.D. = Matrix Spike Duplicate

M.S.D. Recovery [H] =  $100 \times (C - A) / D$

N.D. = Below detection limit or not detected

All results are based on MDL and validated for QC purposes

Edward H. Yonemolo, Ph.D.  
QA/QC Manager

Houston - Dallas - San Antonio





# Certificate Of Quality Control for Batch: 17A34E65

SW846-8270 PAHs by GC-MS (610 List)

Date Validated: Sep 27, 1997 11:46

Analyst: LC

Date Analyzed: Sep 25, 1997 19:26

Matrix: Solid

QA/QC Manager: Edward H. Yonemoto, Ph.D.

Parameter	BLANK SPIKE ANALYSIS						
	[A]	[B]	[C]	[D]	[E]	[F]	[G]
	Blank Result	Blank Spike Result	Blank Spike Amount	Method Detection Limit	QC	LIMITS	
	mg/Kg	mg/Kg	mg/Kg	mg/Kg	Blank Spike Recovery %	Recovery Range %	
Acenaphthene	< 0.133	2.373	3.333	0.133	71.2	31-137	
4-Chloro-3-Methylphenol	< 0.253	2.060	3.333	0.253	61.8	26-103	
2-Chlorophenol	< 0.333	2.247	3.333	0.333	67.4	25-102	
1,4-Dichlorobenzene	< 0.280	2.380	3.333	0.280	71.4	28-104	
2,4-Dinitrotoluene	< 0.333	2.387	3.333	0.333	71.6	28-89	
N-Nitroso-di-n-propylamine	< 0.267	2.620	3.333	0.267	78.6	41-126	
4-Nitrophenol	< 0.267	1.447	3.333	0.267	43.4	11-114	
Pentachlorophenol	< 0.573	2.207	3.333	0.573	66.2	17-109	
Phenol	< 0.247	2.433	3.333	0.247	73.0	26-90	
Pyrene	< 0.133	1.860	3.333	0.133	55.8	35-142	
1,2,4-Trichlorobenzene	< 0.360	2.360	3.333	0.360	71.4	38-107	

Blank Spike Recovery [E] =  $100 \cdot (B-A)/(C)$

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

  
Edward H. Yonemoto, Ph.D.  
QA/QC Manager



# Certificate Of Quality Control for Batch 17A07G47

## EPA 1312/418.1 SPLP TPH

Date Validated: Sep 27, 1997 08:00

Date Analyzed: Sep 26, 1997 14:26

QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: OG

Matrix: Solid

Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Duplicate Result ppm	[D] Blank Spike Amount ppm	[E] Method Detection Limit ppm	Blank Limit Relative Difference %	[F] QC		[G] QC	[H] QC B.S.D. Recovery %	[I] Blank Spike Recovery Range %	[J] Qualifier
							Spike Relative Difference %					
Total Petroleum Hydrocarbons	< 0.50	3.88	3.85	4.03	0.50	20.0	0.8		96.3	95.3	65-135	

Spike Relative Difference [F] =  $200 \cdot (B-C)/(B+C)$ Blank Spike Recovery [G] =  $100 \cdot (B-A)/[D]$ 

B.S.D. = Blank Spike Duplicate

B.S.D. Recovery [H] =  $100 \cdot (C-A)/[D]$ 

N.D. = Below detection limit or not detected

All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.  
QA/QC Manager

Houston - Dallas - San Antonio



# ANALYTICAL CHAIN OF CUSTODY REPORT CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 610057 Site #18  
Project Manager: Mike Chapa  
Project Location: Monument Site #18

Project Name: 610057 Site #18

XENCO COC#: 1-72149

Date Received in Lab: Sep 16, 1997 10:40 by AS

XENCO contact : Carlos Castro/Edward Yonemoto

Date and Time									
Field ID	Lab. ID	Method Name	Method ID	Units	Turn Around	Sample Collected	Addition Requested	Extraction	Analysis
1 MW18-5 (5-7)	172149-001	BTEX	SW-846	ppm	Standard	Sep 11, 1997		Sep 18, 1997 by OR	Sep 18, 1997 17:16 by OR
2		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 11, 1997		Sep 20, 1997 by CY	Sep 21, 1997 20:47 by LC
3 MW18-5(33-34)	172149-002	BTEX	SW-846	ppm	Standard	Sep 11, 1997		Sep 18, 1997 by OR	Sep 18, 1997 17:34 by OR
4		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 11, 1997		Sep 20, 1997 by CY	Sep 21, 1997 21:33 by LC
5 MW18-5 (5-7)	172149-003	BTEX	SW-846	ppm	Standard	Sep 12, 1997		Sep 18, 1997 by OR	Sep 18, 1997 18:11 by OR
6		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 12, 1997		Sep 20, 1997 by CY	Sep 21, 1997 22:18 by LC
7 MW18-6 (28-30)	172149-004	BTEX	SW-846	ppm	Standard	Sep 12, 1997		Sep 18, 1997 by OR	Sep 18, 1997 19:02 by OR
8		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 12, 1997		Sep 20, 1997 by CY	Sep 21, 1997 23:04 by LC
9 MW18-4 (5-7)	172149-005	BTEX	SW-846	ppm	Standard	Sep 12, 1997		Sep 18, 1997 by OR	Sep 18, 1997 19:20 by OR
10		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 12, 1997		Sep 20, 1997 by CY	Sep 21, 1997 23:50 by LC
11 MW18-4 (8.5-10.5)	172149-006	BTEX	SW-846	ppm	Standard	Sep 12, 1997		Sep 19, 1997 by OR	Sep 19, 1997 10:40 by OR
12		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 12, 1997		Sep 20, 1997 by CY	Sep 22, 1997 00:36 by LC
13 MW18-4 (20-22)	172149-007	BTEX	SW-846	ppm	Standard	Sep 12, 1997		Sep 18, 1997 by OR	Sep 18, 1997 19:56 by OR
14		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 12, 1997		Sep 20, 1997 by CY	Sep 22, 1997 01:22 by LC
15 MW18-4 (28-30)	172149-008	BTEX	SW-846	ppm	Standard	Sep 12, 1997		Sep 18, 1997 by OR	Sep 18, 1997 20:14 by OR
16		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 12, 1997		Sep 20, 1997 by CY	Sep 22, 1997 02:07 by LC
17 B18-A (5-7)	172149-009	BTEX	SW-846	ppm	Standard	Sep 11, 1997		Sep 22, 1997 by OR	Sep 22, 1997 11:11 by OR
18		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 11, 1997		Sep 20, 1997 by CY	Sep 22, 1997 02:53 by LC
19 B18-A (28-30)	172149-010	BTEX	SW-846	ppm	Standard	Sep 11, 1997		Sep 19, 1997 by OR	Sep 19, 1997 11:16 by OR
20		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 11, 1997		Sep 20, 1997 by CY	Sep 22, 1997 03:39 by LC
21 B18-B (5-7)	172149-011	BTEX	SW-846	ppm	Standard	Sep 12, 1997		Sep 18, 1997 by OR	Sep 18, 1997 21:08 by OR
22		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 12, 1997		Sep 20, 1997 by CY	Sep 22, 1997 04:25 by LC
23 B18-B (15-17)	172149-012	BTEX	SW-846	ppm	Standard	Sep 12, 1997		Sep 19, 1997 by OR	Sep 19, 1997 11:34 by OR
24		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 12, 1997		Sep 20, 1997 by CY	Sep 22, 1997 05:10 by LC
25 B18-C (5-7)	172149-013	BTEX	SW-846	ppm	Standard	Sep 12, 1997		Sep 19, 1997 by OR	Sep 19, 1997 12:28 by OR
26		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 12, 1997		Sep 20, 1997 by CY	Sep 22, 1997 05:56 by LC
27 B18-C (10.5-12.5)	172149-014	BTEX	SW-846	ppm	Standard	Sep 12, 1997		Sep 19, 1997 by OR	Sep 19, 1997 12:46 by OR
28		TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Sep 12, 1997		Sep 20, 1997 by CY	Sep 22, 1997 06:41 by LC



# ANALYTICAL CHAIN OF CUSTODY REPORT

## CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 610057 Site #18  
 Project Manager: Mike Chapa  
 Project Location: Monument Site #18

Project Name: 610057 Site #18

XENCO COC#: 1-72149

Date Received in Lab: Sep 16, 1997 10:40 by AS

XENCO contact : Carlos Castro/Edward Yonemoto

	Field ID	Lab. ID	Method Name	Method ID	Units	Turn Around	Sample Collected	Date and Time		
								Addition Requested	Extraction	Analysis
29			SPLP TPH	EPA	ppm	Standard	Sep 12, 1997	Sep 25, 1997 16:30	Sep 26, 1997 by OG	Sep 26, 1997 19:35 by OG
30			VOA (8260)	SW846-8260	mg/kg	Standard	Sep 12, 1997	Sep 25, 1997 16:30	Sep 26, 1997 by CE	Sep 26, 1997 14:30 by CE
31			SV-TCL	SW846-8270	mg/kg	Standard	Sep 12, 1997	Sep 25, 1997 16:30	Sep 26, 1997 by CY	Sep 26, 1997 01:32 by LC



1081 Meadowlark Suite L Houston, Texas 77062  
(713) 589-0892 Fax (713) 589-0895

CHAIN OF CUSTODY RECORD  
AND ANALYSIS REQUEST FORM

Page 1 of 2

Lab. Batch # 172149-H

Contractor <b>KEI Consultants</b>		Phone (214) 680-3767		No. of CONTAINERS		Carrier: <b>UPS</b>		Contractor COC #	
Address <b>5309 Wurzbach Suite 100 SA, TX 76238</b>		Project Director <b>Mike Hawthorne</b>		Total		Airbill No.		Quote #:	
Project Name <b>Mooremont site #16</b>		Project Manager <b>Mike Chapla</b>		Task No.		Sample Description		Turn-around	
Project No. <b>G10057 site 18</b>		Preservative		Task No.		Sample Description		Remarks	
Field ID		Date		Time		Container		ID #	
MW18-5		9-11-97		5-7		Q A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		1	
MW18-5		9-11-97		33-		Q A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		2	
MW18-6		9-12-97		5-		Q A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		3	
MW18-6		9-12-97		28-		Q A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		4	
MW18-4		9-12-97		5-		Q A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		5	
MW18-4		9-12-97		8.5-		Q A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		6	
MW18-4		9-12-97		20-		Q A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		7	
MW18-4		9-12-97		22-		Q A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		8	
MW18-4		9-12-97		26-		Q A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		9	
B18-A		9-11-97		5-		Q A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		10	
B18-A		9-11-97		28-		Q A B C D E F G H I J K L M N O P Q R S T U V W X Y Z		11	
Remarks		DATE		TIME		SIGNED		RECEIVED	
Sample w/ highest TPH (8015)		9-15-97		1130		[Signature]		[Signature]	
please use 57LP TPH									
SYOC									
NUC									





11381 Meadowglen Suite L Houston, Texas 77082  
(713) 589-0632 Fax (713) 589-0635

# CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Page 2 of 2

Lab. Batch # 172149-44

Contractor		Phone (210) 680-3767		Contractor COC #	
Address		5309 Wuirbark Suite 100 SA, TX 78238		Carrier: UPS	
Project Name		Monument site #18		Airbill No.	
Project Location		Monument site #18		No. coolers this shipment:	
Project Manager		Mike Hawthorne		Quote #:	
Project No.		G10057 site #18		P.O. No.:	
SAMPLE CHARACTERIZATION					
Field ID	Date	Time	Depth	Soil Type	Container Size
B18-B	9-12-97		5'-7"	90L	
B18-B	9-12-97		15'-17"	90L	
B18-C	9-12-97		5'-7"	90L	
B18-C	9-12-97		10.5'-12.5'	90L	
PRESERVATION					
Container		Preservative		Test No.	
Size	Type	Vol	Other	PTT No.	Sample Description
90L					
90L					
90L					
90L					
CONTAINERS					
No.	of	CONTAINERS	Total	Remarks	
1	1		1	BTEX (5000/8000-600)	
2	1		1	TPH (200)	
3	1		1	SVOC (2870)	
4	1		1	VOC (8260)	
5	1		1	SVOC (8260)	
6	1		1	VOC (8260)	
7	1		1	SPAP TPH (1312)	
8	1		1	TPH (200)	
9	1		1	VOC (8260)	
10	1		1	SVOC (8260)	

Pink (Contractor), Yellow &amp; White (Lab)

**\* Pre-scheduling is recommended**

Precision Analytical Services

# ANALYTICAL REPORT 1-82683

for

**K.E.I. Consultants, Inc.**

**Project Manager: Theresa Nix**

**Project Name: Monument Site #18**

**Project Id: 610057-2-18**

**August 17, 1998**



HOUSTON - DALLAS - SAN ANTONIO

11381 Meadowglen Lane Suite L \* Houston, Texas 77082-2547  
Phone (281) 589-0692 Fax (281) 589-0695



11381 Meadowglen Suite L  
Houston, Texas 77082-2647  
(281) 589-0692 Fax: (281) 589-0695  
Houston - Dallas - San Antonio - Latin America

August 17, 1998

Project Manager: Theresa Nix  
K.E.I. Consultants, Inc.  
5309 Wurzbach Rd. Suite 100  
San Antonio, TX 78238

Reference: **XENCO Report No.: 1-82683**  
**Project Name: Monument Site #18**  
**Project ID: 610057-2-18**  
**Project Address: Monument, NM**

Dear Theresa Nix:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with XENCO Chain of Custody Number 1-82683. All results being reported to you apply only to the samples analyzed, properly identified with a Laboratory ID number. This letter documents the official transmission of the contents of the report and validates the information contained within.

All the results for the quality control samples passed thorough examination. Also, all parameters for data reduction and validation checked satisfactorily. In view of this, we are able to release the analytical data for this report within acceptance criteria for accuracy, precision, completeness or properly flagged.

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 3 years in our archives and after that time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in COC No. 1-82683 will be filed for 60 days, and after that time they will be properly disposed of 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).

XENCO operates under the A2LA guidelines. Our Quality System meets ISO/IEC Guide 25 requirements which is strictly implemented and enforced through our standard QA/QC procedures.

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.

Sincerely,

Eddie L. Clemons, II  
QA/QC 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.*



# CERTIFICATE OF ANALYSIS SUMMARY 1-82683

## K.E.I. Consultants, Inc.

Project ID: 610057-2-18  
Project Manager: Theresa Nix  
Project Location: Montument, NM

Project Name: Montument Site #18

Date Received in Lab: Jul 16, 1998 09:15

Date Report Faxed: Aug 17, 1998

XENCO contact: Carlos Castro/Eddie Clemmons

Analysis Requested		Lab ID: Field ID: Depth: Matrix: Sampled:	182683 001 MW18-8 0'-2' Solid 07/15/98 08:30	182683 002 MW18-8 8'-10' Solid 07/15/98 09:45	182683 003 MW18-8 28'-30' Solid 07/15/98 11:00	182683 004 MW18-7 0'-2' Solid 07/15/98 12:30	182683 005 MW18-7 6'-8' Solid 07/15/98 13:30	182683 006 MW18-7 28'-30' Solid 07/15/98 15:00
Total Petroleum Hydrocarbons	TPH-DRO (Diesel)	Analyzed: Units:	R.L. mg/kg	R.L. mg/kg	R.L. mg/kg	R.L. mg/kg	R.L. mg/kg	R.L. mg/kg
	EPA 8015 M		9.6 (5.0)	7.3 (5.0)	15.6 (5.0)	7.0 (5.0)	10.5 (5.0)	369 (5.0)
	Total Petroleum Hydrocarbons	Analyzed: Units:	R.L. ppm	R.L. ppm	R.L. ppm	R.L. ppm	R.L. ppm	R.L. ppm
	BTEX		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.10 (0.10)
	EPA 8021B		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	0.10 (0.10)
SPLP-Semi-volatiles	Benzenes		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.10 (0.10)
	Toluene		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.10 (0.10)
	Ethylbenzene		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.10 (0.10)
	m,p-Xylenes		< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)	< 0.20 (0.20)
	o-Xylene		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	0.11 (0.10)
Acenaphthylene	Total BTEX		N.D.	N.D.	N.D.	N.D.	N.D.	0.210
	SPLP-Semi-volatiles	Analyzed: Units:						0.73198 mg/L
	EPA 1312/8270							R.L.
	Acenaphthylene							< 0.005 (0.005)
	Acenaphthylene							< 0.005 (0.005)
Acenaphthylene	Anthracene							< 0.005 (0.005)
	Benzo(a)anthracene							< 0.005 (0.005)
	Benzo(a)pyrene							< 0.005 (0.005)
	Benzo(b)fluoranthene							< 0.005 (0.005)
	Benzo(g,h)fluoranthene							< 0.005 (0.005)
4-Bromophenyl-phenylether	Benzo(k)fluoranthene							< 0.005 (0.005)
	4-Bromophenyl-phenylether							< 0.005 (0.005)
	Butyl benzyl phthalate							< 0.005 (0.005)
	Carbazole							< 0.005 (0.005)
	4-Chloro-3-methylphenol							< 0.005 (0.005)

This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc. The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories, however, assumes no responsibility and makes no warranty to the end use of the data hereby presented.

*Eddie L. Clemmons*  
Eddie L. Clemmons, II  
QA/QC Manager



# CERTIFICATE OF ANALYSIS SUMMARY 1-82683

## K.E.I. Consultants, Inc.

Project ID: 610057-2-18

Project Name: Monument Site #18

Date Received in Lab: Jul 16, 1998 09:15

Project Manager: Theresa Nix

Date Report Faxed: Aug 17, 1998

Project Location: Monument, NM

XENCO contact: Carlos Castro/Eddie Clemons

Analysis Requested	Lab ID:					Field ID:					Depth:					Matrix:					Sampled:					Analyzed:					Units:					R.L.				
	EPA1312/8270					182683 001					182683 002					182683 003					182683 004					182683 005					182683 006					182683 007				
4-Chloroaniline						MW18-8					MW18-8					MW18-8					MW18-7					MW18-7					MW18-7					MW18-7				
2-Chloronaphthalene						0'-2'					8'-10'					28'-30'					0'-2'					6'-8'					28'-30'					28'-30'				
2-Chlorophenol						Solid					Solid					Solid					Solid					Solid					Solid					Solid				
4-Chlorophenyl-phenyl ether						07/15/98 08:30					07/15/98 09:45					07/15/98 11:00					07/15/98 12:30					07/15/98 13:30					07/15/98 15:00									
Chrysene																																								
Di-n-butyl phthalate																																								
Di-n-octyl phthalate																																								
Dibenzofuran																																								
1,2-Dichlorobenzene																																								
1,3-Dichlorobenzene																																								
1,4-Dichlorobenzene																																								
3,3'-Dichlorobenzidine																																								
2,4-Dichlorophenol																																								
Diethyl phthalate																																								
2,4-Dimethylphenol																																								
Dimethyl phthalate																																								
4,6-Dinitro-2-methylphenol																																								
2,4-Dinitrophenol																																								
2,4-Dinitrotoluene																																								
2,6-Dinitrotoluene																																								
Fluoranthene																																								
Fluorene																																								
1-Hexachlorobenzene																																								

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*Eddie L. Clemons, II*  
Eddie L. Clemons, II  
QA/QC Manager





CERTIFICATE OF ANALYSIS SUMMARY 1-82683

**K.E.I. Consultants, Inc.**

Project ID: 610057-2-18  
Project Manager: Theresa Nix  
Project Location: Monument, N

Date Received in Lab : Jul 16, 1998 09:15  
Date Report Faxed: Aug 17, 1998  
XENCO contact : Carlos Castro/Eddie

<b><i>Analysis Requested</i></b>		Lab ID: Field ID Depth: Matrix Sampled:	182683-001 MW18-8 0'-2' Solid 07/15/98 08:30	182683-002 MW18-8 8'-10' Solid 07/15/98 09:45	182683-003 MW18-8 28'-30' Solid 07/15/98 11:00	182683-004 MW18-7 0'-2' Solid 07/15/98 12:30	182683-005 MW18-7 6'-8' Solid 07/15/98 13:30	182683-006 MW18-7 28'-30' Solid 07/15/98 15:00
EPA1312/B270	Analyzed: Units:						R.L. mg/L	
Hexachlorobutadiene							< 0.005 [0.005]	
Hexachlorocyclopentadiene							< 0.005 [0.005]	
Hexachloroethane							< 0.005 [0.005]	
Indeno(1,2,3-cd)pyrene							< 0.005 [0.005]	
Isochlorone							< 0.005 [0.005]	
2-Methylnaphthalene							< 0.005 [0.005]	
2-Methylphenol							< 0.005 [0.005]	
4-Methylphenol							< 0.005 [0.005]	
N-Nitroso-di-n-propylamine							< 0.005 [0.005]	
N-Nitrosodiphenylamine							< 0.005 [0.005]	
Naphtalene							< 0.005 [0.005]	
2-Nitroaniline							< 0.005 [0.005]	
3-Nitroaniline							< 0.013 [0.013]	
4-Nitroaniline							< 0.013 [0.013]	
Nitrobenzene							< 0.013 [0.013]	
2-Nitrophenol							< 0.005 [0.005]	
4-Nitrophenol							< 0.005 [0.005]	
Penta-chlorophenol							< 0.013 [0.013]	
Phenanthrene							< 0.005 [0.005]	
Phenol							< 0.005 [0.005]	
Pyrene							< 0.005 [0.005]	
1,2,4-Trichlorobenzene							< 0.005 [0.005]	
2,4,5-Trichlorophenol							< 0.005 [0.005]	
2,4,6-Trichlorophenol							< 0.013 [0.013]	

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Eddie L. Clemons, II

QA/QC Manager



# CERTIFICATE OF ANALYSIS SUMMARY 1-82683

## K.E.I. Consultants, Inc.

Project ID: 610057-2-18

Project Manager: Theresa Nix

Project Location: Monument, NM

Project Name: Monument Site #18

Date Received in Lab : Jul 16, 1998 09:15

Date Report Faxed: Aug 17, 1998

XENCO contact : Carlos Castro/Eddie Clemons

Analysis Requested	Lab ID: Field ID: Depth: Matrix: Sampled:	182683 001 MW18-B 0'-2' Solid 07/15/98 08:30	182683 002 MW18-B 8'-10' Solid 07/15/98 09:45	182683 003 MW18-B 28'-30' Solid 07/15/98 11:00	182683 004 MW18-7 0'-2' Solid 07/15/98 12:30	182683 005 MW18-7 6'-8' Solid 07/15/98 13:30	182683 006 MW18-7 28'-30' Solid 07/15/98 15:00
EPA1312/8270	Analyzed: Units:						07/31/98 mg/L R.L.
bis(2-Chloroethoxy) methane							< 0.005 (0.005)
bis(2-Chloroethyl) ether							< 0.005 (0.005)
bis(2-Chloroisopropyl) ether							< 0.005 (0.005)
bis(2-Ethylhexyl) phthalate							< 0.005 (0.005)
SPLP Volatiles EPA 8260	Analyzed: Units:						08/04/98 mg/L R.L.
Benzene							< 0.005 (0.005)
Bromobenzene							< 0.005 (0.005)
Bromochloromethane							< 0.005 (0.005)
Bromodichloromethane							< 0.005 (0.005)
Bromoforn							< 0.005 (0.005)
Bromomethane							< 0.005 (0.005)
Carbon Tetrachloride							< 0.005 (0.005)
Chlorobenzene							< 0.010 (0.010)
Chloroethane							< 0.005 (0.005)
Chloroform							< 0.010 (0.010)
Chloromethane							< 0.005 (0.005)
2-Chlorotoluene							< 0.005 (0.005)
4-Chlorotoluene							< 0.005 (0.005)
1,2-Dibromo-3-chloropropane							< 0.005 (0.005)
Dibromochloromethane							< 0.005 (0.005)
1,2-Dibromoethane							< 0.005 (0.005)
Dibromomethane							< 0.005 (0.005)

This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc. The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories, however, assumes no responsibility and makes no warranty to the end use of the data hereby presented.

*Eddie Clemons*  
Eddie L. Clemons, II  
QA/QC Manager



# CERTIFICATE OF ANALYSIS SUMMARY 1-82683

## K.E.I. Consultants, Inc.

Project ID: 610057-2-18  
Project Manager: Theresa Nix  
Project Location: Monument, NM

Date Received in Lab : Jul 16, 1998 09:15  
Date Report Faxed: Aug 17, 1998

Analysis Requested		Lab ID: Field ID: Depth: Matrix: Sampled:	182683 001 MW18-8 0'-2' Solid 07/15/98 08:30	182683 002 MW18-8 8'-10' Solid 07/15/98 09:45	182683 003 MW18-8 28'-30' Solid 07/15/98 11:00	182683 004 MW18-7 0'-2' Solid 07/15/98 12:30	182683 005 MW18-7 6'-8' Solid 07/15/98 13:30	182683 006 MW18-7 28'-30' Solid 07/15/98 15:00
EPA 8260		Analyzed: Units:						0804/98 mg/L R.L.
1,2-Dichlorobenzene								< 0.005 (0.005)
1,3-Dichlorobenzene								< 0.005 (0.005)
1,4-Dichlorobenzene								< 0.005 (0.005)
Dichlorodifluoromethane								< 0.005 (0.005)
1,1-Dichloroethane								< 0.005 (0.005)
1,2-Dichloroethane								< 0.005 (0.005)
1,1-Dichloroethene								< 0.005 (0.005)
1,2-Dichloropropane								< 0.005 (0.005)
1,3-Dichloropropane								< 0.005 (0.005)
2,2-Dichloropropane								< 0.005 (0.005)
1,1-Dichloropropene								< 0.005 (0.005)
Ethylbenzene								< 0.005 (0.005)
Hexachlorobutadiene								< 0.005 (0.005)
Isopropylbenzene								< 0.005 (0.005)
MTBE								< 0.005 (0.005)
Methylene chloride								< 0.005 (0.005)
Naphthalene								< 0.010 (0.010)
Styrene								< 0.020 (0.020)
1,1,1,2-Tetrachloroethane								0.012 (0.005)
1,1,2,2-Tetrachloroethane								< 0.005 (0.005)
Tetrachloroethene								< 0.005 (0.005)
Toluene								< 0.005 (0.005)
1,2,3-Trichlorobenzene								< 0.005 (0.005)
1,2,4-Trichlorobenzene								0.006 (0.005)
								< 0.005 (0.005)
								< 0.005 (0.005)

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*Eddie L. Clemmons, II*  
Eddie L. Clemmons, II  
QA/QC Manager

Monument, NM



# CERTIFICATE OF ANALYSIS SUMMARY 1-82683

## K.E.I. Consultants, Inc.

Project ID: 610057-2-18  
Project Manager: Theresa Nix  
Project Location: Monument, NM

Date Received in Lab: Jul 16, 1998 09:15

Date Report Faxed: Aug 17, 1998

XENCO contact: Carlos Castro/Eddie Clemons

Analysis Requested		Lab ID: Field ID: Depth: Matrix: Sampled:	182683 001 MW18-8 0'-2' Solid 07/15/98 08:30	182683 002 MW18-8 8'-10' Solid 07/15/98 09:45	182683 003 MW18-8 28'-30' Solid 07/15/98 11:00	182683 004 MW18-7 0'-2' Solid 07/15/98 12:30	182683 005 MW18-7 6'-8' Solid 07/15/98 13:30	182683 006 MW18-7 28'-30' Solid 07/15/98 15:00
EPA 8260	Analyzed: Units:							08/04/98 mg/L R.L.
1,1,1-Trichloroethane								< 0.005 (0.005)
1,1,2-Trichloroethane								< 0.005 (0.005)
Trichloroethene								< 0.005 (0.005)
Trichlorofluoromethane								< 0.005 (0.005)
1,2,3-Trichloropropane								< 0.005 (0.005)
1,2,4-Trimethylbenzene								0.010 (0.005)
1,3,5-Trimethylbenzene								0.005 (0.005)
Vinyl chloride								< 0.005 (0.005)
cis-1,2-Dichloroethane								< 0.005 (0.005)
cis-1,3-Dichloropropene								< 0.005 (0.005)
m,p-Xylenes								< 0.005 (0.005)
n-Butylbenzene								0.013 (0.005)
n-Propylbenzene								< 0.005 (0.005)
o-Xylene								< 0.005 (0.005)
p-Isopropyltoluene								0.006 (0.005)
sec-Butylbenzene								< 0.005 (0.005)
tert-Butylbenzene								< 0.005 (0.005)
trans-1,2-Dichloroethene								< 0.005 (0.005)
trans-1,3-Dichloropropene								< 0.005 (0.005)
SPLP TPH	Analyzed: Units:							07/31/98 ppm R.L.
1312418.1								0.8 (0.7)
Total Petroleum Hydrocarbons								

This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc. The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories, however, assumes no responsibility and makes no warranty to the end use of the data hereby presented.

Eddie L. Clemons, II  
QA/QC Manager



# Certificate Of Quality Control for Batch : 18A25C32

SW- 846 5030/8020 BTEX

Date Validated: Jul 20, 1998 09:00

Date Analyzed: Jul 17, 1998 09:31

Analyst: HL

Matrix: Solid

MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY												
Q.C. Sample ID 182691- 001  Parameter	[A]	[B]	[C]	[D]	[E]	Matrix	[F]	[G]	[H]	[I]	[J]	Qualifier
	Sample Result  ppm	Matrix Spike Result  ppm	Matrix Spike Duplicate Result  ppm	Matrix Spike Amount  ppm	Detection Limit  ppm	Limit  Relative Difference  %	QC	QC	QC	Matrix Spike	Recovery Range  %	
							Spike Relative Difference  %	Matrix Spike Recovery  %	M.S.D. Recovery  %			
Benzene	0.040	2.240	2.220	2.000	0.020	25.0	0.9	110.0	109.0	65-135		
Toluene	0.026	1.880	1.854	2.000	0.020	25.0	1.4	92.7	91.4	65-135		
Ethylbenzene	< 0.020	1.910	1.880	2.000	0.020	25.0	1.6	95.5	94.0	65-135		
m,p-Xylenes	< 0.040	4.020	3.980	4.000	0.040	25.0	1.0	100.5	99.5	65-135		
o-Xylene	< 0.020	1.846	1.835	2.000	0.020	25.0	0.5	92.3	91.8	65-135		

Spike Relative Difference [F] =  $200 \cdot (B-C)/(B+C)$

Matrix Spike Recovery [G] =  $100 \cdot (B-A)/[D]$

M.S.D. = Matrix Spike Duplicate

M.S.D. Recovery [H] =  $100 \cdot (C-A)/[D]$

HLR = Below detection limit or not detected

All results are based on MDL and validated for QC purposes

*Edith L. Clemons, II*  
Edith L. Clemons, II

OAQQC Manager

Blanken, Butler, & Sons Chemicals





**Certificate Of Quality Control for Batch : 18A25C32**

**SW- 346 5030/3020 BTEX**

**Date Validated:** Jul 20, 1998 09:00

Analyst: HL

**Date Analyzed:** Jul 17, 1998 08:43

**Matrix:** Solid

### BLANK SPIKE ANALYSIS

BLANK SPIKE ANALYSIS							
Parameter	(A)	(B)	(C)	(D)	(E)	(F)	(G) Qualifier
	Blank Result  ppm	Blank Spike Result  ppm	Blank Spike Amount  ppm	Detection Limit  ppm	QC	LIMITS	
					Blank Spike Recovery  %	Recovery Range  %	
Benzene	< 0.0010	0.1000	0.1000	0.0010	100.0	65-135	
Toluene	< 0.0010	0.0995	0.1000	0.0010	99.5	65-135	
Ethylbenzene	< 0.0010	0.0995	0.1000	0.0010	99.5	65-135	
m,p-Xylenes	< 0.0020	0.2070	0.2000	0.0020	103.5	65-135	
o-Xylene	< 0.0010	0.1020	0.1000	0.0010	102.0	65-135	

Blank Spike Recovery (E) =  $100 \times (B-A)/(C)$ 

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

Eddie L. Clemons, II  
CA/QC Manager



# Certificate of Quality Control for Batch : 18A34D34

## EPA 8210-8270 TCLP Semi- volatiles

Date Validated: Aug 3, 1998 16:00

Date Analyzed: Jul 31, 1998 16:51

Analyst: LC

Matrix: Liquid

### BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY

Parameter	[A] Blank Result mg/L	[B] Blank Spike Result mg/L	[C] Blank Spike Duplicate Result mg/L	[D] Blank Spike Amount mg/L	[E] Detection Limit mg/L	Blank Limit Relative Difference %	[F] QC		[G] Blank Spike Recovery %	[H] Blank Spike Recovery Range %		[J] Qualifier
							QC	Spike Relative Difference %		QC	B.S.D. Recovery %	
Acetophenone	< 0.0020	0.0710	0.0756	0.1000	0.0020	31.0		6.3	71.0	75.0	46-118	
4-Chloro-3-methylphenol	< 0.0006	0.0678	0.0592	0.1000	0.0006	42.0		13.5	67.8	59.2	23-97	
2-Chlorophenol	< 0.0040	0.0674	0.0592	0.1000	0.0040	40.0		13.0	67.4	59.2	27-123	
1,4-Dichlorobenzene	< 0.0040	0.0618	0.0622	0.1000	0.0040	28.0		0.6	61.0	62.2	36-97	
2,4-Dinitrobenzene	< 0.0008	0.0678	0.0692	0.1000	0.0008	38.0		2.0	67.8	69.2	24-96	
11-Phloro-di-n-propylurea	< 0.0080	0.0672	0.0656	0.1000	0.0080	38.0		2.4	67.2	65.6	41-116	
4-Hydrophenol	< 0.0080	0.0364	0.0306	0.1000	0.0080	50.0		17.3	36.4	30.6	10-80	
Pentachlorophenol	< 0.0012	0.0686	0.0380	0.1000	0.0012	50.0		57.4	68.6	38.0	9-103	
Phenol	< 0.0040	0.0326	0.0286	0.1000	0.0040	42.0		13.1	32.6	28.6	12-89	
Pyrene	< 0.0040	0.0666	0.0888	0.1000	0.0040	31.0		2.5	86.6	88.8	26-127	
1,2,4-Trichlorobenzene	< 0.0040	0.0636	0.0642	0.1000	0.0040	28.0		0.9	63.6	64.2	39-98	

Spike Relative Difference [F] =  $200 \cdot (B - C) / (B + C)$ Blank Spike Recovery [G] =  $100 \cdot (B - A) / (B)$ 

B.S.D. = Blank Spike Duplicate

B.S.D. Recovery [H] =  $100 \cdot (C - A) / (D)$ 

[I] = below detection limit or not detected

All results are based on MTH and validated for QC purposes

Eddie L. Clemens, II  
QA/QC Manager

Location: Dallas, Texas



# Certificate of Quality Control for Batch : 18A23D00

## EPA1312/8260 SPLP Volatiles

Date Validated: Aug 17, 1998 13:00

Date Analyzed: Aug 4, 1998 20:08

Analyst: CE

Matrix: Solid

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.4. Sample ID 18263A-000	Parameter	[A] Sample Result mg/L	[B] Matrix Spike Result mg/L	[C] Matrix Spike Duplicate Result mg/L	[D] Matrix Spike Amount mg/L	[E] Detection Limit mg/L	[F] Matrix Limit Relative Difference %	[G]		[H]		[I] Matrix Spike Recovery Range %	[J] Qualifier
								QC	Matrix Spike Recovery %	QC	M.S.D. Recovery %		
	Benzene	< 0.0010	0.0590	0.0545	0.0500	0.0010	20.0	7.9	118.0	109.0	109.0	56-142	
	Chlorobenzene	< 0.0010	0.0524	0.0529	0.0500	0.0010	20.0	0.9	104.8	105.8	105.8	60-133	
	1,1-Dichloroethene	< 0.0040	0.0512	0.0585	0.0500	0.0040	25.0	4.5	122.4	117.0	117.0	59-172	
	Toluene	0.0060	0.0584	0.0589	0.0500	0.0010	20.0	0.9	104.8	105.8	105.8	59-139	
	1,1,2,2-Tetrachloroethene	< 0.0030	0.0563	0.0537	0.0500	0.0030	20.0	4.7	112.6	107.4	107.4	62-137	

Spike Relative Difference [F] =  $200 \cdot (B - C) / (B + C)$ Matrix Spike Recovery [G] =  $100 \cdot (B - A) / B$ 

M.S.D. = Matrix Spike Duplicate

M.S.D. Recovery [H] =  $100 \cdot (C - A) / (D)$ 

[I] = Below detection limit or not detected

All results are based on MFL and validated for QC purposes

Eddie L. Clemens, Jr.  
QA/QC Manager

Hazardous Waste Unit, San Antonio



# Certificate Of Quality Control for Batch : 18A23D00

## EPA1312/8260 SPLP Volatiles

Date Validated: Aug 17, 1998 13:00

Analyst: CE

Date Analyzed: Aug 4, 1998 18:52

Matrix: Solid

### BLANK SPIKE ANALYSIS


Parameter	[A]	[B]	[C]	[D]	[E]	[F]	[G]
	Blank	Blank Spike	Blank	Detection	QC	LIMITS	
	Result	Result	Spike	Limit	Blank Spike	Recovery	
	mg/L	mg/L	Amount	mg/L	Recovery	Range	
			mg/L		%	%	
Benzene	< 0.0010	0.0573	0.0500	0.0010	114.6	66-142	
Chlorobenzene	< 0.0010	0.0542	0.0500	0.0010	108.4	60-133	
1,1-Dichloroethene	< 0.0040	0.0614	0.0500	0.0040	122.3	59-172	
Toluene	< 0.0010	0.0575	0.0500	0.0010	115.0	59-139	
Trichloroethene	< 0.0030	0.0538	0.0500	0.0030	107.6	62-137	

Blank Spike Recovery [E] = 100\*(B-A)/C

N.C. = Not calculated, data below detection limit

N.D. = Below detection limit

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

  
 Eddie L. Clements, Jr.  
 QA/QC Manager



# Certificate Of Quality Control for Batch : 18A07D44

## EPA 1312/413.1 SPLP TPH

Date Validated: Jul 31, 1998 16:45  
Date Analyzed: Jul 31, 1998 14:35

Analyst: EZ  
Matrix: Solid

BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY											
Parameter	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	Qualifier
	Blank Result  ppm	Blank Spike Result  ppm	Blank Spike Duplicate Result  ppm	Blank Spike Amount  ppm	Detection Limit  ppm	Blank Limit Relative Difference  %	QC	QC	Blank Spike Recovery Range  %	B.S.D. Recovery  %	
							QC	Blank Spike Recovery  %			
Total Petroleum Hydrocarbons	< 0.50	4.23	4.27	4.01	0.50	20.0	0.9	105.5	106.5	55-135	

Spike Relative Difference [F] =  $200 \cdot (B - C) / (B + C)$   
Blank Spike Recovery [G] =  $100 \cdot (B - A) / [D]$   
B.S.D. = Blank Spike Duplicate  
B.S.D. Recovery [H] =  $100 \cdot (C - A) / [D]$   
N.D. = Below detection limit or not detected  
All results are based on MDL and validated for QC purposes

Eddie L. Clemons, II  
QA/QC Manager

Houston - Dallas Scott Robinson





# ANALYTICAL CHAIN OF CUSTODY REPORT CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 610057-2-18  
Project Manager: Theresa Nix  
Project Location: Monument, NM

Project Name: Monument Site #18

XENCO COC#: 1-82683

Date Received in Lab: Jul 16, 1998 09:15 by CC

XENCO contact : Carlos Castro/Eddie Clemons

Date and Time									
Field ID	Lab. ID	Method Name	Method ID	Units	Turn Around	Sample Collected	Addition Requested	Extraction	Analysis
1 MW18-8 (0-2')	182683-001	BTEX	SW-846	ppm	10 days	Jul 15, 1998 08:30		Jul 17, 1998 13:44 by HL	Jul 17, 1998 13:44 by HL
2		TPH8015M-D	SW-846 8015 M	mg/kg	10 days	Jul 15, 1998 08:30		Jul 27, 1998 by OG	Jul 28, 1998 00:34 by AM
3 MW18-8 (6-10')	182683-002	BTEX	SW-846	ppm	10 days	Jul 15, 1998 09:45		Jul 17, 1998 by HL	Jul 17, 1998 14:00 by HL
4		TPH8015M-D	SW-846 8015 M	mg/kg	10 days	Jul 15, 1998 09:45		Jul 27, 1998 by OG	Jul 28, 1998 01:07 by AM
5 MW18-8 (28-30')	182683-003	BTEX	SW-846	ppm	10 days	Jul 15, 1998 11:00		Jul 17, 1998 by HL	Jul 17, 1998 14:16 by HL
6		TPH8015M-D	SW-846 8015 M	mg/kg	10 days	Jul 15, 1998 11:00		Jul 27, 1998 by OG	Jul 28, 1998 01:40 by AM
7 MW18-7 (0-2')	182683-004	BTEX	SW-846	ppm	10 days	Jul 15, 1998 12:30		Jul 17, 1998 by HL	Jul 17, 1998 14:32 by HL
8		TPH8015M-D	SW-846 8015 M	mg/kg	10 days	Jul 15, 1998 12:30		Jul 27, 1998 by OG	Jul 28, 1998 02:13 by AM
9 MW18-7 (6-8')	182683-005	BTEX	SW-846	ppm	10 days	Jul 15, 1998 13:30		Jul 17, 1998 by HL	Jul 17, 1998 14:48 by HL
10		TPH8015M-D	SW-846 8015 M	mg/kg	10 days	Jul 15, 1998 13:30		Jul 25, 1998 by OG	Jul 28, 1998 02:45 by AM
11 MW18-7 (28-30')	182683-006	BTEX	SW-846	ppm	10 days	Jul 15, 1998 15:00		Jul 17, 1998 by HL	Jul 17, 1998 15:04 by HL
12		TPH8015M-D	SW-846 8015 M	mg/kg	10 days	Jul 15, 1998 15:00		Jul 27, 1998 by OG	Jul 28, 1998 03:18 by AM
13		SPLP TPH	EPA	ppm	10 days	Jul 15, 1998 15:00	Jul 29, 1998 15:45	Jul 31, 1998 by EZ	Jul 31, 1998 15:40 by EZ
14		VOA (8260)	EPA1312/6260	mg/kg	10 days	Jul 15, 1998 15:00	Jul 29, 1998 15:45	Aug 4, 1998 by CE	Aug 4, 1998 20:08 by CE
15		SPLP-SV(TCL)	SW846-1312/62	ug/L	10 days	Jul 15, 1998 15:00	Jul 29, 1998 15:45	Jul 31, 1998 by SS	Jul 31, 1998 20:45 by LC



11381 Meadowglen Suite L Houston, Texas 77062  
(713) 589-0692 Fax (713) 589-0695

# CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Page 1 of 1

Lab. Batch # 82683-5A

[illegible]| Fractured, Yellow & White (Lab) |  |

\* Pre-scheduling is recommended

592571-5521

## Precision Analytical Services



# TRACE ANALYSIS, INC.

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## Analytical and Quality Control Report

Craig Eschberger  
Nova Safety & Environmental  
5023 Commerce  
Midland, TX 79703

Report Date: November 16, 2004

Work Order: 4110905

Project Location: Monument-Lea Co., NM  
Project Name: TNM Monument 18  
Project Number: TNM Monument 18

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
47982	MW-9 10'	soil	2004-11-04	11:05	2004-11-09
47984	MW-9 20'	soil	2004-11-04	11:20	2004-11-09
47986	MW-9 30'	soil	2004-11-04	11:35	2004-11-09
47988	MW-10 15'	soil	2004-11-04	13:35	2004-11-09
47990	MW-10 30'	soil	2004-11-04	13:50	2004-11-09

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 11 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

  
Dr. Blair Leftwich, Director

Report Date: November 16, 2004  
TNM Monument 18

Work Order: 4110905  
TNM Monument 18

Page Number: 2 of 11  
Monument-Lea Co.,NM

## Analytical Report

### Sample: 47982 - MW-9 10'

Analysis: BTEX	Analytical Method: S 8021B	Prep Method: S 5035
QC Batch: 13926	Date Analyzed: 2004-11-09	Analyzed By: MT
Prep Batch: 12304	Date Prepared: 2004-11-09	Prepared By: MT

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	10	0.00100
Toluene		<0.0100	mg/Kg	10	0.00100
Ethylbenzene		<0.0100	mg/Kg	10	0.00100
Xylene		<0.0100	mg/Kg	10	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.816	mg/Kg	10	0.100	82	60.1 - 104
4-Bromofluorobenzene (4-BFB)		0.736	mg/Kg	10	0.100	74	63.1 - 105

### Sample: 47982 - MW-9 10'

Analysis: TPH DRO	Analytical Method: Mod. 8015B	Prep Method: N/A
QC Batch: 14045	Date Analyzed: 2004-11-14	Analyzed By: BP
Prep Batch: 12412	Date Prepared: 2004-11-09	Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	123		mg/Kg	1	150	82	69.8 - 106.1

### Sample: 47982 - MW-9 10'

Analysis: TPH GRO	Analytical Method: S 8015B	Prep Method: S 5035
QC Batch: 13931	Date Analyzed: 2004-11-09	Analyzed By: MT
Prep Batch: 12304	Date Prepared: 2004-11-09	Prepared By: MT

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	10	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.07	mg/Kg	10	0.100	107	0 - 160
4-Bromofluorobenzene (4-BFB)		0.973	mg/Kg	10	0.100	97	0 - 174

### Sample: 47984 - MW-9 20'

Report Date: November 16, 2004  
TNM Monument 18

Work Order: 4110905  
TNM Monument 18

Page Number: 3 of 11  
Monument-Lea Co.,NM

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035  
QC Batch: 13926 Date Analyzed: 2004-11-09 Analyzed By: MT  
Prep Batch: 12304 Date Prepared: 2004-11-09 Prepared By: MT

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	10	0.00100
Toluene		<0.0100	mg/Kg	10	0.00100
Ethylbenzene		<0.0100	mg/Kg	10	0.00100
Xylene		<0.0100	mg/Kg	10	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.814	mg/Kg	10	0.100	81	60.1 - 104
4-Bromofluorobenzene (4-BFB)		0.757	mg/Kg	10	0.100	76	63.1 - 105

**Sample: 47984 - MW-9 20'**

Analysis: TPH DRO Analytical Method: Mod. 8015B Prep Method: N/A  
QC Batch: 14045 Date Analyzed: 2004-11-14 Analyzed By: BP  
Prep Batch: 12412 Date Prepared: 2004-11-09 Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		140	mg/Kg	1	150	93	69.8 - 106.1

**Sample: 47984 - MW-9 20'**

Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035  
QC Batch: 13931 Date Analyzed: 2004-11-09 Analyzed By: MT  
Prep Batch: 12304 Date Prepared: 2004-11-09 Prepared By: MT

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	10	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.09	mg/Kg	10	0.100	109	0 - 160
4-Bromofluorobenzene (4-BFB)		1.00	mg/Kg	10	0.100	100	0 - 174

**Sample: 47986 - MW-9 30'**

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035  
QC Batch: 13926 Date Analyzed: 2004-11-09 Analyzed By: MT  
Prep Batch: 12304 Date Prepared: 2004-11-09 Prepared By: MT



Report Date: November 16, 2004  
TNM Monument 18

Work Order: 4110905  
TNM Monument 18

Page Number: 4 of 11  
Monument-Lea Co.,NM

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	10	0.00100
Toluene		<0.0100	mg/Kg	10	0.00100
Ethylbenzene		<0.0100	mg/Kg	10	0.00100
Xylene		<0.0100	mg/Kg	10	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.749	mg/Kg	10	0.100	75	60.1 - 104
4-Bromofluorobenzene (4-BFB)		0.698	mg/Kg	10	0.100	70	63.1 - 105

**Sample: 47986 - MW-9 30'**

Analysis: TPH DRO      Analytical Method: Mod. 8015B      Prep Method: N/A  
QC Batch: 14045      Date Analyzed: 2004-11-14      Analyzed By: BP  
Prep Batch: 12412      Date Prepared: 2004-11-09      Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		152	mg/Kg	1	150	101	69.8 - 106.1

**Sample: 47986 - MW-9 30'**

Analysis: TPH GRO      Analytical Method: S 8015B      Prep Method: S 5035  
QC Batch: 13931      Date Analyzed: 2004-11-09      Analyzed By: MT  
Prep Batch: 12304      Date Prepared: 2004-11-09      Prepared By: MT

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	10	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.00	mg/Kg	10	0.100	100	0 - 160
4-Bromofluorobenzene (4-BFB)		0.919	mg/Kg	10	0.100	92	0 - 174

**Sample: 47988 - MW-10 15'**

Analysis: BTEX      Analytical Method: S 8021B      Prep Method: S 5035  
QC Batch: 13926      Date Analyzed: 2004-11-09      Analyzed By: MT  
Prep Batch: 12304      Date Prepared: 2004-11-09      Prepared By: MT

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	10	0.00100
Toluene		<0.0100	mg/Kg	10	0.00100

continued ...

Report Date: November 16, 2004  
TNM Monument 18

Work Order: 4110905  
TNM Monument 18

Page Number: 5 of 11  
Monument-Lea Co.,NM

sample 47988 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Ethylbenzene		<0.0100	mg/Kg	10	0.00100
Xylene		<0.0100	mg/Kg	10	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.764	mg/Kg	10	0.100	76	60.1 - 104
4-Bromofluorobenzene (4-BFB)		0.700	mg/Kg	10	0.100	70	63.1 - 105

**Sample: 47988 - MW-10 15'**

Analysis: TPH DRO      Analytical Method: Mod. 8015B      Prep Method: N/A  
QC Batch: 14045      Date Analyzed: 2004-11-14      Analyzed By: BP  
Prep Batch: 12412      Date Prepared: 2004-11-09      Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		129	mg/Kg	1	150	86	69.8 - 106.1

**Sample: 47988 - MW-10 15'**

Analysis: TPH GRO      Analytical Method: S 8015B      Prep Method: S 5035  
QC Batch: 13931      Date Analyzed: 2004-11-09      Analyzed By: MT  
Prep Batch: 12304      Date Prepared: 2004-11-09      Prepared By: MT

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	10	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.01	mg/Kg	10	0.100	101	0 - 160
4-Bromofluorobenzene (4-BFB)		0.917	mg/Kg	10	0.100	92	0 - 174

**Sample: 47990 - MW-10 30'**

Analysis: BTEX      Analytical Method: S 8021B      Prep Method: S 5035  
QC Batch: 13926      Date Analyzed: 2004-11-09      Analyzed By: MT  
Prep Batch: 12304      Date Prepared: 2004-11-09      Prepared By: MT

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	10	0.00100
Toluene		<0.0100	mg/Kg	10	0.00100

continued ...

Report Date: November 16, 2004  
TNM Monument 18

Work Order: 4110905  
TNM Monument 18

Page Number: 6 of 11  
Monument-Lea Co., NM

sample 47990 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Ethylbenzene		<0.0100	mg/Kg	10	0.00100
Xylene		<0.0100	mg/Kg	10	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.774	mg/Kg	10	0.100	77	60.1 - 104
4-Bromofluorobenzene (4-BFB)		0.733	mg/Kg	10	0.100	73	63.1 - 105

**Sample: 47990 - MW-10 30'**

Analysis: TPH DRO	Analytical Method: Mod. 8015B	Prep Method: N/A
QC Batch: 14045	Date Analyzed: 2004-11-14	Analyzed By: BP
Prep Batch: 12412	Date Prepared: 2004-11-09	Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		123	mg/Kg	1	150	82	69.8 - 106.1

**Sample: 47990 - MW-10 30'**

Analysis: TPH GRO	Analytical Method: S 8015B	Prep Method: S 5035
QC Batch: 13931	Date Analyzed: 2004-11-09	Analyzed By: MT
Prep Batch: 12304	Date Prepared: 2004-11-09	Prepared By: MT

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	10	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.04	mg/Kg	10	0.100	104	0 - 160
4-Bromofluorobenzene (4-BFB)		0.987	mg/Kg	10	0.100	99	0 - 174

**Method Blank (1) QC Batch: 13926**

Parameter	Flag	Result	Units	RL
Benzene		<0.0100	mg/Kg	0.001
Toluene		<0.0100	mg/Kg	0.001
Ethylbenzene		<0.0100	mg/Kg	0.001
Xylene		<0.0100	mg/Kg	0.001

Report Date: November 16, 2004  
TNM Monument 18

Work Order: 4110905  
TNM Monument 18

Page Number: 7 of 11  
Monument-Lea Co.,NM

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.906	mg/Kg	10	0.100	91	74.5 - 114
4-Bromofluorobenzene (4-BFB)		0.467	mg/Kg	10	0.100	47	36.6 - 112

**Method Blank (1)** QC Batch: 13931

Parameter	Flag	Result	Units	RL
GRO		2.02	mg/Kg	0.1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	1	1.22	mg/Kg	10	0.100	122	81.8 - 109
4-Bromofluorobenzene (4-BFB)		0.605	mg/Kg	10	0.100	60	50.7 - 113

**Method Blank (1)** QC Batch: 14045

Parameter	Flag	Result	Units	RL
DRO		<50.0	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	120		mg/Kg	1	150	80	69.8 - 106.1

**Laboratory Control Spike (LCS-1)** QC Batch: 13926

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Benzene	0.962	0.978	mg/Kg	10	0.100	<0.0333	96	2	79.8 - 114	9.4
Toluene	0.918	0.936	mg/Kg	10	0.100	<0.0353	92	2	79.7 - 115	7.5
Ethylbenzene	0.906	0.928	mg/Kg	10	0.100	<0.0339	91	2	78.7 - 116	8
Xylene	2.57	2.64	mg/Kg	10	0.300	<0.103	86	3	78.7 - 118	7.9

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.927	0.912	mg/Kg	10	0.100	93	91	76.6 - 114
4-Bromofluorobenzene (4-BFB)	0.791	0.785	mg/Kg	10	0.100	79	78	72.2 - 111

**Laboratory Control Spike (LCS-1)** QC Batch: 13931

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
GRO	10.2	9.88	mg/Kg	10	1.00	<0.381	102	3	72 - 124	21

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

<sup>1</sup>High surrogate recovery due to unknown anomaly. ICV/CCV show the method to be in control.

Report Date: November 16, 2004  
TNM Monument 18

Work Order: 4110905  
TNM Monument 18

Page Number: 8 of 11  
Monument-Lea Co.,NM

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.06	1.07	mg/Kg	10	0.100	106	107	80.4 - 113
4-Bromofluorobenzene (4-BFB)	0.931	1.00	mg/Kg	10	0.100	93	100	72.2 - 119

**Laboratory Control Spike (LCS-1)** QC Batch: 14045

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO <sup>2</sup>	198	192	mg/Kg	1	250	<12.0	79	3	78.7 - 117.6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	132	133	mg/Kg	1	150	88	89	69.8 - 106.1

**Standard (CCV-1)** QC Batch: 13926

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.101	101	85 - 115	2004-11-09
Toluene		mg/Kg	0.100	0.0947	95	85 - 115	2004-11-09
Ethylbenzene		mg/Kg	0.100	0.0965	96	85 - 115	2004-11-09
Xylene		mg/Kg	0.300	0.279	93	85 - 115	2004-11-09

**Standard (CCV-2)** QC Batch: 13926

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0998	100	85 - 115	2004-11-09
Toluene		mg/Kg	0.100	0.0956	96	85 - 115	2004-11-09
Ethylbenzene		mg/Kg	0.100	0.0937	94	85 - 115	2004-11-09
Xylene		mg/Kg	0.300	0.267	89	85 - 115	2004-11-09

**Standard (CCV-1)** QC Batch: 13931

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	1.00	100	85 - 115	2004-11-09

**Standard (CCV-2)** QC Batch: 13931

<sup>2</sup>LCS is within limits and RPD is within limits.



Report Date: November 16, 2004  
TNM Monument 18

Work Order: 4110905  
TNM Monument 18

Page Number: 9 of 11  
Monument-Lea Co., NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	1.00	100	85 - 115	2004-11-09

Standard (CCV-1) QC Batch: 14045

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	238	95	75 - 125	2004-11-14

Standard (CCV-2) QC Batch: 14045

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	229	91	75 - 125	2004-11-14

Standard (CCV-3) QC Batch: 14045

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	190	76	75 - 125	2004-11-14

ORIGINAL COPY

# **Analytical Report 466779**

**for**

## **PLAINS ALL AMERICAN EH&S**

**Project Manager: Camille Bryant**

**Plains TNM Monument 18**

**19-JUL-13**

Collected By: Client



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-13-14-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)  
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)  
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)  
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)  
Louisiana (04176), USDA (P330-07-00105)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

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)



19-JUL-13

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

Reference: XENCO Report No(s): **466779**  
**Plains TNM Monument 18**  
Project Address: Lea County, NM

**Camille Bryant:**

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) 466779. 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. 466779 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,

---

**Kelsey Brooks**

Project Manager

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**Sample Cross Reference 466779****PLAINS ALL AMERICAN EH&S, Midland, TX**

Plains TNM Monument 18

<b>Sample Id</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Sample Depth</b>	<b>Lab Sample Id</b>
North S/W @ 14'	S	07-12-13 15:30	N/A	466779-001





## CASE NARRATIVE

**Client Name:** *PLAINS ALL AMERICAN EH&S*

**Project Name:** *Plains TNM Monument 18*

Project ID:

Work Order Number(s): 466779

Report Date: 19-JUL-13

Date Received: 07/16/2013

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**Sample receipt non conformances and comments:**

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**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-918682 BTEX by EPA 8021

SW8021BM

Batch 918682, Benzene recovered below QC limits in the Matrix Spike.

Samples affected are: 466779-001.

The Laboratory Control Sample for Benzene is within laboratory Control Limits



## Hits Summary 466779



### PLAINS ALL AMERICAN EH&S, Midland, TX

Plains TNM Monument 18



# Certificate of Analysis Summary 466779

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:**

**Contact:** Camille Bryant

**Project Name:** Plains TNM Monument 18

**Date Received in Lab:** Tue Jul-16-13 01:06 pm

**Report Date:** 19-JUL-13

**Project Location:** Lea County, NM

**Project Manager:** Kelsey Brooks

<b>Analysis Requested</b>	<b>Lab Id:</b> 466779-001 <b>Field Id:</b> North S/W @ 14' <b>Depth:</b> <b>Matrix:</b> SOIL <b>Sampled:</b> Jul-12-13 15:30					
<b>BTEX by EPA 8021</b>	<b>Extracted:</b> Jul-18-13 09:52 <b>Analyzed:</b> Jul-18-13 18:08 <b>Units/RL:</b> mg/kg RL					
Benzene	ND 0.00199					
Toluene	ND 0.00398					
Ethylbenzene	ND 0.00199					
m_p-Xylenes	ND 0.00398					
o-Xylene	ND 0.00199					
Xylenes, Total	ND 0.00199					
Total BTEX	ND 0.00199					
<b>Percent Moisture</b>	<b>Extracted:</b> <b>Analyzed:</b> Jul-18-13 16:45 <b>Units/RL:</b> % RL					
Percent Moisture	14.7 1.00					
<b>TPH by SW8015 Mod SUB: TX104704215</b>	<b>Extracted:</b> Jul-18-13 11:25 <b>Analyzed:</b> Jul-18-13 20:23 <b>Units/RL:</b> mg/kg RL					
C6-C12 Gasoline Range Hydrocarbons	ND 14.9					
C12-C28 Diesel Range Hydrocarbons	ND 14.9					
C28-C35 Oil Range Hydrocarbons	ND 14.9					
Total TPH	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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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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(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	



# Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 466779,

Project ID:

Lab Batch #: 918682

Sample: 466779-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/18/13 18:08

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0266	0.0300	89	80-120	

Lab Batch #: 918771

Sample: 466779-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/18/13 20:23

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	75.7	99.1	76	70-135	
o-Terphenyl	46.7	49.6	94	70-135	

Lab Batch #: 918682

Sample: 641245-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/17/13 20:26

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0247	0.0300	82	80-120	

Lab Batch #: 918771

Sample: 641277-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/18/13 11:49

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.0	100	77	70-135	
o-Terphenyl	48.0	50.0	96	70-135	

Lab Batch #: 918682

Sample: 641245-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/17/13 19:23

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0340	0.0300	113	80-120	
4-Bromofluorobenzene	0.0289	0.0300	96	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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





# Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 466779,

Project ID:

Lab Batch #: 918771

Sample: 641277-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/18/13 12:10

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.9	100	89	70-135	
o-Terphenyl	51.9	50.0	104	70-135	

Lab Batch #: 918682

Sample: 641245-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/17/13 19:38

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0349	0.0300	116	80-120	
4-Bromofluorobenzene	0.0356	0.0300	119	80-120	

Lab Batch #: 918771

Sample: 641277-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/18/13 12:32

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.4	100	87	70-135	
o-Terphenyl	52.0	50.0	104	70-135	

Lab Batch #: 918682

Sample: 466585-006 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/18/13 18:24

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0354	0.0300	118	80-120	

Lab Batch #: 918682

Sample: 466585-006 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/18/13 18:40

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0333	0.0300	111	80-120	
4-Bromofluorobenzene	0.0356	0.0300	119	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



## BS / BSD Recoveries



**Project Name: Plains TNM Monument 18**

**Work Order #:** 466779

**Analyst:** MAB

**Date Prepared:** 07/17/2013

**Project ID:**

**Date Analyzed:** 07/17/2013

**Lab Batch ID:** 918682

**Sample:** 641245-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>BTEX by EPA 8021</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Benzene	<0.000998	0.0998	0.0904	91	0.0994	0.0809	81	11	70-130	35	
Toluene	<0.00200	0.0998	0.0884	89	0.0994	0.0814	82	8	70-130	35	
Ethylbenzene	<0.000998	0.0998	0.0935	94	0.0994	0.0888	89	5	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.183	92	0.199	0.176	88	4	70-135	35	
o-Xylene	<0.000998	0.0998	0.0929	93	0.0994	0.0940	95	1	71-133	35	

**Analyst:** KAN

**Date Prepared:** 07/18/2013

**Date Analyzed:** 07/18/2013

**Lab Batch ID:** 918771

**Sample:** 641277-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>TPH by SW8015 Mod</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	1060	106	1000	982	98	8	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	856	86	1000	914	91	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: Plains TNM Monument 18

Work Order # : 466779

Project ID:

Lab Batch ID: 918682

QC- Sample ID: 466585-006 S

Batch #: 1 Matrix: Soil

Date Analyzed: 07/18/2013

Date Prepared: 07/18/2013

Analyst: MAB

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY 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	<0.00200	0.200	0.130	65	0.200	0.161	81	21	70-130	35	X
Toluene	<0.00399	0.200	0.160	80	0.200	0.169	85	5	70-130	35	
Ethylbenzene	<0.00200	0.200	0.163	82	0.200	0.193	97	17	71-129	35	
m_p-Xylenes	<0.00399	0.399	0.307	77	0.400	0.383	96	22	70-135	35	
o-Xylene	<0.00200	0.200	0.170	85	0.200	0.206	103	19	71-133	35	

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

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

ND = Not Detected, J = Present Below Reporting Limit, 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.

# Sample Duplicate Recovery



## Project Name: Plains TNM Monument 18

Work Order #: 466779

Lab Batch #: 918802

Project ID:

Date Analyzed: 07/18/2013 16:45

Date Prepared: 07/18/2013

Analyst: WRU

QC- Sample ID: 466970-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

### SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	1.88	1.88	0	20	

Spike Relative Difference RPD  $200 * |(B-A)/(B+A)|$

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

BRL - Below Reporting Limit



## Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&amp;S

Acceptable Temperature Range: 0 - 6 degC

Date/ Time Received: 07/16/2013 01:06:00 PM

Air and Metal samples Acceptable Range: Ambient

Work Order #: 466779

Temperature Measuring device used :

## Sample Receipt Checklist

## Comments

#1 *Temperature of cooler(s)?	1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#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)?	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?	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#:

Checklist completed by:

  
Kelsey Brooks

Date: 07/16/2013

Checklist reviewed by:

  
Kelsey Brooks

Date: 07/16/2013







## XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&amp;S

Date/ Time Received: 07/16/2013 01:06:00 PM

Work Order #: 466779

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)?	1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#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)?	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?	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#:
----------	-----------------

Checklist completed by:

  
Kelsey Brooks

Date: 07/16/2013

Checklist reviewed by:

  
Kelsey Brooks

Date: 07/16/2013

# **Analytical Report 467303**

**for**

## **PLAINS ALL AMERICAN EH&S**

**Project Manager: Camille Bryant**

**Plains TNM Monument 18**

**29-JUL-13**

Collected By: Client



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-13-14-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)  
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)  
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)  
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)  
Louisiana (04176), USDA (P330-07-00105)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

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)



29-JUL-13

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

Reference: XENCO Report No(s): **467303**  
**Plains TNM Monument 18**  
Project Address: Lea County, NM

**Camille Bryant:**

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) 467303. 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. 467303 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,

---

**Kelsey Brooks**

Project Manager

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## Sample Cross Reference 467303



### PLAINS ALL AMERICAN EH&S, Midland, TX

Plains TNM Monument 18

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
ESW @ 14'	S	07-24-13 13:50	N/A	467303-001



## CASE NARRATIVE

**Client Name:** PLAINS ALL AMERICAN EH&S

**Project Name:** Plains TNM Monument 18

Project ID:  
Work Order Number(s): 467303

Report Date: 29-JUL-13  
Date Received: 07/25/2013

---

### Sample receipt non conformances and comments:

---

### Sample receipt non conformances and comments per sample:

None

#### Analytical non conformances and comments:

Batch: LBA-919235 BTEX by EPA 8021  
SW8021BM

Batch 919235, Benzene, Ethylbenzene, Toluene, m\_p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.

Samples affected are: 467303-001.

The Laboratory Control Sample for Toluene, Benzene, Ethylbenzene, m\_p-Xylenes , o-Xylene is within laboratory Control Limits

SW8021BM

Batch 919235, m\_p-Xylenes RPD was outside QC limits.

Samples affected are: 467303-001



# Certificate of Analysis Summary 467303

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:**

**Contact:** Camille Bryant

**Project Location:** Lea County, NM

**Project Name:** Plains TNM Monument 18

**Date Received in Lab:** Thu Jul-25-13 09:26 am

**Report Date:** 29-JUL-13

**Project Manager:** Kelsey Brooks

<b>Analysis Requested</b>	<b>Lab Id:</b>	467303-001					
	<b>Field Id:</b>	ESW @ 14'					
	<b>Depth:</b>						
	<b>Matrix:</b>	SOIL					
	<b>Sampled:</b>	Jul-24-13 13:50					
<b>BTEX by EPA 8021</b>	<b>Extracted:</b>	Jul-25-13 10:00					
	<b>Analyzed:</b>	Jul-25-13 14:33					
	<b>Units/RL:</b>	mg/kg RL					
Benzene		ND 0.00100					
Toluene		0.00245 0.00200					
Ethylbenzene		0.00385 0.00100					
m_p-Xylenes		0.0103 0.00200					
o-Xylene		0.00303 0.00100					
Xylenes, Total		0.0133 0.00100					
Total BTEX		0.0196 0.00100					
<b>Percent Moisture</b>	<b>Extracted:</b>						
	<b>Analyzed:</b>	Jul-25-13 15:15					
	<b>Units/RL:</b>	% RL					
Percent Moisture		19.2 1.00					
<b>TPH by SW8015 Mod SUB: TX104704215</b>	<b>Extracted:</b>	Jul-26-13 11:24					
	<b>Analyzed:</b>	Jul-26-13 23:46					
	<b>Units/RL:</b>	mg/kg RL					
C6-C12 Gasoline Range Hydrocarbons		15.8 14.9					
C12-C28 Diesel Range Hydrocarbons		119 14.9					
C28-C35 Oil Range Hydrocarbons		29.1 14.9					
Total TPH		164 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.

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

Kelsey Brooks  
Project Manager





## Flagging Criteria



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

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

+ NELAC certification not offered for this compound.

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

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 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

Phone	Fax
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(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	



# Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 467303,

Project ID:

Lab Batch #: 919235

Sample: 467303-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/25/13 14:33

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0356	0.0300	119	80-120	

Lab Batch #: 919320

Sample: 467303-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/26/13 23:46

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	85.2	99.3	86	70-135	
o-Terphenyl	49.2	49.7	99	70-135	

Lab Batch #: 919235

Sample: 641566-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/25/13 15:21

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0283	0.0300	94	80-120	
4-Bromofluorobenzene	0.0278	0.0300	93	80-120	

Lab Batch #: 919320

Sample: 641647-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/26/13 11:21

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	82.9	100	83	70-135	
o-Terphenyl	46.6	50.0	93	70-135	

Lab Batch #: 919235

Sample: 641566-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/25/13 10:33

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0244	0.0300	81	80-120	
4-Bromofluorobenzene	0.0339	0.0300	113	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 467303,

Project ID:

Lab Batch #: 919320

Sample: 641647-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/26/13 11:45

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.3	100	84	70-135	
o-Terphenyl	50.1	50.0	100	70-135	

Lab Batch #: 919235

Sample: 641566-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/25/13 11:21

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0292	0.0300	97	80-120	

Lab Batch #: 919320

Sample: 641647-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/26/13 12:08

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	128	100	128	70-135	
o-Terphenyl	62.6	50.0	125	70-135	

Lab Batch #: 919235

Sample: 467191-002 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/25/13 13:29

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	80-120	
4-Bromofluorobenzene	0.0359	0.0300	120	80-120	

Lab Batch #: 919235

Sample: 467191-002 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/25/13 13:45

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0348	0.0300	116	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



## BS / BSD Recoveries



**Project Name: Plains TNM Monument 18**

**Work Order #:** 467303

**Analyst:** MAB

**Date Prepared:** 07/25/2013

**Project ID:**

**Date Analyzed:** 07/25/2013

**Lab Batch ID:** 919235

**Sample:** 641566-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>BTEX by EPA 8021</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Benzene	<0.00100	0.100	0.0807	81	0.100	0.0979	98	19	70-130	35	
Toluene	<0.00200	0.100	0.0806	81	0.100	0.100	100	21	70-130	35	
Ethylbenzene	<0.00100	0.100	0.0905	91	0.100	0.111	111	20	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.183	92	0.201	0.218	108	17	70-135	35	
o-Xylene	<0.00100	0.100	0.0977	98	0.100	0.111	111	13	71-133	35	

**Analyst:** KAN

**Date Prepared:** 07/26/2013

**Date Analyzed:** 07/26/2013

**Lab Batch ID:** 919320

**Sample:** 641647-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>TPH by SW8015 Mod</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	940	94	1000	917	92	2	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	768	77	1000	815	82	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: Plains TNM Monument 18

Work Order # : 467303

Project ID:

Lab Batch ID: 919235

QC- Sample ID: 467191-002 S

Batch #: 1 Matrix: Soil

Date Analyzed: 07/25/2013

Date Prepared: 07/25/2013

Analyst: MAB

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY 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	<0.00130	0.130	0.0725	56	0.129	0.0567	44	24	70-130	35	X
Toluene	<0.00260	0.130	0.0742	57	0.129	0.0576	45	25	70-130	35	X
Ethylbenzene	<0.00130	0.130	0.0726	56	0.129	0.0558	43	26	71-129	35	X
m_p-Xylenes	0.00829	0.260	0.139	50	0.258	0.0970	34	36	70-135	35	XF
o-Xylene	0.00629	0.130	0.0802	57	0.129	0.0581	40	32	71-133	35	X

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

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

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

## Project Name: Plains TNM Monument 18

Work Order #: 467303

Lab Batch #: 919275

Project ID:

Date Analyzed: 07/25/2013 15:15

Date Prepared: 07/25/2013

Analyst: WRU

QC- Sample ID: 467298-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

## SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	27.6	28.6	4	20	

Spike Relative Difference RPD  $200 * |(B-A)/(B+A)|$ 

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

BRL - Below Reporting Limit





## Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&amp;S

Acceptable Temperature Range: 0 - 6 degC

Date/ Time Received: 07/25/2013 09:26:00 AM

Air and Metal samples Acceptable Range: Ambient

Work Order #: 467303

Temperature Measuring device used :

## Sample Receipt Checklist

## Comments

#1 *Temperature of cooler(s)?	2.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#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)?	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?	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#:

Checklist completed by:

  
Kelsey Brooks

Date: 07/25/2013

Checklist reviewed by:

  
Kelsey Brooks

Date: 07/25/2013





## Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&amp;S

Acceptable Temperature Range: 0 - 6 degC

Date/ Time Received: 07/25/2013 09:26:00 AM

Air and Metal samples Acceptable Range: Ambient

Work Order #: 467303

Temperature Measuring device used :

## Sample Receipt Checklist

## Comments

#1 *Temperature of cooler(s)?	2.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#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)?	Yes
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A
#21 <2 for all samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ?	N/A
#22 >10 for all samples preserved with NaAsO <sub>2</sub> +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:

  
 Kelsey Brooks

Date: 07/25/2013

Checklist reviewed by:

  
 Kelsey Brooks

Date: 07/25/2013

# **Analytical Report 468608**

**for**

## **PLAINS ALL AMERICAN EH&S**

**Project Manager: Camille Bryant**

**Plains TNM Monument 18**

**21-AUG-13**

Collected By: Client



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-13-14-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)  
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)  
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)  
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)  
Louisiana (04176), USDA (P330-07-00105)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Lakeland: Florida (E84098)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)



21-AUG-13

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

Reference: XENCO Report No(s): **468608**  
**Plains TNM Monument 18**  
Project Address: Lea County, NM

**Camille Bryant:**

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) 468608. 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. 468608 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,

---

**Kelsey Brooks**

Project Manager

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**Sample Cross Reference 468608****PLAINS ALL AMERICAN EH&S, Midland, TX**

Plains TNM Monument 18

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SP-1	S	08-14-13 09:30		468608-001
SP-2	S	08-14-13 09:50		468608-002





## CASE NARRATIVE

**Client Name:** PLAINS ALL AMERICAN EH&S

**Project Name:** Plains TNM Monument 18

Project ID:  
Work Order Number(s): 468608

Report Date: 21-AUG-13  
Date Received: 08/15/2013

---

### Sample receipt non conformances and comments:

---

#### Sample receipt non conformances and comments per sample:

None

#### Analytical non conformances and comments:

Batch: LBA-920988 BTEX by EPA 8021  
SW8021BM

Batch 920988, Ethylbenzene, m\_p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Toluene recovered below QC limits in the Matrix Spike Duplicate.

Samples affected are: 468608-002, -001.

The Laboratory Control Sample for Toluene, Ethylbenzene, m\_p-Xylenes , o-Xylene is within laboratory Control Limits



# Certificate of Analysis Summary 468608

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:**

**Contact:** Camille Bryant

**Project Location:** Lea County, NM

**Project Name:** Plains TNM Monument 18

**Date Received in Lab:** Thu Aug-15-13 11:30 am

**Report Date:** 21-AUG-13

**Project Manager:** Kelsey Brooks

<b>Analysis Requested</b>	<b>Lab Id:</b>	468608-001	468608-002				
	<b>Field Id:</b>	SP-1	SP-2				
	<b>Depth:</b>						
	<b>Matrix:</b>	SOIL	SOIL				
	<b>Sampled:</b>	Aug-14-13 09:30	Aug-14-13 09:50				
<b>BTEX by EPA 8021</b>	<b>Extracted:</b>	Aug-19-13 08:50	Aug-19-13 08:50				
	<b>Analyzed:</b>	Aug-19-13 12:38	Aug-19-13 12:55				
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL				
Benzene		ND 0.000992	ND 0.000992				
Toluene		ND 0.00198	ND 0.00198				
Ethylbenzene		ND 0.000992	ND 0.000992				
m_p-Xylenes		ND 0.00198	ND 0.00198				
o-Xylene		ND 0.000992	ND 0.000992				
Xylenes, Total		ND 0.000992	ND 0.000992				
Total BTEX		ND 0.000992	ND 0.000992				
<b>Percent Moisture</b>	<b>Extracted:</b>	Aug-15-13 15:20	Aug-15-13 15:20				
	<b>Analyzed:</b>						
	<b>Units/RL:</b>	% RL	% RL				
Percent Moisture		1.95 1.00	5.96 1.00				
<b>TPH by SW8015 Mod</b>	<b>Extracted:</b>	Aug-19-13 17:00	Aug-19-13 17:00				
	<b>Analyzed:</b>	Aug-20-13 02:11	Aug-20-13 02:37				
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL				
C6-C12 Gasoline Range Hydrocarbons		ND 15.0	ND 15.0				
C12-C28 Diesel Range Hydrocarbons		26.2 15.0	22.1 15.0				
C28-C35 Oil Range Hydrocarbons		ND 15.0	ND 15.0				
Total TPH		26.2 15.0	22.1 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

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

Phone	Fax
(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	

**Form 2 - Surrogate Recoveries****Project Name: Plains TNM Monument 18****Work Orders :** 468608,**Project ID:****Lab Batch #:** 920988**Sample:** 468608-001 / SMP**Batch:** 1 **Matrix:** Soil**Units:** mg/kg**Date Analyzed:** 08/19/13 12:38**SURROGATE RECOVERY STUDY**

<b>BTEX by EPA 8021</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0308	0.0300	103	80-120	
4-Bromofluorobenzene	0.0266	0.0300	89	80-120	

**Lab Batch #:** 920988**Sample:** 468608-002 / SMP**Batch:** 1 **Matrix:** Soil**Units:** mg/kg**Date Analyzed:** 08/19/13 12:55**SURROGATE RECOVERY STUDY**

<b>BTEX by EPA 8021</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0310	0.0300	103	80-120	
4-Bromofluorobenzene	0.0264	0.0300	88	80-120	

**Lab Batch #:** 921023**Sample:** 468608-001 / SMP**Batch:** 1 **Matrix:** Soil**Units:** mg/kg**Date Analyzed:** 08/20/13 02:11**SURROGATE RECOVERY STUDY**

<b>TPH by SW8015 Mod</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1-Chlorooctane	86.1	100	86	70-135	
o-Terphenyl	46.7	50.0	93	70-135	

**Lab Batch #:** 921023**Sample:** 468608-002 / SMP**Batch:** 1 **Matrix:** Soil**Units:** mg/kg**Date Analyzed:** 08/20/13 02:37**SURROGATE RECOVERY STUDY**

<b>TPH by SW8015 Mod</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1-Chlorooctane	88.6	100	89	70-135	
o-Terphenyl	48.8	50.0	98	70-135	

**Lab Batch #:** 920988**Sample:** 642741-1-BLK / BLK**Batch:** 1 **Matrix:** Solid**Units:** mg/kg**Date Analyzed:** 08/19/13 10:29**SURROGATE RECOVERY STUDY**

<b>BTEX by EPA 8021</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0311	0.0300	104	80-120	
4-Bromofluorobenzene	0.0264	0.0300	88	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 468608,

Project ID:

Lab Batch #: 921023

Sample: 642764-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/19/13 20:34

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.4	100	90	70-135	
o-Terphenyl	49.8	50.0	100	70-135	

Lab Batch #: 920988

Sample: 642741-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/19/13 09:41

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0350	0.0300	117	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 921023

Sample: 642764-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/19/13 19:41

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.3	100	96	70-135	
o-Terphenyl	53.6	50.0	107	70-135	

Lab Batch #: 920988

Sample: 642741-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/19/13 09:57

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0345	0.0300	115	80-120	
4-Bromofluorobenzene	0.0273	0.0300	91	80-120	

Lab Batch #: 921023

Sample: 642764-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/19/13 20:08

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.2	100	91	70-135	
o-Terphenyl	51.3	50.0	103	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



## Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 468608,

Project ID:

Lab Batch #: 920988

Sample: 468537-003 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/19/13 15:46

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0358	0.0300	119	80-120	
4-Bromofluorobenzene	0.0274	0.0300	91	80-120	

Lab Batch #: 921023

Sample: 468745-001 S / MS

Batch: 1 Matrix: Water

Units: mg/kg

Date Analyzed: 08/20/13 06:08

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.0	100	92	70-135	
o-Terphenyl	53.5	50.0	107	70-135	

Lab Batch #: 920988

Sample: 468537-003 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/19/13 16:03

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0344	0.0300	115	80-120	
4-Bromofluorobenzene	0.0276	0.0300	92	80-120	

Lab Batch #: 921023

Sample: 468745-001 SD / MSD

Batch: 1 Matrix: Water

Units: mg/kg

Date Analyzed: 08/20/13 06:34

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.0	100	89	70-135	
o-Terphenyl	52.7	50.0	105	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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





## BS / BSD Recoveries



**Project Name: Plains TNM Monument 18**

**Work Order #:** 468608

**Analyst:** KEB

**Date Prepared:** 08/19/2013

**Project ID:**

**Date Analyzed:** 08/19/2013

**Lab Batch ID:** 920988

**Sample:** 642741-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>BTEX by EPA 8021</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Benzene	<0.000998	0.0998	0.0982	98	0.100	0.0966	97	2	70-130	35	
Toluene	<0.00200	0.0998	0.0908	91	0.100	0.0897	90	1	70-130	35	
Ethylbenzene	<0.000998	0.0998	0.0889	89	0.100	0.0879	88	1	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.177	89	0.201	0.175	87	1	70-135	35	
o-Xylene	<0.000998	0.0998	0.0884	89	0.100	0.0873	87	1	71-133	35	

**Analyst:** JUM

**Date Prepared:** 08/19/2013

**Date Analyzed:** 08/19/2013

**Lab Batch ID:** 921023

**Sample:** 642764-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>TPH by SW8015 Mod</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	924	92	1000	913	91	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	936	94	1000	918	92	2	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: Plains TNM Monument 18

Work Order # : 468608

Project ID:

Lab Batch ID: 920988

QC- Sample ID: 468537-003 S

Batch #: 1 Matrix: Soil

Date Analyzed: 08/19/2013

Date Prepared: 08/19/2013

Analyst: KEB

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY 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	<0.00103	0.103	0.0887	86	0.104	0.0839	81	6	70-130	35	
Toluene	<0.00207	0.103	0.0756	73	0.104	0.0697	67	8	70-130	35	X
Ethylbenzene	<0.00103	0.103	0.0672	65	0.104	0.0604	58	11	71-129	35	X
m_p-Xylenes	<0.00207	0.207	0.132	64	0.208	0.118	57	11	70-135	35	X
o-Xylene	<0.00103	0.103	0.0661	64	0.104	0.0591	57	11	71-133	35	X

Lab Batch ID: 921023

QC- Sample ID: 468745-001 S

Batch #: 1 Matrix: Water

Date Analyzed: 08/20/2013

Date Prepared: 08/19/2013

Analyst: JUM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.4	1030	906	88	1030	901	87	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.4	1030	934	91	1030	946	92	1	70-135	35	

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

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

ND = Not Detected, J = Present Below Reporting Limit, 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.

# Sample Duplicate Recovery



## Project Name: Plains TNM Monument 18

Work Order #: 468608

Lab Batch #: 920902

Date Analyzed: 08/15/2013 15:20

Date Prepared: 08/15/2013

Project ID:

Analyst: WRU

QC- Sample ID: 468467-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

### SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	<1.00	1.00	NC	20	

Spike Relative Difference RPD  $200 * |(B-A)/(B+A)|$

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

BRL - Below Reporting Limit



## Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&amp;S

Acceptable Temperature Range: 0 - 6 degC

Date/ Time Received: 08/15/2013 11:30:00 AM

Air and Metal samples Acceptable Range: Ambient

Work Order #: 468608

Temperature Measuring device used :

## Sample Receipt Checklist

## Comments

#1 *Temperature of cooler(s)?	3
#2 *Shipping container in good condition?	___
#3 *Samples received on ice?	___
#4 *Custody Seals intact on shipping container/ cooler?	___
#5 Custody Seals intact on sample bottles?	___
#6 *Custody Seals Signed and dated?	___
#7 *Chain of Custody present?	___
#8 Sample instructions complete on Chain of Custody?	___
#9 Any missing/extra samples?	___
#10 Chain of Custody signed when relinquished/ received?	___
#11 Chain of Custody agrees with sample label(s)?	___
#12 Container label(s) legible and intact?	___
#13 Sample matrix/ properties agree with Chain of Custody?	___
#14 Samples in proper container/ bottle?	___
#15 Samples properly preserved?	___
#16 Sample container(s) intact?	___
#17 Sufficient sample amount for indicated test(s)?	___
#18 All samples received within hold time?	___
#19 Subcontract of sample(s)?	___
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	___
#21 <2 for all samples preserved with HNO3, HCL, H2SO4?	___
#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#:

Checklist completed by:

  
Kelsey Brooks

Date: 08/16/2013

Checklist reviewed by:

  
Kelsey Brooks

Date: 08/16/2013





# **Analytical Report 470265**

**for**

## **PLAINS ALL AMERICAN EH&S**

**Project Manager: Camille Bryant**

**Plains TNM Monument 18**

**20-SEP-13**

Collected By: Client



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-13-14-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)  
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)  
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)  
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)  
Louisiana (04176), USDA (P330-07-00105)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

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-SEP-13

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

Reference: XENCO Report No(s): **470265**  
**Plains TNM Monument 18**  
Project Address: Lea County, NM

**Camille Bryant:**

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) 470265. 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. 470265 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,

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**Julian Martinez**  
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 470265

## PLAINS ALL AMERICAN EH&amp;S, Midland, TX

## Plains TNM Monument 18

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NE Ramp SP	S	09-12-13 13:50		470265-001
Central Ramp	S	09-12-13 13:55		470265-002
ESW-1 @ 18'	S	09-12-13 14:00		470265-003
ESW-2 @ 18'	S	09-12-13 14:05		470265-004
ESW-3 @ 18'	S	09-12-13 14:10		470265-005
ESW-4 @ 18'	S	09-12-13 14:15		470265-006
SSW-1 @ 18'	S	09-12-13 14:20		470265-007
SSW-2 @ 18'	S	09-12-13 14:25		470265-008
SSW-3 @ 18'	S	09-12-13 14:30		470265-009
NSW-1 @ 18'	S	09-12-13 14:35		470265-010
NWS-2 @ 18'	S	09-12-13 14:40		470265-011
NSW-3 @ 18'	S	09-12-13 14:45		470265-012
WSW-1 @ 18'	S	09-12-13 14:50		470265-013
WSW-2 @ 18'	S	09-12-13 14:55		470265-014
WSW-3 @ 18'	S	09-12-13 15:00		470265-015
WSW-4 @ 18'	S	09-12-13 15:05		470265-016
Floor-1 @ 19'	S	09-12-13 15:10		470265-017
Floor-2 @ 19'	S	09-12-13 15:15		470265-018
Floor-3 @ 19'	S	09-12-13 15:20		470265-019
Floor-4 @ 19'	S	09-12-13 15:25		470265-020
Floor-5 @ 19'	S	09-12-13 15:30		470265-021
Floor-6 @ 19'	S	09-12-13 15:35		470265-022
Floor-7 @ 19'	S	09-12-13 15:40		470265-023
Floor-8 @ 19'	S	09-12-13 15:45		470265-024



## CASE NARRATIVE

**Client Name:** *PLAINS ALL AMERICAN EH&S*

**Project Name:** *Plains TNM Monument 18*

Project ID:  
Work Order Number(s): 470265

Report Date: 20-SEP-13  
Date Received: 09/13/2013

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### **Sample receipt non conformances and comments:**

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### **Sample receipt non conformances and comments per sample:**

None

### **Analytical non conformances and comments:**

Batch: LBA-923154 TPH By SW8015 Mod

MS and/or MSD were not analyzed due to high concentration of target analyte(s) in the parent sample. No additional action is required



# Certificate of Analysis Summary 470265

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:**

**Contact:** Camille Bryant

**Project Location:** Lea County, NM

**Project Name:** Plains TNM Monument 18

**Date Received in Lab:** Fri Sep-13-13 11:18 am

**Report Date:** 20-SEP-13

**Project Manager:** Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	470265-001	470265-002	470265-003	470265-004	470265-005	470265-006
	<i>Field Id:</i>	NE Ramp SP	Central Ramp	ESW-1 @ 18'	ESW-2 @ 18'	ESW-3 @ 18'	ESW-4 @ 18'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Sep-12-13 13:50	Sep-12-13 13:55	Sep-12-13 14:00	Sep-12-13 14:05	Sep-12-13 14:10	Sep-12-13 14:15
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Sep-17-13 14:00	Sep-17-13 14:00	Sep-17-13 14:00	Sep-17-13 14:00	Sep-17-13 14:00	Sep-17-13 14:00
	<i>Analyzed:</i>	Sep-17-13 23:13	Sep-17-13 23:29	Sep-17-13 23:45	Sep-18-13 00:01	Sep-18-13 00:17	Sep-18-13 01:05
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		ND 0.00132	ND 0.00131	ND 0.00117	ND 0.00111	ND 0.00108	ND 0.00108
Toluene		ND 0.00263	ND 0.00262	ND 0.00233	ND 0.00222	ND 0.00216	ND 0.00217
Ethylbenzene		ND 0.00132	ND 0.00131	ND 0.00117	ND 0.00111	ND 0.00108	ND 0.00108
m_p-Xylenes		ND 0.00263	ND 0.00262	ND 0.00233	ND 0.00222	ND 0.00216	ND 0.00217
o-Xylene		ND 0.00132	ND 0.00131	ND 0.00117	ND 0.00111	ND 0.00108	ND 0.00108
Total Xylenes		ND 0.00132	ND 0.00131	ND 0.00117	ND 0.00111	ND 0.00108	ND 0.00108
Total BTEX		ND 0.00132	ND 0.00131	ND 0.00117	ND 0.00111	ND 0.00108	ND 0.00108
<b>Percent Moisture</b>	<i>Extracted:</i>						
	<i>Analyzed:</i>	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25
	<i>Units/RL:</i>	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		24.2 1.00	24.1 1.00	14.6 1.00	10.7 1.00	7.66 1.00	8.09 1.00
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00
	<i>Analyzed:</i>	Sep-18-13 20:31	Sep-18-13 20:55	Sep-18-13 21:19	Sep-18-13 21:42	Sep-18-13 22:06	Sep-18-13 22:31
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		ND 19.8	ND 19.7	ND 17.5	ND 16.8	ND 16.2	ND 81.4
C12-C28 Diesel Range Hydrocarbons		ND 19.8	ND 19.7	ND 17.5	611 16.8	981 16.2	884 81.4
C28-C35 Oil Range Hydrocarbons		ND 19.8	ND 19.7	ND 17.5	ND 16.8	ND 16.2	ND 81.4
Total TPH		ND 19.8	ND 19.7	ND 17.5	611 16.8	981 16.2	884 81.4

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

Julian Martinez  
Project Manager



# Certificate of Analysis Summary 470265

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:**

**Contact:** Camille Bryant

**Project Location:** Lea County, NM

**Project Name:** Plains TNM Monument 18

**Date Received in Lab:** Fri Sep-13-13 11:18 am

**Report Date:** 20-SEP-13

**Project Manager:** Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	470265-007	470265-008	470265-009	470265-010	470265-011	470265-012
	<i>Field Id:</i>	SSW-1 @ 18'	SSW-2 @ 18'	SSW-3 @ 18'	NSW-1 @ 18'	NWS-2 @ 18'	NSW-3 @ 18'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Sep-12-13 14:20	Sep-12-13 14:25	Sep-12-13 14:30	Sep-12-13 14:35	Sep-12-13 14:40	Sep-12-13 14:45
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Sep-17-13 14:00	Sep-17-13 14:00	Sep-17-13 14:00	Sep-17-13 14:00	Sep-17-13 14:00	Sep-17-13 14:00
	<i>Analyzed:</i>	Sep-18-13 01:21	Sep-18-13 01:37	Sep-18-13 01:53	Sep-18-13 02:09	Sep-18-13 02:25	Sep-18-13 03:29
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		ND 0.00111	ND 0.00114	ND 0.00112	ND 0.00110	ND 0.00110	ND 0.00103
Toluene		ND 0.00222	ND 0.00229	ND 0.00224	ND 0.00220	ND 0.00219	ND 0.00206
Ethylbenzene		ND 0.00111	ND 0.00114	ND 0.00112	ND 0.00110	ND 0.00110	ND 0.00103
m_p-Xylenes		ND 0.00222	ND 0.00229	ND 0.00224	ND 0.00220	ND 0.00219	ND 0.00206
o-Xylene		ND 0.00111	ND 0.00114	ND 0.00112	ND 0.00110	ND 0.00110	ND 0.00103
Total Xylenes		ND 0.00111	ND 0.00114	ND 0.00112	ND 0.00110	ND 0.00110	ND 0.00103
Total BTEX		ND 0.00111	ND 0.00114	ND 0.00112	ND 0.00110	ND 0.00110	ND 0.00103
<b>Percent Moisture</b>	<i>Extracted:</i>	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25
	<i>Analyzed:</i>						
	<i>Units/RL:</i>	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		10.1 1.00	13.0 1.00	10.9 1.00	9.41 1.00	8.94 1.00	3.80 1.00
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00
	<i>Analyzed:</i>	Sep-18-13 22:54	Sep-18-13 23:18	Sep-18-13 23:42	Sep-19-13 00:06	Sep-19-13 01:19	Sep-19-13 01:44
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		ND 16.7	ND 17.2	ND 16.8	79.0 16.5	ND 16.4	ND 15.5
C12-C28 Diesel Range Hydrocarbons		ND 16.7	ND 17.2	ND 16.8	1450 16.5	80.8 16.4	ND 15.5
C28-C35 Oil Range Hydrocarbons		ND 16.7	ND 17.2	ND 16.8	ND 16.5	ND 16.4	ND 15.5
Total TPH		ND 16.7	ND 17.2	ND 16.8	1530 16.5	80.8 16.4	ND 15.5

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Julian Martinez  
Project Manager



# Certificate of Analysis Summary 470265

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:**

**Contact:** Camille Bryant

**Project Location:** Lea County, NM

**Project Name:** Plains TNM Monument 18

**Date Received in Lab:** Fri Sep-13-13 11:18 am

**Report Date:** 20-SEP-13

**Project Manager:** Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	470265-013	470265-014	470265-015	470265-016	470265-017	470265-018
	<i>Field Id:</i>	WSW-1 @ 18'	WSW-2 @ 18'	WSW-3 @ 18'	WSW-4 @ 18'	Floor-1 @ 19'	Floor-2 @ 19'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Sep-12-13 14:50	Sep-12-13 14:55	Sep-12-13 15:00	Sep-12-13 15:05	Sep-12-13 15:10	Sep-12-13 15:15
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Sep-17-13 14:00	Sep-17-13 14:00	Sep-17-13 14:00	Sep-17-13 17:00	Sep-17-13 17:00	Sep-17-13 17:00
	<i>Analyzed:</i>	Sep-18-13 02:41	Sep-18-13 02:57	Sep-18-13 03:13	Sep-18-13 10:33	Sep-18-13 11:37	Sep-18-13 11:53
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		ND 0.00114	ND 0.00117	ND 0.00118	ND 0.00115	ND 0.00124	ND 0.00117
Toluene		ND 0.00228	ND 0.00233	0.00312 0.00236	ND 0.00230	ND 0.00248	ND 0.00234
Ethylbenzene		0.00478 0.00114	ND 0.00117	0.0395 0.00118	0.0230 0.00115	ND 0.00124	ND 0.00117
m_p-Xylenes		0.0338 0.00228	ND 0.00233	0.188 0.00236	0.254 0.00230	ND 0.00248	ND 0.00234
o-Xylene		ND 0.00114	ND 0.00117	ND 0.00118	0.117 0.00115	ND 0.00124	ND 0.00117
Total Xylenes		0.0338 0.00114	ND 0.00117	0.188 0.00118	0.371 0.00115	ND 0.00124	ND 0.00117
Total BTEX		0.0386 0.00114	ND 0.00117	0.231 0.00118	0.394 0.00115	ND 0.00124	ND 0.00117
<b>Percent Moisture</b>	<i>Extracted:</i>						
	<i>Analyzed:</i>	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 15:25
	<i>Units/RL:</i>	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		13.2 1.00	14.2 1.00	15.2 1.00	13.7 1.00	19.6 1.00	14.7 1.00
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 10:00
	<i>Analyzed:</i>	Sep-19-13 02:56	Sep-19-13 03:21	Sep-19-13 03:46	Sep-19-13 04:10	Sep-19-13 04:34	Sep-19-13 04:58
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		299 17.2	279 17.4	2060 88.1	1470 17.4	ND 18.6	ND 17.6
C12-C28 Diesel Range Hydrocarbons		1320 17.2	1230 17.4	5480 88.1	4320 17.4	ND 18.6	ND 17.6
C28-C35 Oil Range Hydrocarbons		ND 17.2	ND 17.4	ND 88.1	ND 17.4	ND 18.6	ND 17.6
Total TPH		1620 17.2	1510 17.4	7540 88.1	5790 17.4	ND 18.6	ND 17.6

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Julian Martinez  
Project Manager





# Certificate of Analysis Summary 470265

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:**

**Contact:** Camille Bryant

**Project Location:** Lea County, NM

**Project Name:** Plains TNM Monument 18

**Date Received in Lab:** Fri Sep-13-13 11:18 am

**Report Date:** 20-SEP-13

**Project Manager:** Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	470265-019	470265-020	470265-021	470265-022	470265-023	470265-024
	<i>Field Id:</i>	Floor-3 @ 19'	Floor-4 @ 19'	Floor-5 @ 19'	Floor-6 @ 19'	Floor-7 @ 19'	Floor-8 @ 19'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Sep-12-13 15:20	Sep-12-13 15:25	Sep-12-13 15:30	Sep-12-13 15:35	Sep-12-13 15:40	Sep-12-13 15:45
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Sep-17-13 17:00	Sep-17-13 17:00	Sep-17-13 17:00	Sep-17-13 17:00	Sep-17-13 17:00	Sep-17-13 17:00
	<i>Analyzed:</i>	Sep-18-13 12:09	Sep-18-13 12:25	Sep-19-13 13:11	Sep-19-13 13:27	Sep-19-13 13:43	Sep-18-13 13:30
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		ND 0.00117	ND 0.00118	ND 0.0588	ND 0.0221	ND 0.0257	ND 0.00109
Toluene		ND 0.00234	ND 0.00236	ND 0.118	ND 0.0441	ND 0.0514	ND 0.00218
Ethylbenzene		0.257 0.00117	0.00319 0.00118	17.4 0.0588	4.14 0.0221	1.97 0.0257	0.0255 0.00109
m_p-Xylenes		0.291 0.00234	0.0115 0.00236	34.2 0.118	7.72 0.0441	4.44 0.0514	0.0404 0.00218
o-Xylene		ND 0.00117	ND 0.00118	7.18 0.0588	ND 0.0221	1.34 0.0257	ND 0.00109
Total Xylenes		0.291 0.00117	0.0115 0.00118	41.4 0.0588	7.72 0.0221	5.78 0.0257	0.0404 0.00109
Total BTEX		0.548 0.00117	0.0147 0.00118	58.8 0.0588	11.9 0.0221	7.75 0.0257	0.0659 0.00109
<b>Percent Moisture</b>	<i>Extracted:</i>						
	<i>Analyzed:</i>	Sep-16-13 15:25	Sep-16-13 15:25	Sep-16-13 16:30	Sep-16-13 16:30	Sep-16-13 16:30	Sep-16-13 16:30
	<i>Units/RL:</i>	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		15.3 1.00	15.8 1.00	15.4 1.00	9.71 1.00	22.2 1.00	8.96 1.00
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	Sep-18-13 10:00	Sep-18-13 10:00	Sep-18-13 12:00	Sep-18-13 12:00	Sep-18-13 12:00	Sep-18-13 12:00
	<i>Analyzed:</i>	Sep-19-13 05:23	Sep-19-13 05:48	Sep-19-13 08:17	Sep-19-13 08:43	Sep-19-13 09:07	Sep-19-13 09:32
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		1110 17.7	71.4 17.8	1130 88.2	1170 83.1	583 19.2	247 16.4
C12-C28 Diesel Range Hydrocarbons		3610 17.7	210 17.8	2230 88.2	6220 83.1	1470 19.2	3920 16.4
C28-C35 Oil Range Hydrocarbons		ND 17.7	ND 17.8	ND 88.2	ND 83.1	ND 19.2	ND 16.4
Total TPH		4720 17.7	281 17.8	3360 88.2	7390 83.1	2050 19.2	4170 16.4

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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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(770) 449-8800	(770) 449-5477
(602) 437-0330	



## Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 922941

Sample: 470265-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/17/13 23:13

### SURROGATE RECOVERY STUDY

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

Lab Batch #: 922941

Sample: 470265-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/17/13 23:29

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0306	0.0300	102	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 922941

Sample: 470265-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/17/13 23:45

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0302	0.0300	101	80-120	

Lab Batch #: 922941

Sample: 470265-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 00:01

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	80-120	
4-Bromofluorobenzene	0.0284	0.0300	95	80-120	

Lab Batch #: 922941

Sample: 470265-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 00:17

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0281	0.0300	94	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 922941

Sample: 470265-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 01:05

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0290	0.0300	97	80-120	

Lab Batch #: 922941

Sample: 470265-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 01:21

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0314	0.0300	105	80-120	

Lab Batch #: 922941

Sample: 470265-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 01:37

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0303	0.0300	101	80-120	
4-Bromofluorobenzene	0.0310	0.0300	103	80-120	

Lab Batch #: 922941

Sample: 470265-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 01:53

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	80-120	
4-Bromofluorobenzene	0.0302	0.0300	101	80-120	

Lab Batch #: 922941

Sample: 470265-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 02:09

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0316	0.0300	105	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 922941

Sample: 470265-011 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 02:25

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0300	0.0300	100	80-120	
4-Bromofluorobenzene	0.0316	0.0300	105	80-120	

Lab Batch #: 922941

Sample: 470265-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 02:41

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0250	0.0300	83	80-120	
4-Bromofluorobenzene	0.0305	0.0300	102	80-120	

Lab Batch #: 922941

Sample: 470265-014 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 02:57

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0267	0.0300	89	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

Lab Batch #: 922941

Sample: 470265-015 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 03:13

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0265	0.0300	88	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

Lab Batch #: 922941

Sample: 470265-012 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 03:29

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	80-120	
4-Bromofluorobenzene	0.0299	0.0300	100	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



## Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 923092

Sample: 470265-016 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 10:33

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	80-120	
4-Bromofluorobenzene	0.0322	0.0300	107	80-120	

Lab Batch #: 923092

Sample: 470265-017 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 11:37

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0286	0.0300	95	80-120	
4-Bromofluorobenzene	0.0308	0.0300	103	80-120	

Lab Batch #: 923092

Sample: 470265-018 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 11:53

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0278	0.0300	93	80-120	
4-Bromofluorobenzene	0.0289	0.0300	96	80-120	

Lab Batch #: 923092

Sample: 470265-019 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 12:09

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0269	0.0300	90	80-120	
4-Bromofluorobenzene	0.0278	0.0300	93	80-120	

Lab Batch #: 923092

Sample: 470265-020 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 12:25

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0251	0.0300	84	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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





# Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 923092

Sample: 470265-024 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 13:30

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0244	0.0300	81	80-120	
4-Bromofluorobenzene	0.0311	0.0300	104	80-120	

Lab Batch #: 923150

Sample: 470265-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 20:31

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	101	99.8	101	70-135	
o-Terphenyl	56.0	49.9	112	70-135	

Lab Batch #: 923150

Sample: 470265-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 20:55

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	105	99.5	106	70-135	
o-Terphenyl	58.8	49.8	118	70-135	

Lab Batch #: 923150

Sample: 470265-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 21:19

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	105	99.9	105	70-135	
o-Terphenyl	59.3	50.0	119	70-135	

Lab Batch #: 923150

Sample: 470265-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 21:42

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	108	99.8	108	70-135	
o-Terphenyl	59.9	49.9	120	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 923150

Sample: 470265-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 22:06

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.5	108	70-135	
o-Terphenyl	56.9	49.8	114	70-135	

Lab Batch #: 923150

Sample: 470265-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 22:31

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.8	106	70-135	
o-Terphenyl	56.4	49.9	113	70-135	

Lab Batch #: 923150

Sample: 470265-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 22:54

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	100	110	70-135	
o-Terphenyl	62.5	50.0	125	70-135	

Lab Batch #: 923150

Sample: 470265-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 23:18

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.7	104	70-135	
o-Terphenyl	56.4	49.9	113	70-135	

Lab Batch #: 923150

Sample: 470265-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 23:42

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.0	100	97	70-135	
o-Terphenyl	53.3	50.0	107	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 923150

Sample: 470265-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 00:06

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.9	103	70-135	
o-Terphenyl	56.1	50.0	112	70-135	

Lab Batch #: 923150

Sample: 470265-011 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 01:19

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.6	103	70-135	
o-Terphenyl	59.9	49.8	120	70-135	

Lab Batch #: 923150

Sample: 470265-012 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 01:44

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	99.6	111	70-135	
o-Terphenyl	58.7	49.8	118	70-135	

Lab Batch #: 923150

Sample: 470265-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 02:56

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	99.5	123	70-135	
o-Terphenyl	64.1	49.8	129	70-135	

Lab Batch #: 923150

Sample: 470265-014 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 03:21

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.8	107	70-135	
o-Terphenyl	60.3	49.9	121	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



## Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 923150

Sample: 470265-015 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 03:46

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	126	99.7	126	70-135	
o-Terphenyl	62.8	49.9	126	70-135	

Lab Batch #: 923150

Sample: 470265-016 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 04:10

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	125	99.9	125	70-135	
o-Terphenyl	61.4	50.0	123	70-135	

Lab Batch #: 923150

Sample: 470265-017 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 04:34

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.7	101	70-135	
o-Terphenyl	56.9	49.9	114	70-135	

Lab Batch #: 923150

Sample: 470265-018 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 04:58

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.2	100	99	70-135	
o-Terphenyl	52.9	50.0	106	70-135	

Lab Batch #: 923150

Sample: 470265-019 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 05:23

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	129	99.8	129	70-135	
o-Terphenyl	60.3	49.9	121	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 923150

Sample: 470265-020 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 05:48

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.9	107	70-135	
o-Terphenyl	58.1	50.0	116	70-135	

Lab Batch #: 923154

Sample: 470265-021 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 08:17

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	99.5	116	70-135	
o-Terphenyl	56.2	49.8	113	70-135	

Lab Batch #: 923154

Sample: 470265-022 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 08:43

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	120	100	120	70-135	
o-Terphenyl	62.4	50.0	125	70-135	

Lab Batch #: 923154

Sample: 470265-023 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 09:07

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	125	99.5	126	70-135	
o-Terphenyl	61.9	49.8	124	70-135	

Lab Batch #: 923154

Sample: 470265-024 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 09:32

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	113	99.6	113	70-135	
o-Terphenyl	62.9	49.8	126	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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

**Form 2 - Surrogate Recoveries****Project Name: Plains TNM Monument 18****Work Orders :** 470265,**Project ID:****Lab Batch #:** 923092**Sample:** 470265-021 / SMP**Batch:** 1 **Matrix:** Soil**Units:** mg/kg**Date Analyzed:** 09/19/13 13:11**SURROGATE RECOVERY STUDY**

<b>BTEX by EPA 8021B</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0306	0.0300	102	80-120	

**Lab Batch #:** 923092**Sample:** 470265-022 / SMP**Batch:** 1 **Matrix:** Soil**Units:** mg/kg**Date Analyzed:** 09/19/13 13:27**SURROGATE RECOVERY STUDY**

<b>BTEX by EPA 8021B</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	0.0258	0.0300	86	80-120	

**Lab Batch #:** 923092**Sample:** 470265-023 / SMP**Batch:** 1 **Matrix:** Soil**Units:** mg/kg**Date Analyzed:** 09/19/13 13:43**SURROGATE RECOVERY STUDY**

<b>BTEX by EPA 8021B</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0254	0.0300	85	80-120	
4-Bromofluorobenzene	0.0289	0.0300	96	80-120	

**Lab Batch #:** 922941**Sample:** 643984-1-BLK / BLK**Batch:** 1 **Matrix:** Solid**Units:** mg/kg**Date Analyzed:** 09/17/13 21:21**SURROGATE RECOVERY STUDY**

<b>BTEX by EPA 8021B</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0306	0.0300	102	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

**Lab Batch #:** 923092**Sample:** 644057-1-BLK / BLK**Batch:** 1 **Matrix:** Solid**Units:** mg/kg**Date Analyzed:** 09/18/13 09:29**SURROGATE RECOVERY STUDY**

<b>BTEX by EPA 8021B</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0290	0.0300	97	80-120	
4-Bromofluorobenzene	0.0296	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

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



**Form 2 - Surrogate Recoveries****Project Name: Plains TNM Monument 18****Work Orders :** 470265,**Project ID:****Lab Batch #:** 923150**Sample:** 644090-1-BLK / BLK**Batch:** 1 **Matrix:** Solid**Units:** mg/kg**Date Analyzed:** 09/19/13 18:58**SURROGATE RECOVERY STUDY**

<b>TPH By SW8015 Mod</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1-Chlorooctane	90.8	100	91	70-135	
o-Terphenyl	46.1	50.0	92	70-135	

**Lab Batch #:** 923154**Sample:** 644091-1-BLK / BLK**Batch:** 1 **Matrix:** Solid**Units:** mg/kg**Date Analyzed:** 09/19/13 20:11**SURROGATE RECOVERY STUDY**

<b>TPH By SW8015 Mod</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1-Chlorooctane	94.3	100	94	70-135	
o-Terphenyl	46.6	50.0	93	70-135	

**Lab Batch #:** 922941**Sample:** 643984-1-BKS / BKS**Batch:** 1 **Matrix:** Solid**Units:** mg/kg**Date Analyzed:** 09/17/13 20:34**SURROGATE RECOVERY STUDY**

<b>BTEX by EPA 8021B</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

**Lab Batch #:** 923092**Sample:** 644057-1-BKS / BKS**Batch:** 1 **Matrix:** Solid**Units:** mg/kg**Date Analyzed:** 09/18/13 08:41**SURROGATE RECOVERY STUDY**

<b>BTEX by EPA 8021B</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

**Lab Batch #:** 923150**Sample:** 644090-1-BKS / BKS**Batch:** 1 **Matrix:** Solid**Units:** mg/kg**Date Analyzed:** 09/19/13 18:10**SURROGATE RECOVERY STUDY**

<b>TPH By SW8015 Mod</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1-Chlorooctane	108	100	108	70-135	
o-Terphenyl	45.8	50.0	92	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



## Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 923154

Sample: 644091-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/19/13 19:22

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	100	108	70-135	
o-Terphenyl	48.8	50.0	98	70-135	

Lab Batch #: 922941

Sample: 643984-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/17/13 20:50

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0291	0.0300	97	80-120	

Lab Batch #: 923092

Sample: 644057-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/18/13 08:57

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0302	0.0300	101	80-120	

Lab Batch #: 923150

Sample: 644090-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/19/13 18:34

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	100	118	70-135	
o-Terphenyl	52.6	50.0	105	70-135	

Lab Batch #: 923154

Sample: 644091-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/19/13 19:48

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	100	115	70-135	
o-Terphenyl	49.6	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

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



## Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 922941

Sample: 470265-012 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 03:45

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0309	0.0300	103	80-120	
4-Bromofluorobenzene	0.0321	0.0300	107	80-120	

Lab Batch #: 923092

Sample: 470388-002 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 17:34

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0309	0.0300	103	80-120	
4-Bromofluorobenzene	0.0316	0.0300	105	80-120	

Lab Batch #: 923150

Sample: 470265-012 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 20:36

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	99.9	111	70-135	
o-Terphenyl	45.2	50.0	90	70-135	

Lab Batch #: 922941

Sample: 470265-012 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 04:01

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0307	0.0300	102	80-120	
4-Bromofluorobenzene	0.0312	0.0300	104	80-120	

Lab Batch #: 923092

Sample: 470388-002 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/13 17:50

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0315	0.0300	105	80-120	
4-Bromofluorobenzene	0.0320	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

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



## Form 2 - Surrogate Recoveries

Project Name: Plains TNM Monument 18

Work Orders : 470265,

Project ID:

Lab Batch #: 923150

Sample: 470265-012 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/19/13 21:00

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.5	108	70-135	
o-Terphenyl	45.0	49.8	90	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



## BS / BSD Recoveries



**Project Name: Plains TNM Monument 18**

**Work Order #:** 470265

**Analyst:** ARM

**Date Prepared:** 09/17/2013

**Project ID:**

**Date Analyzed:** 09/17/2013

**Lab Batch ID:** 922941

**Sample:** 643984-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>BTEX by EPA 8021B</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Benzene	<0.00100	0.100	0.104	104	0.100	0.103	103	1	70-130	35	
Toluene	<0.00200	0.100	0.102	102	0.100	0.101	101	1	70-130	35	
Ethylbenzene	<0.00100	0.100	0.0971	97	0.100	0.0965	97	1	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.195	98	0.200	0.193	97	1	70-135	35	
o-Xylene	<0.00100	0.100	0.0988	99	0.100	0.0976	98	1	71-133	35	

**Analyst:** ARM

**Date Prepared:** 09/17/2013

**Date Analyzed:** 09/18/2013

**Lab Batch ID:** 923092

**Sample:** 644057-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>BTEX by EPA 8021B</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Benzene	<0.00100	0.100	0.103	103	0.100	0.106	106	3	70-130	35	
Toluene	<0.00200	0.100	0.101	101	0.100	0.105	105	4	70-130	35	
Ethylbenzene	<0.00100	0.100	0.0962	96	0.100	0.100	100	4	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.193	97	0.200	0.201	101	4	70-135	35	
o-Xylene	<0.00100	0.100	0.0958	96	0.100	0.101	101	5	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: Plains TNM Monument 18**

**Work Order #:** 470265

**Analyst:** ARM

**Date Prepared:** 09/18/2013

**Project ID:**

**Date Analyzed:** 09/19/2013

**Lab Batch ID:** 923150

**Sample:** 644090-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod	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											
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	910	91	1000	945	95	4	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	1050	105	1000	986	99	6	70-135	35	

**Analyst:** ARM

**Date Prepared:** 09/18/2013

**Date Analyzed:** 09/19/2013

**Lab Batch ID:** 923154

**Sample:** 644091-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod	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											
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	880	88	1000	757	76	15	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	1030	103	1000	1010	101	2	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: Plains TNM Monument 18

Work Order # : 470265

Project ID:

Lab Batch ID: 922941

QC- Sample ID: 470265-012 S

Batch #: 1 Matrix: Soil

Date Analyzed: 09/18/2013

Date Prepared: 09/17/2013

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00104	0.104	0.0928	89	0.103	0.0928	90	0	70-130	35	
Toluene	<0.00207	0.104	0.0901	87	0.103	0.0899	87	0	70-130	35	
Ethylbenzene	<0.00104	0.104	0.0839	81	0.103	0.0833	81	1	71-129	35	
m_p-Xylenes	<0.00207	0.207	0.167	81	0.206	0.166	81	1	70-135	35	
o-Xylene	<0.00104	0.104	0.0841	81	0.103	0.0838	81	0	71-133	35	

Lab Batch ID: 923092

QC- Sample ID: 470388-002 S

Batch #: 1 Matrix: Soil

Date Analyzed: 09/18/2013

Date Prepared: 09/17/2013

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00103	0.103	0.0864	84	0.102	0.0906	89	5	70-130	35	
Toluene	<0.00206	0.103	0.0855	83	0.102	0.0892	87	4	70-130	35	
Ethylbenzene	<0.00103	0.103	0.0806	78	0.102	0.0838	82	4	71-129	35	
m_p-Xylenes	<0.00206	0.206	0.161	78	0.204	0.168	82	4	70-135	35	
o-Xylene	<0.00103	0.103	0.0807	78	0.102	0.0845	83	5	71-133	35	

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

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

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: Plains TNM Monument 18

Work Order # : 470265

Project ID:

Lab Batch ID: 923150

QC- Sample ID: 470265-012 S

Batch #: 1 Matrix: Soil

Date Analyzed: 09/19/2013

Date Prepared: 09/18/2013

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.6	1040	791	76	1030	779	76	2	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.6	1040	961	92	1030	917	89	5	70-135	35	

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

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

ND = Not Detected, J = Present Below Reporting Limit, 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.

## Sample Duplicate Recovery



## Project Name: Plains TNM Monument 18

Work Order #: 470265

Lab Batch #: 922818

Date Analyzed: 09/16/2013 15:25

Date Prepared: 09/16/2013

Project ID:

Analyst: WRU

QC- Sample ID: 470265-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

## SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	24.2	23.7	2	20	

Lab Batch #: 922822

Date Analyzed: 09/16/2013 16:30

Date Prepared: 09/16/2013

Analyst: WRU

QC- Sample ID: 470265-021 D

Batch #: 1

Matrix: Soil

Reporting Units: %

## SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	15.4	15.6	1	20	

Spike Relative Difference RPD  $200 * |(B-A)/(B+A)|$ 

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

BRL - Below Reporting Limit

12600 West I-20 East  
Odessa, Texas 79765

Phone: 432-563-1800  
Fax: 432-563-1713

Enco Environmental Lab of Texas

Project Manager: Camille Bryant

Company Name: Nova Safety and Environmental

Company Address: 2057 Commerce

City/State/Zip: Midland, TX 79703

Telephone No: 432.520.7720

Sampler Signature: [Signature]

Fax No: 432.520.7701  
e-mail: cbryant@novatraining.cc  
csstanley@novatraining.cc  
smharris@paalp.com

Report Format: ☐ Standard ☐ TRRP ☐ NPDES

Project Name: Monument #18

Project #: SRS# TNM-Monument 18

Project Loc: Lea County, NM

PO #: PAA - Shawn Harris

(lab use only)  
ORDER #: 470265

LAB # (lab use only)		FIELD CODE		Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other ( Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg	Volatiles	Semivolatiles	BTEX 8021B/8030 or BTEX 8021B/8030	RCI	N.O.R.M.	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT	
	NE Ramp SP					9/12/2013	1350		1	X								Soil	X									X			X	
	Central Ramp SP					9/12/2013	1355		1	X								Soil	X									X			X	
	ESW-1 @ 18'					9/12/2013	1400		1	X								Soil	X									X			X	
	ESW-2 @ 18'					9/12/2013	1405		1	X								Soil	X									X			X	
	ESW-3 @ 18'					9/12/2013	1410		1	X								Soil	X									X			X	
	ESW-4 @ 18'					9/12/2013	1415		1	X								Soil	X									X			X	
	SSW-1 @ 18'					9/12/2013	1420		1	X								Soil	X									X			X	
	SSW-2 @ 18'					9/12/2013	1425		1	X								Soil	X									X			X	
	SSW-3 @ 18'					9/12/2013	1430		1	X								Soil	X									X			X	
	NSW-1 @ 18'					9/12/2013	1435		1	X								Soil	X									X			X	

Special Instructions:

Requested by: [Signature]	Date: 9/13	Time: 1100	Received by: [Signature]	Date: 9/13/13	Time: 1100
Requested by: [Signature]	Date: 9/13/13	Time: 1118	Received by: [Signature]	Date: 9-13-13	Time: 1118

Received by ELOT: [Signature]

Temperature Upon Receipt: 4 °C

Laboratory Comments:

Sample Containers Intact? Y

VOCs Free of Headspace? Y

Labels on container(s) Y

Custody seals on container(s) Y

Custody seals on cooler(s) Y

Sample Hand Delivered by Sampler/Client Rep. ? Y

UPS DHL FedEx Lone Star Y



Enco Laboratories  
Environmental Lab of Texas  
12600 West I-20 East  
Odessa, Texas 79765  
Phone: 432-563-1800  
Fax: 432-563-1713

Project Manager: Camille Bryant  
Project Name: Monument #18

Company Name: Nova Safety and Environmental  
Project #: SRS# TNM-Monument 18

Company Address: 2057 Commerce  
Project Loc: Lea County, NM

City/State/Zip: Midland, TX 79703  
PO #: PAA - Shawn Harris

Telephone No: 432-520-7720  
Report Format: ☐ Standard ☐ TRRP ☐ NPDES

Fax No: 432-520-7701  
e-mail: cbryant@novatraining.cc  
cstanley@novatraining.cc  
smharris@paalp.com

Sampler Signature: [Signature]  
Analyze For: [ ]

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Matrix	TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO <sub>4</sub> , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
	NSW-2 @ 18'			9/12/2013	1440		1	X									Soil	X												X
	NSW-3 @ 18'			9/12/2013	1445		1	X									Soil	X												X
	WSW-1 @ 18'			9/12/2013	1450		1	X									Soil	X												X
	WSW-2 @ 18'			9/12/2013	1455		1	X									Soil	X												X
	WSW-3 @ 18'			9/12/2013	1500		1	X									Soil	X												X
	WSW-4 @ 18'			9/12/2013	1505		1	X									Soil	X												X
	Floor-1 @ 19'			9/12/2013	1510		1	X									Soil	X												X
	Floor-2 @ 19'			9/12/2013	1515		1	X									Soil	X												X
	Floor-3 @ 19'			9/12/2013	1520		1	X									Soil	X												X
	Floor-4 @ 19'			9/12/2013	1525		1	X									Soil	X												X

Special Instructions:

Requested by: [Signature]	Date: 9/13	Time: 1100	Received by: [Signature]	Date: 9/13/13	Time: 1100
Requested by: [Signature]	Date: 9/13/13	Time: 1118	Received by: [Signature]	Date: 9-13-13	Time: 1115

Received by ELDT: [Signature]

Temperature Upon Receipt: 4 °C

Laboratory Comments:

Sample Containers Intact? Y

VOCs Free of Headspace? Y

Labels on container(s)? Y

Custody seals on container(s)? Y

Custody seals on cooler(s)? Y

Sample Hand Delivered by Sampler/Client Rep.? Y

by Courier? UPS DHL FedEx Lone Star







## XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&amp;S

Date/ Time Received: 09/13/2013 11:18:00 AM

Work Order #: 470265

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)?	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?	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#:
----------	-----------------

Checklist completed by:

Candace James

Date: 09/13/2013

Checklist reviewed by:

Date: 09/13/2013

# **Analytical Report 471804**

**for**

## **PLAINS ALL AMERICAN EH&S**

**Project Manager: Camille Bryant**

**Plains Monument**

**TNM Monument 18**

**23-OCT-13**

Collected By: Client



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-13-15-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)  
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)  
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)  
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)  
Louisiana (04176), USDA (P330-07-00105)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

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-13

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

Reference: XENCO Report No(s): **471804**  
**Plains Monument**  
Project Address: Lea County, New Mexico

**Camille Bryant:**

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) 471804. 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. 471804 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,

---

**Kelsey Brooks**

Project Manager

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

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## Sample Cross Reference 471804

## PLAINS ALL AMERICAN EH&amp;S, Midland, TX

## Plains Monument

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
ESW-2 @ 2'	S	10-08-13 09:30	- 2 ft	471804-001
ESW-2 @ 10'	S	10-08-13 09:35	- 10 ft	471804-002
ESW-2A @ 18'	S	10-08-13 09:40	- 18 ft	471804-003
ESW-2 @ 2'	S	10-08-13 11:40	- 2 ft	471804-008
ESW-3 @ 10'	S	10-08-13 11:45	- 10 ft	471804-009
ESW-3A @ 18'	S	10-08-13 11:50	- 18 ft	471804-010
NSW-1 @ 2'	S	10-08-13 12:45	- 2 ft	471804-015
NSW-1 @ 10'	S	10-08-13 12:50	- 10 ft	471804-016
NSW-1A @ 18'	S	10-08-13 12:55	- 18 ft	471804-017
ESW-4 @ 2'	S	10-08-13 13:50	- 2 ft	471804-022
ESW-4 @ 10'	S	10-08-13 13:55	- 10 ft	471804-023
ESW-4A @ 18'	S	10-08-13 14:00	- 18 ft	471804-024
ESW-4B @ 18'	S	10-08-13 14:10	- 18 ft	471804-025
ESW-2B @ 18'	S	10-08-13 09:50	- 18 ft	Not Analyzed
ESW-2C @ 18'	S	10-08-13 10:00	- 18 ft	Not Analyzed
ESW-2D @ 18'	S	10-08-13 10:15	- 18 ft	Not Analyzed
ESW-2E @ 18'	S	10-08-13 10:35	- 18 ft	Not Analyzed
ESW-3B @ 18'	S	10-08-13 12:00	- 18 ft	Not Analyzed
ESW-3C @ 18'	S	10-08-13 12:10	- 18 ft	Not Analyzed
ESW-3D @ 18'	S	10-08-13 12:20	- 18 ft	Not Analyzed
ESW-3E @ 18'	S	10-08-13 12:30	- 18 ft	Not Analyzed
NSW-1B @ 18'	S	10-08-13 13:00	- 18 ft	Not Analyzed
NSW-1C @ 18'	S	10-08-13 13:10	- 18 ft	Not Analyzed
NSW-1D @ 18'	S	10-08-13 13:20	- 18 ft	Not Analyzed
NSW-1E @ 18'	S	10-08-13 13:30	- 18 ft	Not Analyzed
ESW-4C @ 18'	S	10-08-13 14:25	- 18 ft	Not Analyzed
ESW-4D @ 18'	S	10-08-13 14:35	- 18 ft	Not Analyzed
ESW-4E @ 18'	S	10-08-13 14:45	- 18 ft	Not Analyzed



## CASE NARRATIVE

**Client Name:** *PLAINS ALL AMERICAN EH&S*

**Project Name:** *Plains Monument*

Project ID: *TNM Monument 18*  
Work Order Number(s): *471804*

Report Date: *23-OCT-13*  
Date Received: *10/09/2013*

---

**Sample receipt non conformances and comments:**

Call with verbals.

---

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-925052 BTEX by EPA 8021  
SW8021BM

Batch 925052, Benzene, Ethylbenzene, Toluene, m\_p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.

Samples affected are: 471804-008, -001, -009, -016, -002, -015, -022, -023.

The Laboratory Control Sample for Toluene, Benzene, Ethylbenzene, m\_p-Xylenes , o-Xylene is within laboratory Control Limits



## Hits Summary 471804

## PLAINS ALL AMERICAN EH&amp;S, Midland, TX

## Plains Monument

Sample Id : **ESW-4A @ 18'**

Matrix : Soil

% Moisture : 8.34

Lab Sample Id : 471804-024

Date Collected : 10.08.13 14.00

Basis : Dry Weight

Sample Depth : 18 ft

Date Received : 10.09.13 14.08

Analytical Method : TPH by SW8015 Mod

Prep Method: TX1005P

Seq Number 925733

Date Prep: 10.09.13 17.00

Parameter	Cas Numbe	Result	Units	Analysis Date	Flag	Dil
C6-C12 Gasoline Range Hydrocarbons	PHC612	31.3	mg/kg	10.09.13 23.25		1
C12-C28 Diesel Range Hydrocarbons	PHCG1028	1440	mg/kg	10.09.13 23.25		1
Total TPH	PHC635	1470	mg/kg	10.09.13 23.25		1





# Certificate of Analysis Summary 471804

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:** TNM Monument 18

**Contact:** Camille Bryant

**Project Location:** Lea County, New Mexico

**Project Name:** Plains Monument

**Date Received in Lab:** Wed Oct-09-13 02:08 pm

**Report Date:** 23-OCT-13

**Project Manager:** Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	471804-001	471804-002	471804-003	471804-008	471804-009	471804-010
	<i>Field Id:</i>	ESW-2 @ 2'	ESW-2 @ 10'	ESW-2A @ 18'	ESW-2 @ 2'	ESW-3 @ 10'	ESW-3A @ 18'
	<i>Depth:</i>	2 ft	10 ft	18 ft	2 ft	10 ft	18 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-08-13 09:30	Oct-08-13 09:35	Oct-08-13 09:40	Oct-08-13 11:40	Oct-08-13 11:45	Oct-08-13 11:50
<b>BTEX by EPA 8021</b>	<i>Extracted:</i>	Oct-10-13 15:00	Oct-10-13 15:00		Oct-10-13 15:00	Oct-10-13 15:00	
	<i>Analyzed:</i>	Oct-11-13 18:11	Oct-14-13 12:01		Oct-14-13 12:18	Oct-14-13 12:34	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	
Benzene		ND 0.00106	ND 0.00126		ND 0.00102	ND 0.00101	
Toluene		ND 0.00211	ND 0.00252		ND 0.00204	ND 0.00203	
Ethylbenzene		ND 0.00106	ND 0.00126		ND 0.00102	ND 0.00101	
m_p-Xylenes		ND 0.00211	ND 0.00252		ND 0.00204	ND 0.00203	
o-Xylene		ND 0.00106	ND 0.00126		ND 0.00102	ND 0.00101	
Xylenes, Total		ND 0.00106	ND 0.00126		ND 0.00102	ND 0.00101	
Total BTEX		ND 0.00106	ND 0.00126		ND 0.00102	ND 0.00101	
<b>Percent Moisture</b>	<i>Extracted:</i>						
	<i>Analyzed:</i>	Oct-10-13 11:30	Oct-10-13 11:30	Oct-09-13 16:00	Oct-10-13 11:30	Oct-10-13 11:30	Oct-09-13 16:00
	<i>Units/RL:</i>	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		5.43 1.00	21.2 1.00	19.6 1.00	2.17 1.00	1.91 1.00	9.98 1.00
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Oct-09-13 17:00	Oct-09-13 17:00	Oct-09-13 17:00	Oct-09-13 17:00	Oct-09-13 17:00	Oct-09-13 17:00
	<i>Analyzed:</i>	Oct-10-13 00:13	Oct-10-13 01:25	Oct-09-13 22:15	Oct-10-13 01:48	Oct-10-13 02:11	Oct-09-13 22:38
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		ND 15.8	ND 19.0	ND 18.6	ND 15.3	ND 15.2	ND 16.7
C12-C28 Diesel Range Hydrocarbons		ND 15.8	ND 19.0	ND 18.6	ND 15.3	ND 15.2	ND 16.7
C28-C35 Oil Range Hydrocarbons		ND 15.8	ND 19.0	ND 18.6	ND 15.3	ND 15.2	ND 16.7
Total TPH		ND 15.8	ND 19.0	ND 18.6	ND 15.3	ND 15.2	ND 16.7

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Kelsey Brooks  
Project Manager



# Certificate of Analysis Summary 471804

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:** TNM Monument 18

**Contact:** Camille Bryant

**Project Location:** Lea County, New Mexico

**Project Name:** Plains Monument

**Date Received in Lab:** Wed Oct-09-13 02:08 pm

**Report Date:** 23-OCT-13

**Project Manager:** Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	471804-015	471804-016	471804-017	471804-022	471804-023	471804-024
	<i>Field Id:</i>	NSW-1 @ 2'	NSW-1 @ 10'	NSW-1A @ 18'	ESW-4 @ 2'	ESW-4 @ 10'	ESW-4A @ 18'
	<i>Depth:</i>	2 ft	10 ft	18 ft	2 ft	10 ft	18 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-08-13 12:45	Oct-08-13 12:50	Oct-08-13 12:55	Oct-08-13 13:50	Oct-08-13 13:55	Oct-08-13 14:00
<b>BTEX by EPA 8021</b>	<i>Extracted:</i>	Oct-10-13 15:00	Oct-10-13 15:00		Oct-10-13 15:00	Oct-10-13 15:00	
	<i>Analyzed:</i>	Oct-14-13 12:50	Oct-14-13 13:06		Oct-14-13 13:22	Oct-14-13 13:39	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	
Benzene		ND 0.00101	ND 0.00101		ND 0.00106	ND 0.00102	
Toluene		ND 0.00202	ND 0.00202		ND 0.00212	ND 0.00205	
Ethylbenzene		ND 0.00101	ND 0.00101		ND 0.00106	ND 0.00102	
m_p-Xylenes		ND 0.00202	ND 0.00202		ND 0.00212	ND 0.00205	
o-Xylene		ND 0.00101	ND 0.00101		ND 0.00106	ND 0.00102	
Xylenes, Total		ND 0.00101	ND 0.00101		ND 0.00106	ND 0.00102	
Total BTEX		ND 0.00101	ND 0.00101		ND 0.00106	ND 0.00102	
<b>Percent Moisture</b>	<i>Extracted:</i>	Oct-10-13 11:30	Oct-10-13 11:30	Oct-09-13 16:00	Oct-10-13 11:30	Oct-10-13 11:30	Oct-09-13 16:00
	<i>Analyzed:</i>						
	<i>Units/RL:</i>	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		1.10 1.00	1.58 1.00	20.5 1.00	6.00 1.00	2.43 1.00	8.34 1.00
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Oct-09-13 17:00	Oct-09-13 17:00	Oct-09-13 17:00	Oct-09-13 17:00	Oct-09-13 17:00	Oct-09-13 17:00
	<i>Analyzed:</i>	Oct-10-13 02:34	Oct-10-13 03:47	Oct-09-13 23:01	Oct-10-13 04:12	Oct-10-13 04:36	Oct-09-13 23:25
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		ND 15.1	ND 15.2	ND 18.8	ND 15.9	ND 15.3	31.3 16.4
C12-C28 Diesel Range Hydrocarbons		ND 15.1	ND 15.2	ND 18.8	ND 15.9	ND 15.3	1440 16.4
C28-C35 Oil Range Hydrocarbons		ND 15.1	ND 15.2	ND 18.8	ND 15.9	ND 15.3	ND 16.4
Total TPH		ND 15.1	ND 15.2	ND 18.8	ND 15.9	ND 15.3	1470 16.4

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Kelsey Brooks  
Project Manager



# Certificate of Analysis Summary 471804

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:** TNM Monument 18

**Contact:** Camille Bryant

**Project Location:** Lea County, New Mexico

**Project Name:** Plains Monument

**Date Received in Lab:** Wed Oct-09-13 02:08 pm

**Report Date:** 23-OCT-13

**Project Manager:** Kelsey Brooks

<b>Analysis Requested</b>	<b>Lab Id:</b>	471804-025					
	<b>Field Id:</b>	ESW-4B @ 18'					
	<b>Depth:</b>	18 ft					
	<b>Matrix:</b>	SOIL					
	<b>Sampled:</b>	Oct-08-13 14:10					
<b>Percent Moisture</b>	<b>Extracted:</b>						
	<b>Analyzed:</b>	Oct-10-13 11:30					
	<b>Units/RL:</b>	% RL					
Percent Moisture		13.8 1.00					
<b>TPH by SW8015 Mod</b>	<b>Extracted:</b>	Oct-09-13 17:00					
	<b>Analyzed:</b>	Oct-10-13 10:06					
	<b>Units/RL:</b>	mg/kg RL					
C6-C12 Gasoline Range Hydrocarbons		ND 17.4					
C12-C28 Diesel Range Hydrocarbons		ND 17.4					
C28-C35 Oil Range Hydrocarbons		ND 17.4					
Total TPH		ND 17.4					

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Kelsey Brooks  
Project Manager



## Flagging Criteria



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

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

+ NELAC certification not offered for this compound.

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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains Monument

Work Orders : 471804, 471804

Project ID: TNM Monument 18

Lab Batch #: 925733

Sample: 471804-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/09/13 22:15

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.8	101	70-135	
o-Terphenyl	50.9	49.9	102	70-135	

Lab Batch #: 925733

Sample: 471804-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/09/13 22:38

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	100	102	70-135	
o-Terphenyl	52.2	50.0	104	70-135	

Lab Batch #: 925733

Sample: 471804-017 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/09/13 23:01

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	99.6	105	70-135	
o-Terphenyl	53.2	49.8	107	70-135	

Lab Batch #: 925733

Sample: 471804-024 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/09/13 23:25

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	113	100	113	70-135	
o-Terphenyl	54.9	50.0	110	70-135	

Lab Batch #: 925733

Sample: 471804-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/10/13 00:13

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.7	107	70-135	
o-Terphenyl	54.4	49.9	109	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains Monument

Work Orders : 471804, 471804

Project ID: TNM Monument 18

Lab Batch #: 925733

Sample: 471804-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/10/13 01:25

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.6	106	70-135	
o-Terphenyl	55.6	49.8	112	70-135	

Lab Batch #: 925733

Sample: 471804-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/10/13 01:48

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.2	99.5	99	70-135	
o-Terphenyl	48.0	49.8	96	70-135	

Lab Batch #: 925733

Sample: 471804-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/10/13 02:11

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.6	99.7	98	70-135	
o-Terphenyl	47.2	49.9	95	70-135	

Lab Batch #: 925733

Sample: 471804-015 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/10/13 02:34

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.8	99.5	99	70-135	
o-Terphenyl	47.5	49.8	95	70-135	

Lab Batch #: 925733

Sample: 471804-016 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/10/13 03:47

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	49.1	50.0	98	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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





# Form 2 - Surrogate Recoveries

Project Name: Plains Monument

Work Orders : 471804, 471804

Project ID: TNM Monument 18

Lab Batch #: 925733

Sample: 471804-022 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/10/13 04:12

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.8	104	70-135	
o-Terphenyl	52.1	49.9	104	70-135	

Lab Batch #: 925733

Sample: 471804-023 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/10/13 04:36

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.6	104	70-135	
o-Terphenyl	53.5	49.8	107	70-135	

Lab Batch #: 925733

Sample: 471804-025 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/10/13 10:06

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.9	107	70-135	
o-Terphenyl	51.8	50.0	104	70-135	

Lab Batch #: 925052

Sample: 471804-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/11/13 18:11

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0257	0.0300	86	80-120	
4-Bromofluorobenzene	0.0267	0.0300	89	80-120	

Lab Batch #: 925052

Sample: 471804-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/14/13 12:01

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains Monument

Work Orders : 471804, 471804

Project ID: TNM Monument 18

Lab Batch #: 925052

Sample: 471804-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/14/13 12:18

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0259	0.0300	86	80-120	
4-Bromofluorobenzene	0.0265	0.0300	88	80-120	

Lab Batch #: 925052

Sample: 471804-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/14/13 12:34

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0265	0.0300	88	80-120	
4-Bromofluorobenzene	0.0268	0.0300	89	80-120	

Lab Batch #: 925052

Sample: 471804-015 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/14/13 12:50

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0269	0.0300	90	80-120	
4-Bromofluorobenzene	0.0276	0.0300	92	80-120	

Lab Batch #: 925052

Sample: 471804-016 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/14/13 13:06

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0272	0.0300	91	80-120	

Lab Batch #: 925052

Sample: 471804-022 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/14/13 13:22

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0273	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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains Monument

Work Orders : 471804, 471804

Project ID: TNM Monument 18

Lab Batch #: 925052

Sample: 471804-023 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/14/13 13:39

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	80-120	
4-Bromofluorobenzene	0.0264	0.0300	88	80-120	

Lab Batch #: 925733

Sample: 645766-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/09/13 21:52

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	100	102	70-135	
o-Terphenyl	53.5	50.0	107	70-135	

Lab Batch #: 925052

Sample: 645319-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/11/13 16:50

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0264	0.0300	88	80-120	

Lab Batch #: 925733

Sample: 645766-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/09/13 21:06

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	100	114	70-135	
o-Terphenyl	49.2	50.0	98	70-135	

Lab Batch #: 925052

Sample: 645319-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/11/13 16:02

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Plains Monument

Work Orders : 471804, 471804

Project ID: TNM Monument 18

Lab Batch #: 925733

Sample: 645766-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/09/13 21:30

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	126	100	126	70-135	
o-Terphenyl	53.7	50.0	107	70-135	

Lab Batch #: 925052

Sample: 645319-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/11/13 16:18

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0286	0.0300	95	80-120	
4-Bromofluorobenzene	0.0288	0.0300	96	80-120	

Lab Batch #: 925733

Sample: 471804-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/10/13 00:37

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	121	99.8	121	70-135	
o-Terphenyl	56.2	49.9	113	70-135	

Lab Batch #: 925052

Sample: 471804-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/11/13 18:27

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

Lab Batch #: 925733

Sample: 471804-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/10/13 01:01

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	99.8	122	70-135	
o-Terphenyl	52.4	49.9	105	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



## Form 2 - Surrogate Recoveries

Project Name: Plains Monument

Work Orders : 471804, 471804

Project ID: TNM Monument 18

Lab Batch #: 925052

Sample: 471804-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/11/13 18:43

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0278	0.0300	93	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



## BS / BSD Recoveries

Project Name: Plains Monument

Work Order #: 471804, 471804

Project ID: TNM Monument 18

Analyst: ARM

Date Prepared: 10/10/2013

Date Analyzed: 10/11/2013

Lab Batch ID: 925052

Sample: 645319-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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	0.0878	88	0.100	0.0871	87	1	70-130	35	
Toluene	<0.00200	0.100	0.0880	88	0.100	0.0881	88	0	70-130	35	
Ethylbenzene	<0.00100	0.100	0.0922	92	0.100	0.0919	92	0	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.186	93	0.200	0.186	93	0	70-135	35	
o-Xylene	<0.00100	0.100	0.0948	95	0.100	0.0943	94	1	71-133	35	

Analyst: ARM

Date Prepared: 10/09/2013

Date Analyzed: 10/09/2013

Lab Batch ID: 925733

Sample: 645766-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod	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											
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	809	81	1000	867	87	7	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	844	84	1000	885	89	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





## Form 3 - MS / MSD Recoveries



Project Name: Plains Monument

Work Order #: 471804

Project ID: TNM Monument 18

Lab Batch ID: 925052

QC- Sample ID: 471804-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/11/2013

Date Prepared: 10/10/2013

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY 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	<0.00105	0.105	0.0688	66	0.105	0.0669	64	3	70-130	35	X
Toluene	<0.00210	0.105	0.0603	57	0.105	0.0582	55	4	70-130	35	X
Ethylbenzene	<0.00105	0.105	0.0348	33	0.105	0.0309	29	12	71-129	35	X
m_p-Xylenes	<0.00210	0.210	0.0990	47	0.211	0.101	48	2	70-135	35	X
o-Xylene	<0.00105	0.105	0.0658	63	0.105	0.0652	62	1	71-133	35	X

Lab Batch ID: 925733

QC- Sample ID: 471804-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 10/10/2013

Date Prepared: 10/09/2013

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.8	1060	951	90	1060	962	91	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.8	1060	1000	94	1060	993	94	1	70-135	35	

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

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

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.

# Sample Duplicate Recovery

**Project Name: Plains Monument**

**Work Order #:** 471804

**Lab Batch #:** 924755

**Project ID:** TNM Monument 18

**Date Analyzed:** 10/09/2013 16:00

**Date Prepared:** 10/09/2013

**Analyst:** WRU

**QC- Sample ID:** 471804-003 D

**Batch #:** 1

**Matrix:** Soil

**Reporting Units:** %

## SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	19.6	19.1	3	20	

**Lab Batch #:** 924857

**Date Analyzed:** 10/10/2013 11:30

**Date Prepared:** 10/10/2013

**Analyst:** WRU

**QC- Sample ID:** 471804-001 D

**Batch #:** 1

**Matrix:** Soil

**Reporting Units:** %

## SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	5.43	5.07	7	20	

Spike Relative Difference RPD  $200 * |(B-A)/(B+A)|$

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

BRL - Below Reporting Limit



## Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&amp;S

Acceptable Temperature Range: 0 - 6 degC

Date/ Time Received: 10/09/2013 02:08:00 PM

Air and Metal samples Acceptable Range: Ambient

Work Order #: 471804

Temperature Measuring device used :

## Sample Receipt Checklist

## Comments

#1 *Temperature of cooler(s)?	1.5
#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 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?	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#:

Checklist completed by:

Candace James

Date: 10/09/2013

Checklist reviewed by:

Kelsey Brooks

Date: 10/09/2013





**Xenco Laboratories**

The Environmental Lab of Texas

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

12600 West I-20 East  
Odessa, Texas 79765

Phone: 432-563-1800  
Fax: 432-563-1713

Project Manager: Camille BryantProject Name: Plains Monument 18Company Name: Nova Safety and EnvironmentalProject #: TNM Monument 18Company Address: 2057 CommerceProject Loc: Lea County, New MexicoCity/State/Zip: Midland, TX 79703

PO #:

Telephone No: 432.520.7720Fax No: 432.520.7701

Report Format:

☒ Standard
 ☐ TRRP
 ☐ NPI
Sampler Signature: Camille Bryant

e-mail:

cbryant@novatraining.cc  
smharris@paalp.com

(lab use only)

ORDER #:

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Preservation & # of Containers								Matrix	TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTX 8021B/5030 for BTX 8260	RCI	N.O.R.M.	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
								Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other (Specify)														
11	ESU-3 Be 18'			10/8	12:00		1																						
12	ESU-3C e 18'				12:10		1																						
13	ESU-3D e 18'				12:20		1																						
14	ESU-3E e 18'				12:30		1																						
15	ESU-1 e 2'				12:45		1																						
16	ESU-1 e 10'				12:50		1																						
17	ESU-1A e 18'				12:55		1																						
18	ESU-1B e 18'				13:00		1																						
19	ESU-1C e 18'				13:10		1																						
20	ESU-1D e 18'				13:20		1																						

Special Instructions:

code w/verbal

Relinquished by:

Date

Time

Received by:

Date

Time

Laboratory Comments:

Sample Containers Intact?

VOCs Free of Headspace?

Labels on container(s)?

Custody seals on container(s)?

Custody seals on cooler(s)?

Sample Hand Delivered by Sampler/Client Rep.?

Temperature Upon Receipt:

UPS

DHL

FedEx

Lone Star

1.5

°C



**Xenco Laboratories**

The Environmental Lab of Texas

**CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST**12600 West I-20 East  
Odessa, Texas 79765Phone: 432-563-1800  
Fax: 432-563-1713

Project Manager: Camille Bryant

Company Name: Nova Safety and Environmental

Company Address: 2057 Commerce

City/State/Zip: Midland, TX 79703

Telephone No: 432.520.7720

Fax No: 432.520.7701

Sampler Signature: Camille Bryant

e-mail:

cbryant@novatraining.cc  
smharris@paalp.comReport Format: ☒ Standard ☐ TRRP ☐ NP

PO #:

Project Name: Plains Monument 18  
Project #: TNM Monument 18Project Loc: Lea County, New Mexico

Plains Monument 18

471804  
19.3013

(lab use only)

ORDER #:

LAB # (lab use only)

FIELD CODE

Beginning Depth

Ending Depth

Date Sampled

Time Sampled

Field Filtered

Total #. of Containers

Ice

HNO<sub>3</sub>

HCl

H<sub>2</sub>SO<sub>4</sub>

NaOH

Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>

None

Other (Specify)

DW=Drinking Water SL=Sludge

GW = Groundwater S=Soil/Solid

NP=Non-Potable Specify Other

TPH: 418.1 8015M 8015B

TPH: TX 1005 TX 1006

Cations (Ca, Mg, Na, K)

Anions (Cl, SO<sub>4</sub>, Alkalinity)

SAR / ESP / CEC

Metals: As Ag Ba Cd Cr Pb Hg Se

Volatiles

Semivolatiles

BTEX 8021B/5030 or BTEX 8260

RCI

N.O.R.M.

RUSH TAT (Pre-Schedule) 24, 48, 72 hrs

Standard TAT

Preservation &amp; # of Containers

Matrix

Analyze For:

TCLP:

TOTAL:

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other (Specify)	DW=Drinking Water SL=Sludge	GW = Groundwater S=Soil/Solid	NP=Non-Potable Specify Other	TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO <sub>4</sub> , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
21	ESW-1E@18'			10/8	1330		1	X																							
22	ESW-4@2'				1350		1																								
23	ESW-4@10'				1355		1																								
24	ESW-4A@18'				1400		1																								
25	ESW-4B@18'				1410		1																								
26	ESW-4C@18'				1420		1																								
27	ESW-4D@18'				1435		1																								
28	ESW-4E@18'				1445		1																								

Special Instructions:

all wetals

Relinquished by:

Date

Time

Received by:

Date

Time

Relinquished by:

Date

Time

Received by:

Date

Time

Relinquished by:

Date

Time

Received by:

Date

Time

Laboratory Comments:

Sample Containers Intact?

VOCs Free of Headspace?

Labels on container(s)

Custody seals on container(s)

Custody seals on cooler(s)

Sample Hand Delivered

by Sampler/Client Rep.?

by Courier?

UPS

DHL

FedEx

Lone Star

°C

1.5





## XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&amp;S

Acceptable Temperature Range: 0 - 6 degC

Date/ Time Received: 10/09/2013 02:08:00 PM

Air and Metal samples Acceptable Range: Ambient

Work Order #: 471804

Temperature Measuring device used :

## Sample Receipt Checklist

## Comments

#1 *Temperature of cooler(s)?	1.5
#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 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?	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#:

Checklist completed by:

Candace James

Date: 10/09/2013

Checklist reviewed by:

Kelsey Brooks

Date: 10/09/2013

# **Analytical Report 473458**

**for**

## **PLAINS ALL AMERICAN EH&S**

**Project Manager: Curt Stanley**

**Monument #18**

**SRS#TNM-Monument 18**

**11-NOV-13**

Collected By: Client



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-13-15-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)  
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)  
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)  
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)  
Louisiana (04176), USDA (P330-07-00105)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

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)



11-NOV-13

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

Reference: XENCO Report No(s): **473458**  
**Monument #18**  
Project Address: Lea County, NM

**Curt Stanley:**

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) 473458. 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. 473458 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,

---

**Kelsey Brooks**

Project Manager

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**Sample Cross Reference 473458****PLAINS ALL AMERICAN EH&S, Midland, TX**

Monument #18

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
W Trench @ 5' bgs	S	11-05-13 09:00	- 5 ft	473458-001
W Trench @ 10' bgs	S	11-05-13 09:20	- 10 ft	473458-002
W Trench @ 15' bgs	S	11-05-13 09:50	- 15 ft	473458-003
W Trench @ 18' bgs	S	11-05-13 11:00	- 18 ft	473458-004



## CASE NARRATIVE

**Client Name:** PLAINS ALL AMERICAN EH&S

**Project Name:** Monument #18

Project ID: SRS#TNM-Monument 18  
Work Order Number(s): 473458

Report Date: 11-NOV-13  
Date Received: 11/05/2013

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### Sample receipt non conformances and comments:

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### Sample receipt non conformances and comments per sample:

None

### Analytical non conformances and comments:

Batch: LBA-926991 TPH by SW8015 Mod  
SW8015MOD\_NM

Batch 926991, C12-C28 Diesel Range Hydrocarbons, C6-C12 Gasoline Range Hydrocarbons RPD was outside QC limits.

Samples affected are: 473458-004, -002, -003, -001



## Hits Summary 473458



**PLAINS ALL AMERICAN EH&S, Midland, TX**

Monument #18





# Certificate of Analysis Summary 473458

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:** SRS#TNM-Monument 18

**Contact:** Curt Stanley

**Project Name:** Monument #18

**Date Received in Lab:** Tue Nov-05-13 04:22 pm

**Report Date:** 11-NOV-13

**Project Location:** Lea County, NM

**Project Manager:** Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	473458-001	473458-002	473458-003	473458-004		
	<i>Field Id:</i>	W Trench @ 5' bgs	W Trench @ 10' bgs	W Trench @ 15' bgs	W Trench @ 18' bgs		
	<i>Depth:</i>	5 ft	10 ft	15 ft	18 ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Nov-05-13 09:00	Nov-05-13 09:20	Nov-05-13 09:50	Nov-05-13 11:00		
<b>BTEX by EPA 8021</b>	<i>Extracted:</i>	Nov-06-13 15:00	Nov-06-13 15:00	Nov-06-13 15:00	Nov-06-13 15:00		
	<i>Analyzed:</i>	Nov-07-13 00:52	Nov-07-13 01:08	Nov-07-13 01:24	Nov-07-13 01:40		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		ND 0.000996	ND 0.000994	ND 0.000990	ND 0.00100		
Toluene		ND 0.00199	ND 0.00199	ND 0.00198	ND 0.00200		
Ethylbenzene		ND 0.000996	ND 0.000994	ND 0.000990	ND 0.00100		
m_p-Xylenes		ND 0.00199	ND 0.00199	ND 0.00198	ND 0.00200		
o-Xylene		ND 0.000996	ND 0.000994	ND 0.000990	ND 0.00100		
Xylenes, Total		ND 0.000996	ND 0.000994	ND 0.000990	ND 0.00100		
Total BTEX		ND 0.000996	ND 0.000994	ND 0.000990	ND 0.00100		
<b>Percent Moisture</b>	<i>Extracted:</i>						
	<i>Analyzed:</i>	Nov-06-13 15:00	Nov-06-13 15:00	Nov-06-13 15:00	Nov-06-13 15:00		
	<i>Units/RL:</i>	% RL	% RL	% RL	% RL		
Percent Moisture		10.2 1.00	10.1 1.00	9.89 1.00	13.4 1.00		
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Nov-05-13 18:00	Nov-05-13 18:00	Nov-05-13 18:00	Nov-05-13 18:00		
	<i>Analyzed:</i>	Nov-06-13 13:02	Nov-06-13 13:32	Nov-06-13 14:01	Nov-06-13 14:31		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
C6-C12 Gasoline Range Hydrocarbons		ND 16.7	ND 16.6	ND 16.6	ND 17.3		
C12-C28 Diesel Range Hydrocarbons		ND 16.7	ND 16.6	ND 16.6	ND 17.3		
C28-C35 Oil Range Hydrocarbons		ND 16.7	ND 16.6	ND 16.6	ND 17.3		
Total TPH		ND 16.7	ND 16.6	ND 16.6	ND 17.3		

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

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Kelsey Brooks  
Project Manager



## Flagging Criteria



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

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

+ NELAC certification not offered for this compound.

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

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 2505 North Falkenburg Rd, Tampa, FL 33619  
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(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	



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 473458,

Project ID: SRS#TNM-Monument 18

Lab Batch #: 926991

Sample: 473458-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/06/13 13:02

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.1	99.8	98	70-135	
o-Terphenyl	45.9	49.9	92	70-135	

Lab Batch #: 926991

Sample: 473458-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/06/13 13:32

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.6	103	70-135	
o-Terphenyl	47.8	49.8	96	70-135	

Lab Batch #: 926991

Sample: 473458-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/06/13 14:01

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	46.4	50.0	93	70-135	

Lab Batch #: 926991

Sample: 473458-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/06/13 14:31

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	48.1	50.0	96	70-135	

Lab Batch #: 926999

Sample: 473458-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/07/13 00:52

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0283	0.0300	94	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 473458,

Project ID: SRS#TNM-Monument 18

Lab Batch #: 926999

Sample: 473458-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/07/13 01:08

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0302	0.0300	101	80-120	

Lab Batch #: 926999

Sample: 473458-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/07/13 01:24

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0296	0.0300	99	80-120	

Lab Batch #: 926999

Sample: 473458-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/07/13 01:40

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

Lab Batch #: 926991

Sample: 646539-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/06/13 02:43

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	100	108	70-135	
o-Terphenyl	51.1	50.0	102	70-135	

Lab Batch #: 926999

Sample: 646542-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/07/13 00:37

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0261	0.0300	87	80-120	
4-Bromofluorobenzene	0.0284	0.0300	95	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 473458,

Project ID: SRS#TNM-Monument 18

Lab Batch #: 926991

Sample: 646539-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/06/13 01:53

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.0	100	97	70-135	
o-Terphenyl	54.1	50.0	108	70-135	

Lab Batch #: 926991

Sample: 646542-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/06/13 23:17

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0325	0.0300	108	80-120	

Lab Batch #: 926991

Sample: 646539-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/06/13 02:18

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	100	111	70-135	
o-Terphenyl	61.8	50.0	124	70-135	

Lab Batch #: 926991

Sample: 646542-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/06/13 23:33

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0329	0.0300	110	80-120	

Lab Batch #: 926991

Sample: 473374-007 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/06/13 05:56

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	1100	990	111	70-135	
o-Terphenyl	642	495	130	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 473458,

Project ID: SRS#TNM-Monument 18

Lab Batch #: 926999

Sample: 473458-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/06/13 23:49

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0307	0.0300	102	80-120	
4-Bromofluorobenzene	0.0330	0.0300	110	80-120	

Lab Batch #: 926991

Sample: 473374-007 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/06/13 06:19

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	100	105	70-135	
o-Terphenyl	56.5	50.0	113	70-135	

Lab Batch #: 926999

Sample: 473458-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/07/13 00:05

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0315	0.0300	105	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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





## BS / BSD Recoveries



Project Name: Monument #18

Work Order #: 473458

Project ID: SRS#TNM-Monument 18

Analyst: ARM

Date Prepared: 11/06/2013

Date Analyzed: 11/06/2013

Lab Batch ID: 926999

Sample: 646542-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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	0.0948	95	0.100	0.0986	99	4	70-130	35	
Toluene	<0.00200	0.100	0.0958	96	0.100	0.0998	100	4	70-130	35	
Ethylbenzene	<0.00100	0.100	0.0994	99	0.100	0.104	104	5	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.201	101	0.200	0.212	106	5	70-135	35	
o-Xylene	<0.00100	0.100	0.102	102	0.100	0.107	107	5	71-133	35	

Analyst: ARM

Date Prepared: 11/05/2013

Date Analyzed: 11/06/2013

Lab Batch ID: 926991

Sample: 646539-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod	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											
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	941	94	1000	1060	106	12	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	936	94	1000	1050	105	11	70-135	35	

Relative Percent Difference RPD =  $200 * |(C-F)/(C+F)|$ Blank Spike Recovery [D] =  $100 * (C)/[B]$ Blank Spike Duplicate Recovery [G] =  $100 * (F)/[E]$ 

All results are based on MDL and Validated for QC Purposes



## Form 3 - MS / MSD Recoveries



Project Name: Monument #18

Work Order #: 473458

Project ID: SRS#TNM-Monument 18

Lab Batch ID: 926999

QC- Sample ID: 473458-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 11/06/2013

Date Prepared: 11/06/2013

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY 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	<0.000998	0.0998	0.0864	87	0.0996	0.0707	71	20	70-130	35	
Toluene	<0.00200	0.0998	0.0862	86	0.0996	0.0704	71	20	70-130	35	
Ethylbenzene	<0.000998	0.0998	0.0877	88	0.0996	0.0715	72	20	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.177	89	0.199	0.143	72	21	70-135	35	
o-Xylene	<0.000998	0.0998	0.0900	90	0.0996	0.0731	73	21	71-133	35	

Lab Batch ID: 926991

QC- Sample ID: 473374-007 S

Batch #: 1 Matrix: Soil

Date Analyzed: 11/06/2013

Date Prepared: 11/05/2013

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<151	10000	11600	116	1010	1040	103	167	70-135	35	F
C12-C28 Diesel Range Hydrocarbons	<151	10000	11900	119	1010	1070	106	167	70-135	35	F

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

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

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.

**Sample Duplicate Recovery****Project Name: Monument #18****Work Order #:** 473458**Lab Batch #:** 926977**Project ID:** SRS#TNM-Monument 18**Date Analyzed:** 11/06/2013 15:00**Date Prepared:** 11/06/2013**Analyst:** WRU**QC- Sample ID:** 473446-001 D**Batch #:** 1**Matrix:** Soil**Reporting Units:** %**SAMPLE / SAMPLE DUPLICATE RECOVERY**

<b>Percent Moisture</b>	<b>Parent Sample Result [A]</b>	<b>Sample Duplicate Result [B]</b>	<b>RPD</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analyte</b>					
Percent Moisture	14.5	15.4	6	20	

Spike Relative Difference RPD  $200 * |(B-A)/(B+A)|$ 

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

BRL - Below Reporting Limit



## XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&amp;S

Date/ Time Received: 11/05/2013 04:22:00 PM

Work Order #: 473458

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

## Sample Receipt Checklist

## Comments

#1 *Temperature of cooler(s)?	3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping 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 HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ?	N/A
#22 >10 for all samples preserved with NaAsO <sub>2</sub> +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:

Candace James

Date: 11/05/2013

Checklist reviewed by:

Kelsey Brooks

Date: 11/05/2013



# **Analytical Report 490081**

**for**

## **PLAINS ALL AMERICAN EH&S**

**Project Manager: Curt Stanley**

**Monument #18**

**TNM-Monument 18**

**29-JUL-14**

Collected By: Client



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-14-16-TX), Arizona (AZ0765), Florida (E871002), Louisiana (03054)

New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)

Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)





29-JUL-14

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

Reference: XENCO Report No(s): **490081**  
**Monument #18**  
Project Address: Lea County, NM

**Curt Stanley:**

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) 490081. 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. 490081 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,

---

**Kelsey Brooks**

Project Manager

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**Sample Cross Reference 490081****PLAINS ALL AMERICAN EH&S, Midland, TX**

Monument #18

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SP-4	S	07-23-14 15:05		490081-001
SP-5	S	07-23-14 15:30		490081-002
SP-6	S	07-23-14 16:00		490081-003
SP-3	S	07-23-14 14:05		490081-004



## CASE NARRATIVE

**Client Name:** *PLAINS ALL AMERICAN EH&S*

**Project Name:** *Monument #18*

Project ID: *TNM-Monument 18*  
Work Order Number(s): *490081*

Report Date: *29-JUL-14*  
Date Received: *07/25/2014*

---

**Sample receipt non conformances and comments:**

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**Sample receipt non conformances and comments per sample:**

None



# Certificate of Analysis Summary 490081

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:** TNM-Monument 18

**Contact:** Curt Stanley

**Project Name:** Monument #18

**Date Received in Lab:** Fri Jul-25-14 02:52 pm

**Report Date:** 29-JUL-14

**Project Location:** Lea County, NM

**Project Manager:** Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	490081-001	490081-002	490081-003	490081-004		
	<i>Field Id:</i>	SP-4	SP-5	SP-6	SP-3		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Jul-23-14 15:05	Jul-23-14 15:30	Jul-23-14 16:00	Jul-23-14 14:05		
<b>BTEX by EPA 8021</b>	<i>Extracted:</i>	Jul-28-14 14:00	Jul-28-14 14:00	Jul-28-14 14:00	Jul-28-14 14:00		
	<i>Analyzed:</i>	Jul-28-14 18:53	Jul-28-14 19:26	Jul-28-14 19:42	Jul-28-14 19:58		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		ND 0.000996	ND 0.000998	ND 0.000994	ND 0.000996		
Toluene		ND 0.00199	ND 0.00200	ND 0.00199	ND 0.00199		
Ethylbenzene		0.00187 0.000996	ND 0.000998	ND 0.000994	0.0106 0.000996		
m_p-Xylenes		0.00961 0.00199	0.00351 0.00200	0.00490 0.00199	0.0428 0.00199		
o-Xylene		0.00237 0.000996	ND 0.000998	0.00135 0.000994	0.00597 0.000996		
Xylenes, Total		0.0120 0.000996	0.00351 0.000998	0.00625 0.000994	0.0488 0.000996		
Total BTEX		0.0139 0.000996	0.00351 0.000998	0.00625 0.000994	0.0594 0.000996		
<b>Percent Moisture</b>	<i>Extracted:</i>						
	<i>Analyzed:</i>	Jul-28-14 09:45	Jul-28-14 09:45	Jul-28-14 09:45	Jul-28-14 09:45		
	<i>Units/RL:</i>	% RL	% RL	% RL	% RL		
Percent Moisture		1.78 1.00	2.85 1.00	3.83 1.00	11.9 1.00		
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Jul-25-14 17:00	Jul-25-14 17:00	Jul-25-14 17:00	Jul-25-14 17:00		
	<i>Analyzed:</i>	Jul-26-14 02:57	Jul-26-14 03:23	Jul-26-14 04:35	Jul-26-14 05:54		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
C6-C12 Gasoline Range Hydrocarbons		ND 15.3	ND 15.4	20.2 15.6	332 17.0		
C12-C28 Diesel Range Hydrocarbons		105 15.3	89.4 15.4	716 15.6	3150 17.0		
C28-C35 Oil Range Hydrocarbons		ND 15.3	ND 15.4	72.4 15.6	168 17.0		
Total TPH		105 15.3	89.4 15.4	809 15.6	3650 17.0		

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

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      **SQL** Method Quantitation Limit      **LOQ** Limit of Quantitation

**DL** Method Detection Limit

**NC** Non-Calculable

+ NELAC certification not offered for this compound.

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

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 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

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(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	



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 490081,

Lab Batch #: 946603

Sample: 490081-001 / SMP

Project ID: TNM-Monument 18

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/26/14 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	91.0	99.9	91	70-135	
o-Terphenyl	46.5	50.0	93	70-135	

Lab Batch #: 946603

Sample: 490081-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/26/14 03:23

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.6	99.8	96	70-135	
o-Terphenyl	48.9	49.9	98	70-135	

Lab Batch #: 946603

Sample: 490081-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/26/14 04:35

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.1	99.9	99	70-135	
o-Terphenyl	51.6	50.0	103	70-135	

Lab Batch #: 946603

Sample: 490081-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/26/14 05:54

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	99.8	109	70-135	
o-Terphenyl	54.8	49.9	110	70-135	

Lab Batch #: 946719

Sample: 490081-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/28/14 18:53

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0290	0.0300	97	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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





# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 490081,

Project ID: TNM-Monument 18

Lab Batch #: 946719

Sample: 490081-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/28/14 19:26

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0283	0.0300	94	80-120	
4-Bromofluorobenzene	0.0314	0.0300	105	80-120	

Lab Batch #: 946719

Sample: 490081-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/28/14 19:42

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	80-120	
4-Bromofluorobenzene	0.0284	0.0300	95	80-120	

Lab Batch #: 946719

Sample: 490081-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/28/14 19:58

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0241	0.0300	80	80-120	
4-Bromofluorobenzene	0.0315	0.0300	105	80-120	

Lab Batch #: 946603

Sample: 658965-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/25/14 23:43

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.9	100	99	70-135	
o-Terphenyl	56.4	50.0	113	70-135	

Lab Batch #: 946719

Sample: 659045-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/28/14 16:03

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0278	0.0300	93	80-120	
4-Bromofluorobenzene	0.0272	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

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



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 490081,

Lab Batch #: 946603

Sample: 658965-1-BKS / BKS

Project ID: TNM-Monument 18

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/26/14 00:09

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	100	107	70-135	
o-Terphenyl	60.2	50.0	120	70-135	

Lab Batch #: 946719

Sample: 659045-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/28/14 16:19

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

Lab Batch #: 946603

Sample: 658965-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/26/14 00:33

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	100	102	70-135	
o-Terphenyl	54.2	50.0	108	70-135	

Lab Batch #: 946719

Sample: 659045-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 07/28/14 16:36

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0317	0.0300	106	80-120	

Lab Batch #: 946603

Sample: 490081-002 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/26/14 03:46

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.7	103	70-135	
o-Terphenyl	51.7	49.9	104	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 490081,

Lab Batch #: 946719

Sample: 490081-001 S / MS

Project ID: TNM-Monument 18

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/28/14 16:53

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0327	0.0300	109	80-120	

Lab Batch #: 946603

Sample: 490081-002 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/26/14 04:10

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.7	103	70-135	
o-Terphenyl	49.7	49.9	100	70-135	

Lab Batch #: 946719

Sample: 490081-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 07/28/14 17:10

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0320	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

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



## BS / BSD Recoveries

Project Name: Monument #18

Work Order #: 490081

Project ID: TNM-Monument 18

Analyst: ARM

Date Prepared: 07/28/2014

Date Analyzed: 07/28/2014

Lab Batch ID: 946719

Sample: 659045-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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	0.0944	94	0.100	0.0986	99	4	70-130	35	
Toluene	<0.00200	0.100	0.0982	98	0.100	0.103	103	5	70-130	35	
Ethylbenzene	<0.00100	0.100	0.101	101	0.100	0.106	106	5	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.203	102	0.200	0.213	107	5	70-135	35	
o-Xylene	<0.00100	0.100	0.0998	100	0.100	0.104	104	4	71-133	35	

Analyst: ARM

Date Prepared: 07/25/2014

Date Analyzed: 07/26/2014

Lab Batch ID: 946603

Sample: 658965-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod	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											
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	1020	102	1000	1030	103	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	1130	113	1000	1130	113	0	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: Monument #18

Work Order #: 490081

Project ID: TNM-Monument 18

Lab Batch ID: 946719

QC- Sample ID: 490081-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 07/28/2014

Date Prepared: 07/28/2014

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY 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	<0.000994	0.0994	0.0884	89	0.0996	0.0844	85	5	70-130	35	
Toluene	<0.00199	0.0994	0.0914	92	0.0996	0.0875	88	4	70-130	35	
Ethylbenzene	0.00187	0.0994	0.0925	91	0.0996	0.0884	87	5	71-129	35	
m_p-Xylenes	0.00961	0.199	0.188	90	0.199	0.179	85	5	70-135	35	
o-Xylene	0.00237	0.0994	0.0916	90	0.0996	0.0875	85	5	71-133	35	

Lab Batch ID: 946603

QC- Sample ID: 490081-002 S

Batch #: 1 Matrix: Soil

Date Analyzed: 07/26/2014

Date Prepared: 07/25/2014

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.4	1030	1110	108	1030	1090	106	2	70-135	35	
C12-C28 Diesel Range Hydrocarbons	89.4	1030	1200	108	1030	1160	104	3	70-135	35	

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

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

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.

## Sample Duplicate Recovery



Project Name: Monument #18

Work Order #: 490081

Lab Batch #: 946647

Project ID: TNM-Monument 18

Date Analyzed: 07/28/2014 09:45

Date Prepared: 07/28/2014

Analyst: WRU

QC- Sample ID: 490070-001 D

Batch #: 1

Matrix: Solid

Reporting Units: %

## SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	7.78	7.52	3	20	

Lab Batch #: 946647

Date Analyzed: 07/28/2014 09:45

Date Prepared: 07/28/2014

Analyst: WRU

QC- Sample ID: 490081-003 D

Batch #: 1

Matrix: Soil

Reporting Units: %

## SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	3.83	3.88	1	20	

Spike Relative Difference RPD  $200 * |(B-A)/(B+A)|$ 

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

BRL - Below Reporting Limit





# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&amp;S

Date/ Time Received: 07/25/2014 02:52:00 PM

Work Order #: 490081

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

**Sample Receipt Checklist****Comments**

#1 *Temperature of cooler(s)?	3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 Custody Seals intact on sample bottles?	No
#6 *Custody Seals Signed and dated?	No
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#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 HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ?	N/A
#22 >10 for all samples preserved with NaAsO <sub>2</sub> +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:

  
Kelsey Brooks

Date: 07/25/2014

Checklist reviewed by:

  
Kelsey Brooks

Date: 07/25/2014





# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&amp;S

Date/ Time Received: 07/25/2014 02:52:00 PM

Work Order #: 490081

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 Custody Seals intact on sample bottles?	No
#6 *Custody Seals Signed and dated?	No
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#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 HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ?	N/A
#22 >10 for all samples preserved with NaAsO <sub>2</sub> +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:

Kelsey Brooks  
Kelsey Brooks

Date: 07/25/2014

Checklist reviewed by:

Kelsey Brooks  
Kelsey Brooks

Date: 07/25/2014

# **Analytical Report 491265**

**for**

## **PLAINS ALL AMERICAN EH&S**

**Project Manager: Curt Stanley**

**Monument #18**

**TNM-Monument 18**

**18-AUG-14**

Collected By: Client



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-14-16-TX), Arizona (AZ0765), Florida (E871002), Louisiana (03054)

New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)

Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)



18-AUG-14

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

Reference: XENCO Report No(s): **491265**  
**Monument #18**  
Project Address: Lea County, NM

**Curt Stanley:**

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) 491265. 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. 491265 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,

---

**Kelsey Brooks**

Project Manager

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## Sample Cross Reference 491265

### PLAINS ALL AMERICAN EH&S, Midland, TX

Monument #18

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
East Wall Stockpile	S	08-08-14 15:36		491265-001





## CASE NARRATIVE

**Client Name:** *PLAINS ALL AMERICAN EH&S*

**Project Name:** *Monument #18*

Project ID: *TNM-Monument 18*  
Work Order Number(s): *491265*

Report Date: *18-AUG-14*  
Date Received: *08/12/2014*

---

**Sample receipt non conformances and comments:**

---

**Sample receipt non conformances and comments per sample:**

None



## Hits Summary 491265

## PLAINS ALL AMERICAN EH&amp;S, Midland, TX

Monument #18

Sample Id : East Wall Stockpile

Matrix : Soil

% Moisture : 4.1

Lab Sample Id : 491265-001

Date Collected : 08.08.14 15.36

Basis : Dry Weight

Date Received : 08.12.14 09.52

Analytical Method : TPH by SW8015 Mod

Prep Method: TX1005P

Seq Number 948342

Date Prep: 08.14.14 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
C12-C28 Diesel Range Hydrocarbons	PHCG1028	60.3	mg/kg	08.14.14 16.57		1
Total TPH	PHC635	60.3	mg/kg	08.14.14 16.57		1



# Certificate of Analysis Summary 491265

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:** TNM-Monument 18

**Contact:** Curt Stanley

**Project Name:** Monument #18

**Date Received in Lab:** Tue Aug-12-14 09:52 am

**Report Date:** 18-AUG-14

**Project Location:** Lea County, NM

**Project Manager:** Kelsey Brooks

<b>Analysis Requested</b>	<b>Lab Id:</b> 491265-001 <b>Field Id:</b> East Wall Stockpile <b>Depth:</b> <b>Matrix:</b> SOIL <b>Sampled:</b> Aug-08-14 15:36					
<b>BTEX by EPA 8021</b>	<b>Extracted:</b> Aug-13-14 16:00 <b>Analyzed:</b> Aug-14-14 18:48 <b>Units/RL:</b> mg/kg RL					
Benzene	ND 0.00104					
Toluene	ND 0.00208					
Ethylbenzene	ND 0.00104					
m_p-Xylenes	ND 0.00208					
o-Xylene	ND 0.00104					
Xylenes, Total	ND 0.00104					
Total BTEX	ND 0.00104					
<b>Percent Moisture</b>	<b>Extracted:</b> <b>Analyzed:</b> Aug-12-14 17:00 <b>Units/RL:</b> % RL					
Percent Moisture	4.10 1.00					
<b>TPH by SW8015 Mod</b>	<b>Extracted:</b> Aug-14-14 14:00 <b>Analyzed:</b> Aug-14-14 16:57 <b>Units/RL:</b> mg/kg RL					
C6-C12 Gasoline Range Hydrocarbons	ND 15.6					
C12-C28 Diesel Range Hydrocarbons	60.3 15.6					
C28-C35 Oil Range Hydrocarbons	ND 15.6					
Total TPH	60.3 15.6					

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

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

Kelsey Brooks  
Project Manager



## Flagging Criteria



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

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

+ NELAC certification not offered for this compound.

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

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 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

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(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	



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 491265,

Project ID: TNM-Monument 18

Lab Batch #: 948342

Sample: 491265-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/14/14 16:57

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.8	104	70-135	
o-Terphenyl	51.5	49.9	103	70-135	

Lab Batch #: 948330

Sample: 491265-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/14/14 18:48

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0274	0.0300	91	80-120	

Lab Batch #: 948330

Sample: 660099-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/14/14 16:03

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0254	0.0300	85	80-120	
4-Bromofluorobenzene	0.0245	0.0300	82	80-120	

Lab Batch #: 948342

Sample: 660105-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/14/14 23:20

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	112	100	112	70-135	
o-Terphenyl	57.6	50.0	115	70-135	

Lab Batch #: 948342

Sample: 660105-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/14/14 16:04

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	116	100	116	70-135	
o-Terphenyl	64.9	50.0	130	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 491265,

Lab Batch #: 948330

Sample: 660099-1-BKS / BKS

Project ID: TNM-Monument 18

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/14/14 16:19

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0286	0.0300	95	80-120	
4-Bromofluorobenzene	0.0297	0.0300	99	80-120	

Lab Batch #: 948342

Sample: 660105-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/14/14 16:31

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	127	100	127	70-135	
o-Terphenyl	64.6	50.0	129	70-135	

Lab Batch #: 948330

Sample: 660099-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/14/14 16:36

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0307	0.0300	102	80-120	

Lab Batch #: 948330

Sample: 491118-003 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/14/14 16:52

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0287	0.0300	96	80-120	
4-Bromofluorobenzene	0.0315	0.0300	105	80-120	

Lab Batch #: 948342

Sample: 491400-003 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/14/14 19:33

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	99.8	109	70-135	
o-Terphenyl	64.8	49.9	130	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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





# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 491265,

Project ID: TNM-Monument 18

Lab Batch #: 948330

Sample: 491118-003 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/14/14 17:09

**SURROGATE RECOVERY STUDY**

<b>BTEX by EPA 8021</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 948342

Sample: 491400-003 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/14/14 19:59

**SURROGATE RECOVERY STUDY**

<b>TPH by SW8015 Mod</b>	<b>Amount Found [A]</b>	<b>True Amount [B]</b>	<b>Recovery %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
<b>Analytes</b>					
1-Chlorooctane	111	99.8	111	70-135	
o-Terphenyl	64.3	49.9	129	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



## BS / BSD Recoveries



Project Name: Monument #18

Work Order #: 491265

Project ID: TNM-Monument 18

Analyst: ARM

Date Prepared: 08/13/2014

Date Analyzed: 08/14/2014

Lab Batch ID: 948330

Sample: 660099-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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	0.0933	93	0.100	0.0966	97	3	70-130	35	
Toluene	<0.00200	0.100	0.0964	96	0.100	0.101	101	5	70-130	35	
Ethylbenzene	<0.00100	0.100	0.0980	98	0.100	0.104	104	6	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.197	99	0.200	0.210	105	6	70-135	35	
o-Xylene	<0.00100	0.100	0.0948	95	0.100	0.101	101	6	71-133	35	

Analyst: ARM

Date Prepared: 08/14/2014

Date Analyzed: 08/14/2014

Lab Batch ID: 948342

Sample: 660105-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod	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											
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	948	95	1000	1040	104	9	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	1180	118	1000	1130	113	4	70-135	35	

Relative Percent Difference RPD =  $200 * |(C-F)/(C+F)|$ Blank Spike Recovery [D] =  $100 * (C)/[B]$ Blank Spike Duplicate Recovery [G] =  $100 * (F)/[E]$ 

All results are based on MDL and Validated for QC Purposes



## Form 3 - MS / MSD Recoveries



Project Name: Monument #18

Work Order #: 491265

Project ID: TNM-Monument 18

Lab Batch ID: 948330

QC- Sample ID: 491118-003 S

Batch #: 1 Matrix: Soil

Date Analyzed: 08/14/2014

Date Prepared: 08/13/2014

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY 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	0.00136	0.105	0.0629	59	0.105	0.0646	60	3	70-130	35	X
Toluene	<0.00210	0.105	0.0626	60	0.105	0.0620	59	1	70-130	35	X
Ethylbenzene	<0.00105	0.105	0.0472	45	0.105	0.0465	44	1	71-129	35	X
m_p-Xylenes	<0.00210	0.210	0.118	56	0.210	0.117	56	1	70-135	35	X
o-Xylene	<0.00105	0.105	0.0641	61	0.105	0.0649	62	1	71-133	35	X

Lab Batch ID: 948342

QC- Sample ID: 491400-003 S

Batch #: 1 Matrix: Soil

Date Analyzed: 08/14/2014

Date Prepared: 08/14/2014

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<16.5	1100	1040	95	1100	1040	95	0	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<16.5	1100	1190	108	1100	1180	107	1	70-135	35	

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

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

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.

## Sample Duplicate Recovery



Project Name: Monument #18

Work Order #: 491265

Lab Batch #: 948003

Project ID: TNM-Monument 18

Date Analyzed: 08/12/2014 17:00

Date Prepared: 08/12/2014

Analyst: WRU

QC- Sample ID: 491109-005 D

Batch #: 1

Matrix: Soil

Reporting Units: %

## SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	6.58	6.26	5	20	

Lab Batch #: 948003

Date Analyzed: 08/12/2014 17:00

Date Prepared: 08/12/2014

Analyst: WRU

QC- Sample ID: 491265-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

## SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	4.10	3.61	13	20	

Spike Relative Difference RPD  $200 * |(B-A)/(B+A)|$ 

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

BRL - Below Reporting Limit



## XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&amp;S

Date/ Time Received: 08/12/2014 09:52:00 AM

Work Order #: 491265

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?	No
#5 Custody Seals intact on sample bottles?	No
#6 *Custody Seals Signed and dated?	No
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#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 HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ?	N/A
#22 >10 for all samples preserved with NaAsO <sub>2</sub> +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:

  
Kelsey Brooks

Date: 08/12/2014

Checklist reviewed by:

  
Kelsey Brooks

Date: 08/12/2014







## XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&amp;S

Date/ Time Received: 08/12/2014 09:52:00 AM

Work Order #: 491265

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?	No
#5 Custody Seals intact on sample bottles?	No
#6 *Custody Seals Signed and dated?	No
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#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 HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ?	N/A
#22 >10 for all samples preserved with NaAsO <sub>2</sub> +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:

  
 Kelsey Brooks

Date: 08/12/2014

Checklist reviewed by:

  
 Kelsey Brooks

Date: 08/12/2014

# **Analytical Report 491904**

**for**

## **PLAINS ALL AMERICAN EH&S**

**Project Manager: Curt Stanley**

**Monument #18**

**TNM-Monument 18**

**26-AUG-14**

Collected By: Client



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-14-16-TX), Arizona (AZ0765), Florida (E871002), Louisiana (03054)

New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)

Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)



26-AUG-14

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

Reference: XENCO Report No(s): **491904**  
**Monument #18**  
Project Address: Lea County, NM

**Curt Stanley:**

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) 491904. 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. 491904 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,

---

**Kelsey Brooks**

Project Manager

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**Sample Cross Reference 491904****PLAINS ALL AMERICAN EH&S, Midland, TX**

Monument #18

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SP-9	S	08-19-14 16:00		491904-001
SP-10	S	08-19-14 16:10		491904-002



## CASE NARRATIVE

**Client Name:** *PLAINS ALL AMERICAN EH&S*

**Project Name:** *Monument #18*

Project ID: *TNM-Monument 18*  
Work Order Number(s): *491904*

Report Date: *26-AUG-14*  
Date Received: *08/21/2014*

---

**Sample receipt non conformances and comments:**

---

**Sample receipt non conformances and comments per sample:**

None



## Hits Summary 491904

## PLAINS ALL AMERICAN EH&amp;S, Midland, TX

Monument #18

Sample Id : **SP-9**  
Lab Sample Id : 491904-001

Matrix : Soil  
Date Collected : 08.19.14 16.00  
Date Received : 08.21.14 13.19

% Moisture : 2.28  
Basis : Dry Weight

Analytical Method : TPH by SW8015 Mod  
Seq Number 949052

Prep Method: TX1005P  
Date Prep: 08.22.14 15.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
C12-C28 Diesel Range Hydrocarbons	PHCG1028	49.9	mg/kg	08.23.14 02.33		1
Total TPH	PHC635	49.9	mg/kg	08.23.14 02.33		1





## Hits Summary 491904

## PLAINS ALL AMERICAN EH&amp;S, Midland, TX

Monument #18

Sample Id : **SP-10**  
Lab Sample Id : 491904-002

Matrix : Soil  
Date Collected : 08.19.14 16.10  
Date Received : 08.21.14 13.19

% Moisture : 2.59  
Basis : Dry Weight

Analytical Method : TPH by SW8015 Mod  
Seq Number 949052

Prep Method: TX1005P  
Date Prep: 08.22.14 15.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
C12-C28 Diesel Range Hydrocarbons	PHCG1028	66.4	mg/kg	08.23.14 03.57		1
Total TPH	PHC635	66.4	mg/kg	08.23.14 03.57		1



# Certificate of Analysis Summary 491904

PLAINS ALL AMERICAN EH&S, Midland, TX



**Project Id:** TNM-Monument 18

**Contact:** Curt Stanley

**Project Name:** Monument #18

**Date Received in Lab:** Thu Aug-21-14 01:19 pm

**Report Date:** 26-AUG-14

**Project Location:** Lea County, NM

**Project Manager:** Kelsey Brooks

<b>Analysis Requested</b>	<b>Lab Id:</b>	491904-001	491904-002				
	<b>Field Id:</b>	SP-9	SP-10				
	<b>Depth:</b>						
	<b>Matrix:</b>	SOIL	SOIL				
	<b>Sampled:</b>	Aug-19-14 16:00	Aug-19-14 16:10				
<b>BTEX by EPA 8021</b>	<b>Extracted:</b>	Aug-25-14 14:00	Aug-25-14 14:00				
	<b>Analyzed:</b>	Aug-25-14 23:49	Aug-26-14 00:05				
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL				
Benzene		ND 0.00102	ND 0.00102				
Toluene		ND 0.00203	ND 0.00204				
Ethylbenzene		ND 0.00102	ND 0.00102				
m_p-Xylenes		ND 0.00203	ND 0.00204				
o-Xylene		ND 0.00102	ND 0.00102				
Xylenes, Total		ND 0.00102	ND 0.00102				
Total BTEX		ND 0.00102	ND 0.00102				
<b>Percent Moisture</b>	<b>Extracted:</b>	Aug-21-14 17:10	Aug-21-14 17:10				
	<b>Analyzed:</b>						
	<b>Units/RL:</b>	% RL	% RL				
Percent Moisture		2.28 1.00	2.59 1.00				
<b>TPH by SW8015 Mod</b>	<b>Extracted:</b>	Aug-22-14 15:00	Aug-22-14 15:00				
	<b>Analyzed:</b>	Aug-23-14 02:33	Aug-23-14 03:57				
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL				
C6-C12 Gasoline Range Hydrocarbons		ND 15.3	ND 15.4				
C12-C28 Diesel Range Hydrocarbons		49.9 15.3	66.4 15.4				
C28-C35 Oil Range Hydrocarbons		ND 15.3	ND 15.4				
Total TPH		49.9 15.3	66.4 15.4				

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

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

Kelsey Brooks  
Project Manager



## Flagging Criteria



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

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

+ NELAC certification not offered for this compound.

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

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 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

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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	



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 491904,

Project ID: TNM-Monument 18

Lab Batch #: 949052

Sample: 491904-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/23/14 02:33

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.3	99.9	87	70-135	
o-Terphenyl	45.2	50.0	90	70-135	

Lab Batch #: 949052

Sample: 491904-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/23/14 03:57

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.7	99.7	91	70-135	
o-Terphenyl	46.7	49.9	94	70-135	

Lab Batch #: 949166

Sample: 491904-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/25/14 23:49

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	80-120	
4-Bromofluorobenzene	0.0271	0.0300	90	80-120	

Lab Batch #: 949166

Sample: 491904-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/26/14 00:05

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

Lab Batch #: 949052

Sample: 660517-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/23/14 01:09

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	53.9	50.0	108	70-135	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 491904,

Lab Batch #: 949166

Sample: 660603-1-BLK / BLK

Project ID: TNM-Monument 18

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/25/14 20:46

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0251	0.0300	84	80-120	

Lab Batch #: 949052

Sample: 660517-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/23/14 01:36

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	105	100	105	70-135	
o-Terphenyl	63.9	50.0	128	70-135	

Lab Batch #: 949166

Sample: 660603-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/25/14 21:02

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

Lab Batch #: 949052

Sample: 660517-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/23/14 02:06

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	106	100	106	70-135	
o-Terphenyl	61.9	50.0	124	70-135	

Lab Batch #: 949166

Sample: 660603-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/25/14 21:19

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0282	0.0300	94	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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



# Form 2 - Surrogate Recoveries

Project Name: Monument #18

Work Orders : 491904,

Project ID: TNM-Monument 18

Lab Batch #: 949052

Sample: 491904-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/23/14 02:59

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	119	99.8	119	70-135	
o-Terphenyl	62.3	49.9	125	70-135	

Lab Batch #: 949166

Sample: 491565-008 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/25/14 21:36

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0332	0.0300	111	80-120	
4-Bromofluorobenzene	0.0312	0.0300	104	80-120	

Lab Batch #: 949052

Sample: 491904-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/23/14 03:27

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.9	104	70-135	
o-Terphenyl	52.0	50.0	104	70-135	

Lab Batch #: 949166

Sample: 491565-008 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/25/14 21:52

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0320	0.0300	107	80-120	
4-Bromofluorobenzene	0.0353	0.0300	118	80-120	

\* Surrogate outside of Laboratory QC limits

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

\*\*\* Poor recoveries due to dilution

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

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





## BS / BSD Recoveries



Project Name: Monument #18

Work Order #: 491904

Project ID: TNM-Monument 18

Analyst: ARM

Date Prepared: 08/25/2014

Date Analyzed: 08/25/2014

Lab Batch ID: 949166

Sample: 660603-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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	0.107	107	0.100	0.105	105	2	70-130	35	
Toluene	<0.00200	0.100	0.104	104	0.100	0.103	103	1	70-130	35	
Ethylbenzene	<0.00100	0.100	0.109	109	0.100	0.107	107	2	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.213	107	0.200	0.210	105	1	70-135	35	
o-Xylene	<0.00100	0.100	0.104	104	0.100	0.103	103	1	71-133	35	

Analyst: ARM

Date Prepared: 08/22/2014

Date Analyzed: 08/23/2014

Lab Batch ID: 949052

Sample: 660517-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod	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											
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	905	91	1000	837	84	8	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	1110	111	1000	1030	103	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: Monument #18

Work Order #: 491904

Project ID: TNM-Monument 18

Lab Batch ID: 949166

QC- Sample ID: 491565-008 S

Batch #: 1 Matrix: Soil

Date Analyzed: 08/25/2014

Date Prepared: 08/25/2014

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY 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	<0.00116	0.116	0.113	97	0.116	0.101	87	11	70-130	35	
Toluene	<0.00233	0.116	0.106	91	0.116	0.0912	79	15	70-130	35	
Ethylbenzene	<0.00116	0.116	0.106	91	0.116	0.0877	76	19	71-129	35	
m_p-Xylenes	<0.00233	0.233	0.205	88	0.233	0.179	77	14	70-135	35	
o-Xylene	<0.00116	0.116	0.0996	86	0.116	0.0905	78	10	71-133	35	

Lab Batch ID: 949052

QC- Sample ID: 491904-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 08/23/2014

Date Prepared: 08/22/2014

Analyst: ARM

Reporting Units: mg/kg

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.3	1020	856	84	1020	767	75	11	70-135	35	
C12-C28 Diesel Range Hydrocarbons	49.9	1020	1130	106	1020	953	89	17	70-135	35	

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

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

ND = Not Detected, J = Present Below Reporting Limit, 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.

## Sample Duplicate Recovery



Project Name: Monument #18

Work Order #: 491904

Lab Batch #: 948893

Project ID: TNM-Monument 18

Date Analyzed: 08/21/2014 17:10

Date Prepared: 08/21/2014

Analyst: WRU

QC- Sample ID: 491557-029 D

Batch #: 1

Matrix: Soil

Reporting Units: %

## SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	8.98	9.21	3	20	

Lab Batch #: 948893

Date Analyzed: 08/21/2014 17:10

Date Prepared: 08/21/2014

Analyst: WRU

QC- Sample ID: 491860-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

## SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	8.99	8.39	7	20	

Spike Relative Difference RPD  $200 * |(B-A)/(B+A)|$ 

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

BRL - Below Reporting Limit



## XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&amp;S

Date/ Time Received: 08/21/2014 01:19:00 PM

Work Order #: 491904

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)?	4.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 Custody Seals intact on sample bottles?	No
#6 *Custody Seals Signed and dated?	No
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#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 HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ?	N/A
#22 >10 for all samples preserved with NaAsO <sub>2</sub> +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:

  
Kelsey Brooks

Date: 08/21/2014

Checklist reviewed by:

  
Kelsey Brooks

Date: 08/21/2014

# Xenco Laboratories

The Environmental Lab of Texas

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST  
12600 West I-20 East  
Odessa, Texas 79765  
Phone: 432-563-1800  
Fax: 432-563-1713

Project Manager: Curt Stanley

Company Name: Nova Safety and Environmental

Company Address: 2057 Commerce

City/State/Zip: Midland, TX 79703

Telephone No: 432.520.7720

Fax No: 432.520.7701

Sampler Signature: *[Signature]* Email: [cstanley@novatraining.cc](mailto:cstanley@novatraining.cc)

ORDER #: 491904

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO <sub>4</sub> , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	Paint Filter Test	Chloride E300	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
	SP-9			8/19/2014	1600		1	X								Soil	X													X
	SP-10			8/19/2014	1610		1	X								Soil	X													X

Special Instructions: Bill to Plains

Inquired by: *[Signature]* Date: 8/14/14 Time: 1000 Received by: *[Signature]* Date: 8/14/14 Time: 1000

Inquired by: *[Signature]* Date: 8/14/14 Time: 1319 Received by: *[Signature]* Date: 8/14/14 Time: 1319

Laboratory Comments: Sample Containers Intact? VOCs Free of Headspace? Labels on container(s) Custody seals on container(s) Sample Hand Delivered by Sampler/Client Rep.? by Courier? UPS DHL FedEx Lene Star

Temperature Upon Receipt: 4.5 °C



## XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: PLAINS ALL AMERICAN EH&amp;S

Date/ Time Received: 08/21/2014 01:19:00 PM

Work Order #: 491904

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)?	4.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 Custody Seals intact on sample bottles?	No
#6 *Custody Seals Signed and dated?	No
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#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 HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ?	N/A
#22 >10 for all samples preserved with NaAsO <sub>2</sub> +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:

  
Kelsey Brooks

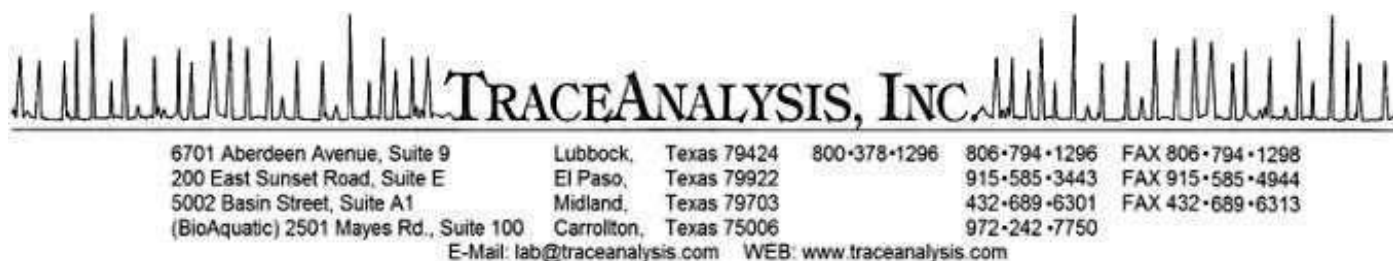
Date: 08/21/2014

Checklist reviewed by:

  
Kelsey Brooks

Date: 08/21/2014





## Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

(Corrected Report)

Curt Stanley  
Nova Safety & Environmental  
2057 Commerce St.  
Midland, TX, 79703

Report Date: October 28, 2014

Work Order: 14101730



Project Location: Monument, NM  
Project Name: TNM Monument 18  
Project Number: Monument 18

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

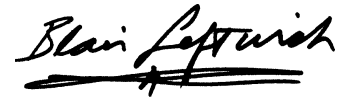
Sample	Description	Matrix	Date Taken	Time Taken	Date Received
377240	SP-11	soil	2014-10-13	15:00	2014-10-17
377241	SP-12	soil	2014-10-13	15:00	2014-10-17

### Report Corrections (Work Order 14101730)

- 10/27/14: Reissued report with ORO results.

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 21 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink, reading "Blair Leftwich". The signature is written in a cursive style with a horizontal line underneath.

---

Dr. Blair Leftwich, Director  
James Taylor, Assistant Director  
Brian Pellam, Operations Manager

# Report Contents

<b>Case Narrative</b>	<b>4</b>
<b>Analytical Report</b>	<b>5</b>
Sample 377240 (SP-11) . . . . .	5
Sample 377241 (SP-12) . . . . .	6
<b>Method Blanks</b>	<b>9</b>
QC Batch 116536 - Method Blank (1) . . . . .	9
QC Batch 116584 - Method Blank (1) . . . . .	9
QC Batch 116585 - Method Blank (1) . . . . .	9
QC Batch 116649 - Method Blank (1) . . . . .	10
<b>Laboratory Control Spikes</b>	<b>11</b>
QC Batch 116536 - LCS (1) . . . . .	11
QC Batch 116584 - LCS (1) . . . . .	11
QC Batch 116585 - LCS (1) . . . . .	12
QC Batch 116649 - LCS (1) . . . . .	12
<b>Matrix Spikes</b>	<b>14</b>
QC Batch 116536 - MS (1) . . . . .	14
QC Batch 116584 - MS (1) . . . . .	14
QC Batch 116585 - MS (1) . . . . .	15
QC Batch 116649 - xMS (1) . . . . .	15
<b>Calibration Standards</b>	<b>17</b>
QC Batch 116536 - CCV (2) . . . . .	17
QC Batch 116536 - CCV (3) . . . . .	17
QC Batch 116584 - CCV (2) . . . . .	17
QC Batch 116584 - CCV (3) . . . . .	17
QC Batch 116585 - CCV (2) . . . . .	18
QC Batch 116585 - CCV (3) . . . . .	18
QC Batch 116649 - CCV (2) . . . . .	18
QC Batch 116649 - CCV (3) . . . . .	18
<b>Appendix</b>	<b>20</b>
Report Definitions . . . . .	20
Laboratory Certifications . . . . .	20
Standard Flags . . . . .	20
Attachments . . . . .	21

## Case Narrative

Samples for project TNM Monument 18 were received by TraceAnalysis, Inc. on 2014-10-17 and assigned to work order 14101730. Samples for work order 14101730 were received intact at a temperature of 0.2 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	98591	2014-10-22 at 14:25	116584	2014-10-22 at 14:25
TPH DRO - NEW	S 8015 D	98548	2014-10-21 at 12:00	116536	2014-10-22 at 10:12
TPH GRO	S 8015 D	98591	2014-10-22 at 14:25	116585	2014-10-22 at 14:25
TPH ORO	S 8015 D	98548	2014-10-21 at 12:00	116649	2014-10-24 at 15:07

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 14101730 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 5 of 21  
Monument, NM

# Analytical Report

## Sample: 377240 - SP-11

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 116584  
Prep Batch: 98591

Analytical Method: S 8021B  
Date Analyzed: 2014-10-22  
Sample Preparation: 2014-10-22

Prep Method: S 5035  
Analyzed By: MT  
Prepared By: MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	Jb	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.93	mg/Kg	1	2.00	96	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	2.07	mg/Kg	1	2.00	104	59.5 - 120

## Sample: 377240 - SP-11

Laboratory: Lubbock  
Analysis: TPH DRO - NEW  
QC Batch: 116536  
Prep Batch: 98548

Analytical Method: S 8015 D  
Date Analyzed: 2014-10-22  
Sample Preparation: 2014-10-21

Prep Method: N/A  
Analyzed By: SM  
Prepared By: SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Jb	1,2,3,4	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	124	mg/Kg	1	100	124	70 - 130

## Sample: 377240 - SP-11

Laboratory: Lubbock  
Analysis: TPH GRO  
QC Batch: 116585  
Prep Batch: 98591

Analytical Method: S 8015 D  
Date Analyzed: 2014-10-22  
Sample Preparation: 2014-10-22

Prep Method: S 5035  
Analyzed By: MT  
Prepared By: MT

Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 6 of 21  
Monument, NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1,2,3,4	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		3	2.04	mg/Kg	1	2.00	102	73 - 122
4-Bromofluorobenzene (4-BFB)		3	1.90	mg/Kg	1	2.00	95	74.6 - 120

### Sample: 377240 - SP-11

Laboratory: Lubbock  
Analysis: TPH ORO  
QC Batch: 116649  
Prep Batch: 98548

Analytical Method: S 8015 D  
Date Analyzed: 2014-10-24  
Sample Preparation: 2014-10-21

Prep Method: N/A  
Analyzed By: SM  
Prepared By: SM

Parameter	Flag	Cert	MDL Result	MDL Result	PQL Result	RL Result	Units	Dilution	MDL	MDL	PQL	RL
ORO	QC,Qs,U		<17.1	<50.0	<50.0	<50.0	mg/Kg	1	17.1	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			124	mg/Kg	1	100	124	61.5 - 159
n-Triacontane			137	mg/Kg	1	100	137	70 - 166

### Sample: 377241 - SP-12

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 116584  
Prep Batch: 98591

Analytical Method: S 8021B  
Date Analyzed: 2014-10-22  
Sample Preparation: 2014-10-22

Prep Method: S 5035  
Analyzed By: MT  
Prepared By: MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Toluene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200
Xylene	Jb	1,2,3,4,5	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	2.12	mg/Kg	1	2.00	106	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	2.15	mg/Kg	1	2.00	108	59.5 - 120



Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 7 of 21  
Monument, NM

**Sample: 377241 - SP-12**

Laboratory:	Lubbock		
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D
QC Batch:	116536	Date Analyzed:	2014-10-22
Prep Batch:	98548	Sample Preparation:	2014-10-21
		Prep Method:	N/A
		Analyzed By:	SM
		Prepared By:	SM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Jb	1,2,3,4	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	128	mg/Kg	1	100	128	70 - 130

**Sample: 377241 - SP-12**

Laboratory:	Lubbock		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	116585	Date Analyzed:	2014-10-22
Prep Batch:	98591	Sample Preparation:	2014-10-22
		Prep Method:	S 5035
		Analyzed By:	MT
		Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1,2,3,4	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		3	2.24	mg/Kg	1	2.00	112	73 - 122
4-Bromofluorobenzene (4-BFB)		3	2.02	mg/Kg	1	2.00	101	74.6 - 120

**Sample: 377241 - SP-12**

Laboratory:	Lubbock		
Analysis:	TPH ORO	Analytical Method:	S 8015 D
QC Batch:	116649	Date Analyzed:	2014-10-24
Prep Batch:	98548	Sample Preparation:	2014-10-21
		Prep Method:	N/A
		Analyzed By:	SM
		Prepared By:	SM

Parameter	Flag	Cert	MDL Result	MQL Result	PQL Result	RL Result	Units	Dilution	MDL	MQL	PQL	RL
ORO	Qc, Qs, U		<17.1	<50.0	<50.0	<50.0	mg/Kg	1	17.1	50.0	50.0	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			128	mg/Kg	1	100	128	61.5 - 159

*continued ...*

Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 8 of 21  
Monument, NM

*sample continued ...*

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane			140	mg/Kg	1	100	140	70 - 166

Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 9 of 21  
Monument, NM

## Method Blanks

### Method Blank (1) QC Batch: 116536

QC Batch: 116536 Date Analyzed: 2014-10-22 Analyzed By: SM  
Prep Batch: 98548 QC Preparation: 2014-10-21 Prepared By: SM

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1,2,3,4	13.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		3	106	mg/Kg	1	100	106	70 - 130

### Method Blank (1) QC Batch: 116584

QC Batch: 116584 Date Analyzed: 2014-10-22 Analyzed By: MT  
Prep Batch: 98591 QC Preparation: 2014-10-22 Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1,2,3,4,5	<0.00487	mg/Kg	0.02
Toluene		1,2,3,4,5	0.00420	mg/Kg	0.02
Ethylbenzene		1,2,3,4,5	<0.00283	mg/Kg	0.02
Xylene		1,2,3,4,5	0.00540	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5	1.80	mg/Kg	1	2.00	90	66.2 - 120
4-Bromofluorobenzene (4-BFB)		5	1.67	mg/Kg	1	2.00	84	59.5 - 120

### Method Blank (1) QC Batch: 116585

QC Batch: 116585 Date Analyzed: 2014-10-22 Analyzed By: MT  
Prep Batch: 98591 QC Preparation: 2014-10-22 Prepared By: MT

Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 10 of 21  
Monument, NM

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1,2,3,4	<0.217	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		3	1.83	mg/Kg	1	2.00	92	73 - 122
4-Bromofluorobenzene (4-BFB)		3	1.58	mg/Kg	1	2.00	79	74.6 - 120

**Method Blank (1)**      QC Batch: 116649

QC Batch: 116649  
Prep Batch: 98548

Date Analyzed: 2014-10-24  
QC Preparation: 2014-10-21

Analyzed By: SM  
Prepared By: SM

Parameter	Flag	Cert	MDL Result	Units	RL
ORO			<17.1	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	61.5 - 159
n-Triacontane			117	mg/Kg	1	100	117	70 - 166

Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 11 of 21  
Monument, NM

## Laboratory Control Spikes

### Laboratory Control Spike (LCS-1)

QC Batch: 116536  
Prep Batch: 98548

Date Analyzed: 2014-10-22  
QC Preparation: 2014-10-21

Analyzed By: SM  
Prepared By: SM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3,4	270	mg/Kg	1	250	13.5	103	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3,4	276	mg/Kg	1	250	13.5	105	70 - 130	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	3	82.3	83.4	mg/Kg	1	100	82	83	70 - 130

### Laboratory Control Spike (LCS-1)

QC Batch: 116584  
Prep Batch: 98591

Date Analyzed: 2014-10-22  
QC Preparation: 2014-10-22

Analyzed By: MT  
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1,2,3,4,5	1.78	mg/Kg	1	2.00	<0.00487	89	69.3 - 120
Toluene		1,2,3,4,5	1.87	mg/Kg	1	2.00	0.0042	93	70.5 - 120
Ethylbenzene		1,2,3,4,5	1.95	mg/Kg	1	2.00	<0.00283	98	70.6 - 120
Xylene		1,2,3,4,5	5.81	mg/Kg	1	6.00	0.0054	97	70.7 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1,2,3,4,5	1.65	mg/Kg	1	2.00	<0.00487	83	69.3 - 120	7	20
Toluene		1,2,3,4,5	1.77	mg/Kg	1	2.00	0.0042	88	70.5 - 120	6	20
Ethylbenzene		1,2,3,4,5	2.04	mg/Kg	1	2.00	<0.00283	102	70.6 - 120	5	20
Xylene		1,2,3,4,5	5.53	mg/Kg	1	6.00	0.0054	92	70.7 - 120	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 12 of 21  
Monument, NM

Surrogate		LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5	2.08	1.91	mg/Kg	1	2.00	104	95	66.2 - 120
4-Bromofluorobenzene (4-BFB)	5	1.84	1.75	mg/Kg	1	2.00	92	88	59.5 - 120

### Laboratory Control Spike (LCS-1)

QC Batch: 116585  
Prep Batch: 98591

Date Analyzed: 2014-10-22  
QC Preparation: 2014-10-22

Analyzed By: MT  
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3,4	14.8	mg/Kg	1	20.0	<0.217	74	60.1 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1,2,3,4	17.8	mg/Kg	1	20.0	<0.217	89	60.1 - 120	18	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	3	1.77	1.99	mg/Kg	1	2.00	88	100	73 - 122
4-Bromofluorobenzene (4-BFB)	3	1.63	1.90	mg/Kg	1	2.00	82	95	74.6 - 120

### Laboratory Control Spike (LCS-1)

QC Batch: 116649  
Prep Batch: 98548

Date Analyzed: 2014-10-24  
QC Preparation: 2014-10-21

Analyzed By: SM  
Prepared By: SM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
ORO	Qs	Qs	<17.1	mg/Kg	1	250	<17.1	0	75.6 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
ORO	Qs	Qs	<17.1	mg/Kg	1	250	<17.1	0	75.6 - 120	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.



Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 13 of 21  
Monument, NM

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	82.3	83.4	mg/Kg	1	100	82	83	61.5 - 159
n-Triacontane	89.3	90.2	mg/Kg	1	100	89	90	70 - 166

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Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 14 of 21  
Monument, NM

## Matrix Spikes

**Matrix Spike (MS-1)** Spiked Sample: 376865

QC Batch: 116536  
Prep Batch: 98548

Date Analyzed: 2014-10-22  
QC Preparation: 2014-10-21

Analyzed By: SM  
Prepared By: SM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3,4	290	mg/Kg	1	250	13.4	111	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3,4	287	mg/Kg	1	250	13.4	109	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	3	91.0	90.1	mg/Kg	1	100	91	90	70 - 130

**Matrix Spike (MS-1)** Spiked Sample: 376871

QC Batch: 116584  
Prep Batch: 98591

Date Analyzed: 2014-10-22  
QC Preparation: 2014-10-22

Analyzed By: MT  
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1,2,3,4,5	1.78	mg/Kg	1	2.00	<0.00487	89	63.6 - 120
Toluene		1,2,3,4,5	1.89	mg/Kg	1	2.00	0.0056	94	67.8 - 128
Ethylbenzene		1,2,3,4,5	1.96	mg/Kg	1	2.00	<0.00283	98	69.5 - 136
Xylene		1,2,3,4,5	5.86	mg/Kg	1	6.00	0.0051	98	69.3 - 139

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1,2,3,4,5	1.83	mg/Kg	1	2.00	<0.00487	92	63.6 - 120	3	20
Toluene		1,2,3,4,5	1.96	mg/Kg	1	2.00	0.0056	98	67.8 - 128	4	20
Ethylbenzene		1,2,3,4,5	2.04	mg/Kg	1	2.00	<0.00283	102	69.5 - 136	4	20
Xylene		1,2,3,4,5	6.12	mg/Kg	1	6.00	0.0051	102	69.3 - 139	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 15 of 21  
Monument, NM

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5	1.95	2.00	mg/Kg	1	2	98	100	66.2 - 120
4-Bromofluorobenzene (4-BFB)	5	1.93	1.96	mg/Kg	1	2	96	98	59.5 - 120

**Matrix Spike (MS-1)** Spiked Sample: 376871

QC Batch: 116585  
Prep Batch: 98591

Date Analyzed: 2014-10-22  
QC Preparation: 2014-10-22

Analyzed By: MT  
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3,4	16.0	mg/Kg	1	20.0	<0.217	80	40.3 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1,2,3,4	16.4	mg/Kg	1	20.0	<0.217	82	40.3 - 120	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	3	1.86	1.80	mg/Kg	1	2	93	90	73 - 122
4-Bromofluorobenzene (4-BFB)	3	1.81	1.87	mg/Kg	1	2	90	94	74.6 - 120

**Matrix Spike (xMS-1)** Spiked Sample: 376865

QC Batch: 116649  
Prep Batch: 98548

Date Analyzed: 2014-10-24  
QC Preparation: 2014-10-21

Analyzed By: SM  
Prepared By: SM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
ORO	Qs	Qs	<17.1	mg/Kg	1	250	<17.1	0	58 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
ORO	Qs	Qs	<17.1	mg/Kg	1	250	<17.1	0	58 - 129	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 16 of 21  
Monument, NM

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Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	91.0	90.1	mg/Kg	1	100	91	90	61.5 - 159
n-Triacontane	98.1	98.2	mg/Kg	1	100	98	98	70 - 166

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Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 17 of 21  
Monument, NM

## Calibration Standards

### Standard (CCV-2)

QC Batch: 116536

Date Analyzed: 2014-10-22

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3,4	mg/Kg	250	278	111	80 - 120	2014-10-22

### Standard (CCV-3)

QC Batch: 116536

Date Analyzed: 2014-10-22

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3,4	mg/Kg	250	277	111	80 - 120	2014-10-22

### Standard (CCV-2)

QC Batch: 116584

Date Analyzed: 2014-10-22

Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1,2,3,4,5	mg/kg	0.100	0.0911	91	80 - 120	2014-10-22
Toluene		1,2,3,4,5	mg/kg	0.100	0.0925	92	80 - 120	2014-10-22
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.0916	92	80 - 120	2014-10-22
Xylene		1,2,3,4,5	mg/kg	0.300	0.275	92	80 - 120	2014-10-22

### Standard (CCV-3)

QC Batch: 116584

Date Analyzed: 2014-10-22

Analyzed By: MT

Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 18 of 21  
Monument, NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1,2,3,4,5	mg/kg	0.100	0.0876	88	80 - 120	2014-10-22
Toluene		1,2,3,4,5	mg/kg	0.100	0.0886	89	80 - 120	2014-10-22
Ethylbenzene		1,2,3,4,5	mg/kg	0.100	0.0886	89	80 - 120	2014-10-22
Xylene		1,2,3,4,5	mg/kg	0.300	0.266	89	80 - 120	2014-10-22

#### Standard (CCV-2)

QC Batch: 116585

Date Analyzed: 2014-10-22

Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3,4	mg/Kg	1.00	0.862	86	80 - 120	2014-10-22

#### Standard (CCV-3)

QC Batch: 116585

Date Analyzed: 2014-10-22

Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3,4	mg/Kg	1.00	0.863	86	80 - 120	2014-10-22

#### Standard (CCV-2)

QC Batch: 116649

Date Analyzed: 2014-10-24

Analyzed By: SM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
ORO	Qc	Qc	mg/Kg	250	0.0180	0	80 - 120	2014-10-24

#### Standard (CCV-3)

QC Batch: 116649

Date Analyzed: 2014-10-24

Analyzed By: SM



Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 19 of 21  
Monument, NM

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Param		Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
ORO	Qc	Qc		mg/Kg	250	0.0210	0	80 - 120	2014-10-24

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Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 20 of 21  
Monument, NM

## Appendix

### Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

### Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	PJLA	L14-93	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-14-10	Lubbock
5		2014-018	Lubbock

### Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.

Report Date: October 28, 2014  
Monument 18

Work Order: 14101730  
TNM Monument 18

Page Number: 21 of 21  
Monument, NM

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F	Description
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U	The analyte is not detected above the SDL
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## Attachments

The scanned attachments will follow this page.  
Please note, each attachment may consist of more than one page.



**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland, TX 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea CO NM  
Lab Order Number: 7A24014



NELAP/TCEQ # T104704156-16-6

Report Date: 02/03/17

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2017 SP-1	7A24014-01	Soil	01/20/17 11:30	01-24-2017 11:20
2017 SP-2	7A24014-02	Soil	01/20/17 12:00	01-24-2017 11:20
2017 SP-3	7A24014-03	Soil	01/20/17 13:30	01-24-2017 11:20



TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-1**  
**7A24014-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0111	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Toluene	ND	0.0222	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Ethylbenzene	ND	0.0111	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Xylene (p/m)	ND	0.0222	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Xylene (o)	ND	0.0111	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		112 %	75-125		P7A3018	01/26/17	01/27/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.8 %	75-125		P7A3018	01/26/17	01/27/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	10.0	0.1	%	1	P7A2505	01/25/17	01/25/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.8	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C12-C28	28.9	27.8	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		88.5 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: o-Terphenyl		91.7 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
<b>Total Petroleum Hydrocarbon C6-C35</b>	<b>28.9</b>	27.8	mg/kg dry	1	[CALC]	01/26/17	01/26/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-2**  
**7A24014-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0109	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Toluene	ND	0.0217	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Ethylbenzene	ND	0.0109	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Xylene (p/m)	ND	0.0217	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Xylene (o)	ND	0.0109	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.1 %	75-125		P7A3018	01/26/17	01/27/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		112 %	75-125		P7A3018	01/26/17	01/27/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	8.0	0.1	%	1	P7A2505	01/25/17	01/25/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.2	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		98.9 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: o-Terphenyl		102 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	01/26/17	01/26/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-3**  
**7A24014-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0108	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Toluene	ND	0.0215	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Ethylbenzene	ND	0.0108	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Xylene (p/m)	ND	0.0215	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Xylene (o)	ND	0.0108	mg/kg dry	1	P7A3018	01/26/17	01/27/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		115 %	75-125		P7A3018	01/26/17	01/27/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		91.2 %	75-125		P7A3018	01/26/17	01/27/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P7A2505	01/25/17	01/25/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		101 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: o-Terphenyl		104 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	01/26/17	01/26/17	calc	

Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7A3018 - General Preparation (GC)**

**Blank (P7A3018-BLK1)**

Prepared & Analyzed: 01/26/17

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	0.0676		"	0.0600		113	75-125			
Surrogate: 1,4-Difluorobenzene	0.0513		"	0.0600		85.5	75-125			

**LCS (P7A3018-BS1)**

Prepared & Analyzed: 01/26/17

Benzene	0.0821	0.00100	mg/kg wet	0.100		82.1	70-130			
Toluene	0.0868	0.00200	"	0.100		86.8	70-130			
Ethylbenzene	0.0994	0.00100	"	0.100		99.4	70-130			
Xylene (p/m)	0.177	0.00200	"	0.200		88.3	70-130			
Xylene (o)	0.0863	0.00100	"	0.100		86.3	70-130			
Surrogate: 1,4-Difluorobenzene	0.0558		"	0.0600		93.0	75-125			
Surrogate: 4-Bromofluorobenzene	0.0669		"	0.0600		112	75-125			

**LCS Dup (P7A3018-BSD1)**

Prepared & Analyzed: 01/26/17

Benzene	0.0879	0.00100	mg/kg wet	0.100		87.9	70-130	6.83	20	
Toluene	0.0924	0.00200	"	0.100		92.4	70-130	6.23	20	
Ethylbenzene	0.108	0.00100	"	0.100		108	70-130	8.43	20	
Xylene (p/m)	0.189	0.00200	"	0.200		94.5	70-130	6.75	20	
Xylene (o)	0.0923	0.00100	"	0.100		92.3	70-130	6.70	20	
Surrogate: 4-Bromofluorobenzene	0.0678		"	0.0600		113	75-125			
Surrogate: 1,4-Difluorobenzene	0.0569		"	0.0600		94.9	75-125			

**Matrix Spike (P7A3018-MS1)**

Source: 7A24014-01

Prepared: 01/26/17 Analyzed: 01/27/17

Benzene	0.104	0.00111	mg/kg dry	0.111	0.00141	92.5	80-120			
Toluene	0.104	0.00222	"	0.111	0.00146	92.1	80-120			
Ethylbenzene	0.106	0.00111	"	0.111	0.00106	94.4	80-120			
Xylene (p/m)	0.184	0.00222	"	0.222	ND	82.8	80-120			
Xylene (o)	0.0881	0.00111	"	0.111	ND	79.3	80-120			QM-07
Surrogate: 4-Bromofluorobenzene	0.0838		"	0.0667		126	75-125			S-GC
Surrogate: 1,4-Difluorobenzene	0.0684		"	0.0667		103	75-125			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P7A2505 - *** DEFAULT PREP ***</b>										
<b>Blank (P7A2505-BLK1)</b>	Prepared & Analyzed: 01/25/17									
% Moisture	ND	0.1	%							
<b>Blank (P7A2505-BLK2)</b>	Prepared & Analyzed: 01/25/17									
% Moisture	ND	0.1	%							
<b>Duplicate (P7A2505-DUP1)</b>	<b>Source: 7A23011-03</b>		Prepared & Analyzed: 01/25/17							
% Moisture	14.0	0.1	%		13.0			7.41	20	
<b>Duplicate (P7A2505-DUP2)</b>	<b>Source: 7A23012-05</b>		Prepared & Analyzed: 01/25/17							
% Moisture	13.0	0.1	%		12.0			8.00	20	
<b>Duplicate (P7A2505-DUP3)</b>	<b>Source: 7A23015-08</b>		Prepared & Analyzed: 01/25/17							
% Moisture	6.0	0.1	%		7.0			15.4	20	
<b>Duplicate (P7A2505-DUP4)</b>	<b>Source: 7A24001-26</b>		Prepared & Analyzed: 01/25/17							
% Moisture	1.0	0.1	%		2.0			66.7	20	
<b>Duplicate (P7A2505-DUP5)</b>	<b>Source: 7A24004-20</b>		Prepared & Analyzed: 01/25/17							
% Moisture	4.0	0.1	%		4.0			0.00	20	
<b>Duplicate (P7A2505-DUP6)</b>	<b>Source: 7A24007-01</b>		Prepared & Analyzed: 01/25/17							
% Moisture	5.0	0.1	%		5.0			0.00	20	
<b>Duplicate (P7A2505-DUP7)</b>	<b>Source: 7A24012-06</b>		Prepared & Analyzed: 01/25/17							
% Moisture	14.0	0.1	%		14.0			0.00	20	

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P7A2706 - TX 1005</b>										
<b>Blank (P7A2706-BLK1)</b>				Prepared & Analyzed: 01/26/17						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	113		"	100		113	70-130			
Surrogate: o-Terphenyl	64.0		"	50.0		128	70-130			
<b>LCS (P7A2706-BS1)</b>				Prepared & Analyzed: 01/26/17						
C6-C12	872	25.0	mg/kg wet	1000		87.2	75-125			
>C12-C28	822	25.0	"	1000		82.2	75-125			
Surrogate: 1-Chlorooctane	127		"	100		127	70-130			
Surrogate: o-Terphenyl	61.0		"	50.0		122	70-130			
<b>LCS Dup (P7A2706-BSD1)</b>				Prepared & Analyzed: 01/26/17						
C6-C12	861	25.0	mg/kg wet	1000		86.1	75-125	1.30	20	
>C12-C28	888	25.0	"	1000		88.8	75-125	7.70	20	
Surrogate: 1-Chlorooctane	110		"	100		110	70-130			
Surrogate: o-Terphenyl	62.0		"	50.0		124	70-130			
<b>Matrix Spike (P7A2706-MS1)</b>				Source: 7A23015-10	Prepared: 01/26/17 Analyzed: 01/27/17					
C6-C12	929	28.1	mg/kg dry	1120	32.0	79.8	75-125			
>C12-C28	967	28.1	"	1120	333	56.5	75-125			QM-05
Surrogate: 1-Chlorooctane	122		"	112		109	70-130			
Surrogate: o-Terphenyl	62.3		"	56.2		111	70-130			
<b>Matrix Spike Dup (P7A2706-MSD1)</b>				Source: 7A23015-10	Prepared: 01/26/17 Analyzed: 01/27/17					
C6-C12	917	28.1	mg/kg dry	1120	32.0	78.7	75-125	1.37	20	
>C12-C28	1020	28.1	"	1120	333	61.0	75-125	7.76	20	QM-05
Surrogate: 1-Chlorooctane	126		"	112		112	70-130			
Surrogate: o-Terphenyl	64.7		"	56.2		115	70-130			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235



TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

2/3/2017

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
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Midland TX, 79703

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Permian Basin Environmental Lab, L.P.

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## CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP  
10014 S. County Road 1213  
Midland, Texas 79706

Phone: 432-661-4184

Page 1 of 1

Project Manager: Curt StanleyCompany Name: TRC Environmental CorporationCompany Address: 2057 Commerce Dr.City/State/Zip: Midland/TX/79703Telephone No: (432) 520-7420

Fax No: \_\_\_\_\_

Sampler Signature: [Signature] e-mail: cdstanley@trcsolutions.comclbryant@paalp.comReport Format: ☒ Standard☐ TRRP☐ NPDESProject Name: Monument 18Project #: TNM - Monument 18Project Loc: Lea County, NM

PO #: \_\_\_\_\_

Page 11 of 11

LAB # (lab use only)		FIELD CODE		Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Preservation & # of Containers								Matrix	Analyze For:																		
										Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other (Specify)	DW=Drinking Water SL=Sludge GW=Groundwater S=Soil/Solid NP=Non-Potable Specify Other	TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO <sub>4</sub> , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chlorides E 300	Paint Filter	TCLP BTEX	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT			
		2017 SP-1				1/20/2017	1130		1	X									Soil	X																	
		2017 SP-2				1/20/2017	1200		1	X									Soil	X																	
		2017 SP-3				1/20/2017	1330		1	X									Soil	X																	

Special Instructions:

HOLD samples for BTEX analysis

Inquired by: [Signature] Date: 1/24/17 Time: 1120 Received by: \_\_\_\_\_Inquired by: [Signature] Date: 1/24/17 Time: 1120 Received by: \_\_\_\_\_Inquired by: [Signature] Date: 1/24/17 Time: 1120 Received by: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Date: 1/24/17 Time: 1120

Laboratory Comments:

Sample Containers Intact? N  
VOCs Free of Headspace? N  
Labels on containers? N  
Custody seals on containers? N  
Custody seals on coolers? N  
Sample Hand Delivered N  
by Sampler/Client Rep. N  
by Courier? N  
Temperature Upon Receipt N  
Adjusted: 4.0 °C Factor WCF=1

**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



## Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland, TX 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea Co NM  
Lab Order Number: 7A26005



NELAP/TCEQ # T104704156-16-6

Report Date: 01/31/17

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2017 SP-4	7A26005-01	Soil	01/24/17 16:00	01-26-2017 11:35
2017 SP-5	7A26005-02	Soil	01/24/17 16:10	01-26-2017 11:35
2017 SP-6	7A26005-03	Soil	01/24/17 16:15	01-26-2017 11:35
2017 SP-7	7A26005-04	Soil	01/24/17 16:20	01-26-2017 11:35
2017 SP-8	7A26005-05	Soil	01/24/17 16:30	01-26-2017 11:35

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-4**  
**7A26005-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

<b>Benzene</b>	<b>0.00343</b>	0.00106	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Toluene	ND	0.00213	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		110 %	75-125		P7A3103	01/30/17	01/30/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		92.9 %	75-125		P7A3103	01/30/17	01/30/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

<b>% Moisture</b>	<b>6.0</b>	0.1	%	1	P7A2701	01/27/17	01/27/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.6	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		99.1 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: o-Terphenyl		104 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	01/26/17	01/26/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235



TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-5**  
**7A26005-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

<b>Benzene</b>	<b>0.00374</b>	0.00110	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Toluene	ND	0.00220	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Ethylbenzene	ND	0.00110	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Xylene (p/m)	ND	0.00220	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Xylene (o)	ND	0.00110	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		89.8 %	75-125		P7A3103	01/30/17	01/30/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		107 %	75-125		P7A3103	01/30/17	01/30/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

<b>% Moisture</b>	<b>9.0</b>	0.1	%	1	P7A2701	01/27/17	01/27/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.5	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		102 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: o-Terphenyl		106 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	01/26/17	01/26/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-6**  
**7A26005-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

<b>Benzene</b>	<b>0.00310</b>	0.00110	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Toluene	ND	0.00220	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Ethylbenzene	ND	0.00110	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Xylene (p/m)	ND	0.00220	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Xylene (o)	ND	0.00110	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		87.8 %	75-125		P7A3103	01/30/17	01/30/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		99.7 %	75-125		P7A3103	01/30/17	01/30/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

<b>% Moisture</b>	<b>9.0</b>	0.1	%	1	P7A2701	01/27/17	01/27/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.5	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		95.4 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: o-Terphenyl		101 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	01/26/17	01/26/17	calc	

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-7**  
**7A26005-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

<b>Benzene</b>	<b>0.00248</b>	0.00106	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
<b>Toluene</b>	<b>0.00273</b>	0.00213	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
<b>Xylene (p/m)</b>	<b>0.00235</b>	0.00213	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.2 %	75-125		P7A3103	01/30/17	01/30/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		98.4 %	75-125		P7A3103	01/30/17	01/30/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

<b>% Moisture</b>	<b>6.0</b>	0.1	%	1	P7A2701	01/27/17	01/27/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.6	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		98.1 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: o-Terphenyl		103 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	01/26/17	01/26/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-8**  
**7A26005-05 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

<b>Benzene</b>	<b>0.00374</b>	0.00111	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Toluene	ND	0.00222	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Ethylbenzene	ND	0.00111	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Xylene (p/m)	ND	0.00222	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Xylene (o)	ND	0.00111	mg/kg dry	1	P7A3103	01/30/17	01/30/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		96.8 %	75-125		P7A3103	01/30/17	01/30/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		84.7 %	75-125		P7A3103	01/30/17	01/30/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

<b>% Moisture</b>	<b>10.0</b>	0.1	%	1	P7A2701	01/27/17	01/27/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.8	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C12-C28	ND	27.8	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		99.7 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Surrogate: o-Terphenyl		106 %	70-130		P7A2706	01/26/17	01/26/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	01/26/17	01/26/17	calc	

Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7A3103 - General Preparation (GC)**

**Blank (P7A3103-BLK1)**

Prepared & Analyzed: 01/30/17

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0528		"	0.0600		88.0	75-125			
Surrogate: 4-Bromofluorobenzene	0.0705		"	0.0600		117	75-125			

**LCS (P7A3103-BS1)**

Prepared & Analyzed: 01/30/17

Benzene	0.0883	0.00100	mg/kg wet	0.100		88.3	70-130			
Toluene	0.0927	0.00200	"	0.100		92.7	70-130			
Ethylbenzene	0.107	0.00100	"	0.100		107	70-130			
Xylene (p/m)	0.194	0.00200	"	0.200		96.9	70-130			
Xylene (o)	0.0948	0.00100	"	0.100		94.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.0732		"	0.0600		122	75-125			
Surrogate: 1,4-Difluorobenzene	0.0545		"	0.0600		90.8	75-125			

**LCS Dup (P7A3103-BSD1)**

Prepared & Analyzed: 01/30/17

Benzene	0.0895	0.00100	mg/kg wet	0.100		89.5	70-130	1.36	20	
Toluene	0.0954	0.00200	"	0.100		95.4	70-130	2.91	20	
Ethylbenzene	0.114	0.00100	"	0.100		114	70-130	6.28	20	
Xylene (p/m)	0.200	0.00200	"	0.200		100	70-130	3.22	20	
Xylene (o)	0.0996	0.00100	"	0.100		99.6	70-130	4.91	20	
Surrogate: 1,4-Difluorobenzene	0.0540		"	0.0600		90.0	75-125			
Surrogate: 4-Bromofluorobenzene	0.0708		"	0.0600		118	75-125			

**Matrix Spike (P7A3103-MS1)**

Source: 7A26005-05

Prepared & Analyzed: 01/30/17

Benzene	0.170	0.00111	mg/kg dry	0.111	0.00374	149	80-120			QM-07
Toluene	0.178	0.00222	"	0.111	ND	160	80-120			QM-07
Ethylbenzene	0.183	0.00111	"	0.111	ND	165	80-120			QM-07
Xylene (p/m)	0.325	0.00222	"	0.222	0.00158	145	80-120			QM-07
Xylene (o)	0.152	0.00111	"	0.111	ND	136	80-120			QM-07
Surrogate: 4-Bromofluorobenzene	0.0722		"	0.0667		108	75-125			
Surrogate: 1,4-Difluorobenzene	0.0654		"	0.0667		98.2	75-125			

Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7A3103 - General Preparation (GC)**

Matrix Spike Dup (P7A3103-MSD1)	Source: 7A26005-05			Prepared & Analyzed: 01/30/17						
Benzene	0.118	0.00111	mg/kg dry	0.111	0.00374	103	80-120	36.5	20	QM-07
Toluene	0.122	0.00222	"	0.111	ND	110	80-120	37.1	20	QM-07
Ethylbenzene	0.135	0.00111	"	0.111	ND	122	80-120	30.1	20	QM-07
Xylene (p/m)	0.238	0.00222	"	0.222	0.00158	107	80-120	30.8	20	QM-07
Xylene (o)	0.118	0.00111	"	0.111	ND	106	80-120	25.0	20	QM-07
Surrogate: 1,4-Difluorobenzene	0.0631		"	0.0667		94.6	75-125			
Surrogate: 4-Bromofluorobenzene	0.0789		"	0.0667		118	75-125			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7A2701 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P7A2701-BLK1)**

Prepared & Analyzed: 01/27/17

% Moisture	ND	0.1	%
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**Duplicate (P7A2701-DUP1)**

**Source: 7A25012-02**

Prepared & Analyzed: 01/27/17

% Moisture	14.0	0.1	%	14.0	0.00	20
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**Duplicate (P7A2701-DUP2)**

**Source: 7A25015-04**

Prepared & Analyzed: 01/27/17

% Moisture	18.0	0.1	%	17.0	5.71	20
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**Duplicate (P7A2701-DUP3)**

**Source: 7A26005-05**

Prepared & Analyzed: 01/27/17

% Moisture	10.0	0.1	%	10.0	0.00	20
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**Duplicate (P7A2701-DUP4)**

**Source: 7A26007-02**

Prepared & Analyzed: 01/27/17

% Moisture	9.0	0.1	%	8.0	11.8	20
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Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7A2706 - TX 1005**

**Blank (P7A2706-BLK1)**

Prepared & Analyzed: 01/26/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	113		"	100		113	70-130			
Surrogate: o-Terphenyl	64.0		"	50.0		128	70-130			

**LCS (P7A2706-BS1)**

Prepared & Analyzed: 01/26/17

C6-C12	872	25.0	mg/kg wet	1000		87.2	75-125			
>C12-C28	822	25.0	"	1000		82.2	75-125			
Surrogate: 1-Chlorooctane	127		"	100		127	70-130			
Surrogate: o-Terphenyl	61.0		"	50.0		122	70-130			

**LCS Dup (P7A2706-BSD1)**

Prepared & Analyzed: 01/26/17

C6-C12	861	25.0	mg/kg wet	1000		86.1	75-125	1.30	20	
>C12-C28	888	25.0	"	1000		88.8	75-125	7.70	20	
Surrogate: 1-Chlorooctane	110		"	100		110	70-130			
Surrogate: o-Terphenyl	62.0		"	50.0		124	70-130			

**Matrix Spike (P7A2706-MS1)**

Source: 7A23015-10

Prepared: 01/26/17 Analyzed: 01/27/17

C6-C12	929	28.1	mg/kg dry	1120	32.0	79.8	75-125			
>C12-C28	967	28.1	"	1120	333	56.5	75-125			QM-05
Surrogate: 1-Chlorooctane	122		"	112		109	70-130			
Surrogate: o-Terphenyl	62.3		"	56.2		111	70-130			

**Matrix Spike Dup (P7A2706-MSD1)**

Source: 7A23015-10

Prepared: 01/26/17 Analyzed: 01/27/17

C6-C12	917	28.1	mg/kg dry	1120	32.0	78.7	75-125	1.37	20	
>C12-C28	1020	28.1	"	1120	333	61.0	75-125	7.76	20	QM-05
Surrogate: 1-Chlorooctane	126		"	112		112	70-130			
Surrogate: o-Terphenyl	64.7		"	56.2		115	70-130			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:  Date: 1/31/2017

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

## CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP  
10014 S. County Road 1213  
Midland, Texas 79706

**Phone: 432-661-4184**

Page 1 of 1

Project Manager:	Curt Stanley
Company Name	TRC Environmental Corporation

Project Name: Monument 18

Project #: TNM - Monument 18

Page 13 of 13

Company Address: 2057 Commerce Dr.

**Project Loc:** Lea County, NM

City/State/Zip: Midland/TX/79703

**PO #:**

Telephone No: (432) 520 7720

Fax No:

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

Sampler Signature: W. Stanley for ALBERT ALBERT e-mail: cdstanley@trcsolutions.com

clbryant@paalp.com

ORDER #: 142005

[illegible]

**Special Instructions:**

**HOLD samples for BTEX analysis**

Disinherited by:

Date	Time
------	------

Received by:

Date	Time
------	------

Laboratory Comments	Sample Containers/Intact	VOCs Free of Headspace	Labels on container(s)
C	C	C	C

h2	Y	N
e?	Y <td>N </td>	N
	Y <td>N </td>	N
	Y <td>N </td>	N

~~Inquired by:~~

Date	Time
------	------

Received by:

Date	Time
------	------

**Sample Hand Delivered**

Y  
Z

Disinquired by:

Date \_\_\_\_\_

Time

Received by

Date \_\_\_\_\_

Time

Temperature Upon Receipt: \_\_\_\_\_

ript:

**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



## Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland, TX 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County NM  
Lab Order Number: 7B01005



NELAP/TCEQ # T104704156-16-6

Report Date: 02/08/17

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2017 SP-9	7B01005-01	Soil	01/31/17 16:00	02-01-2017 12:35
2017 SP-10	7B01005-02	Soil	01/31/17 16:10	02-01-2017 12:35
2017 SP-11	7B01005-03	Soil	01/31/17 16:15	02-01-2017 12:35
2017 SP-12	7B01005-04	Soil	01/31/17 16:20	02-01-2017 12:35
2017 SP-13	7B01005-05	Soil	01/31/17 16:25	02-01-2017 12:35
2017 SP-14	7B01005-06	Soil	01/31/17 16:30	02-01-2017 12:35



TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-9**  
**7B01005-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0215	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B
Toluene	ND	0.0430	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B
Ethylbenzene	ND	0.0215	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B
Xylene (p/m)	ND	0.0430	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B
Xylene (o)	ND	0.0215	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B
Surrogate: 4-Bromofluorobenzene		77.2 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B
Surrogate: 1,4-Difluorobenzene		89.0 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P7B0203	02/02/17	02/02/17	% calculation
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M
>C12-C28	ND	26.9	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M
>C28-C35	ND	26.9	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M
Surrogate: 1-Chlorooctane		115 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M
Surrogate: o-Terphenyl		127 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	02/03/17	02/04/17	calc

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-10**  
**7B01005-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0215	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Toluene	ND	0.0430	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Ethylbenzene	ND	0.0215	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Xylene (p/m)	ND	0.0430	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Xylene (o)	ND	0.0215	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		101 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		92.1 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P7B0203	02/02/17	02/02/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
Surrogate: 1-Chlorooctane		121 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M	
Surrogate: o-Terphenyl		134 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	02/03/17	02/04/17	calc	

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-11**  
**7B01005-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0220	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Toluene	ND	0.0440	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Ethylbenzene	ND	0.0220	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Xylene (p/m)	ND	0.0440	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Xylene (o)	ND	0.0220	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		88.4 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		99.3 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	9.0	0.1	%	1	P7B0203	02/02/17	02/02/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.5	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
Surrogate: 1-Chlorooctane		119 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M	
Surrogate: o-Terphenyl		134 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	02/03/17	02/04/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-12**  
**7B01005-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0217	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Toluene	ND	0.0435	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Ethylbenzene	ND	0.0217	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Xylene (p/m)	ND	0.0435	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Xylene (o)	ND	0.0217	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		72.7 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		88.4 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	8.0	0.1	%	1	P7B0203	02/02/17	02/02/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.2	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
Surrogate: 1-Chlorooctane		126 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M	
Surrogate: o-Terphenyl		139 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	02/03/17	02/04/17	calc	

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-13**  
**7B01005-05 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0225	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Toluene	ND	0.0449	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Ethylbenzene	ND	0.0225	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Xylene (p/m)	ND	0.0449	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Xylene (o)	ND	0.0225	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		102 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		88.5 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	11.0	0.1	%	1	P7B0203	02/02/17	02/02/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	28.1	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
Surrogate: 1-Chlorooctane		115 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M	
Surrogate: o-Terphenyl		128 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	02/03/17	02/04/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-14**  
**7B01005-06 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0233	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Toluene	ND	0.0465	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Ethylbenzene	ND	0.0233	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Xylene (p/m)	ND	0.0465	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Xylene (o)	ND	0.0233	mg/kg dry	20	P7B0302	02/02/17	02/02/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		87.9 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		97.3 %	75-125		P7B0302	02/02/17	02/02/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	14.0	0.1	%	1	P7B0203	02/02/17	02/02/17	% calculation	
<b>Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M</b>									
C6-C12	ND	29.1	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P7B0801	02/03/17	02/04/17	TPH 8015M	
Surrogate: 1-Chlorooctane		122 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M	
Surrogate: o-Terphenyl		134 %	70-130		P7B0801	02/03/17	02/04/17	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	02/03/17	02/04/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7B0302 - General Preparation (GC)**

**Blank (P7B0302-BLK1)**

Prepared & Analyzed: 02/02/17

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0632		"	0.0600		105	75-125			
Surrogate: 4-Bromofluorobenzene	0.0689		"	0.0600		115	75-125			

**LCS (P7B0302-BS1)**

Prepared & Analyzed: 02/02/17

Benzene	0.0925	0.00100	mg/kg wet	0.100		92.5	70-130			
Toluene	0.0992	0.00200	"	0.100		99.2	70-130			
Ethylbenzene	0.119	0.00100	"	0.100		119	70-130			
Xylene (p/m)	0.204	0.00200	"	0.200		102	70-130			
Xylene (o)	0.101	0.00100	"	0.100		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.0671		"	0.0600		112	75-125			
Surrogate: 1,4-Difluorobenzene	0.0654		"	0.0600		109	75-125			

**LCS Dup (P7B0302-BS1)**

Prepared & Analyzed: 02/02/17

Benzene	0.0867	0.00100	mg/kg wet	0.100		86.7	70-130	6.45	20	
Toluene	0.0922	0.00200	"	0.100		92.2	70-130	7.30	20	
Ethylbenzene	0.114	0.00100	"	0.100		114	70-130	4.38	20	
Xylene (p/m)	0.198	0.00200	"	0.200		98.8	70-130	3.07	20	
Xylene (o)	0.0958	0.00100	"	0.100		95.8	70-130	5.28	20	
Surrogate: 4-Bromofluorobenzene	0.0620		"	0.0600		103	75-125			
Surrogate: 1,4-Difluorobenzene	0.0634		"	0.0600		106	75-125			

**Matrix Spike (P7B0302-MS1)**

Source: 7B01005-06

Prepared & Analyzed: 02/02/17

Benzene	0.221	0.0233	mg/kg dry	0.116	0.00837	183	80-120			QM-07
Toluene	0.213	0.0465	"	0.116	ND	183	80-120			QM-07
Ethylbenzene	0.253	0.0233	"	0.116	ND	218	80-120			QM-07
Xylene (p/m)	0.361	0.0465	"	0.233	0.0216	146	80-120			QM-07
Xylene (o)	0.199	0.0233	"	0.116	ND	171	80-120			QM-07
Surrogate: 4-Bromofluorobenzene	0.0647		"	0.0698		92.7	75-125			
Surrogate: 1,4-Difluorobenzene	0.0684		"	0.0698		98.1	75-125			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235



TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7B0302 - General Preparation (GC)**

Matrix Spike Dup (P7B0302-MSD1)		Source: 7B01005-06		Prepared & Analyzed: 02/02/17						
Benzene	0.195	0.0233	mg/kg dry	0.116	0.00837	160	80-120	13.3	20	QM-07
Toluene	0.180	0.0465	"	0.116	ND	155	80-120	16.8	20	QM-07
Ethylbenzene	0.207	0.0233	"	0.116	ND	178	80-120	20.1	20	QM-07
Xylene (p/m)	0.319	0.0465	"	0.233	0.0216	128	80-120	13.3	20	QM-07
Xylene (o)	0.153	0.0233	"	0.116	ND	131	80-120	26.4	20	QM-07
Surrogate: 4-Bromofluorobenzene	0.0515		"	0.0698		73.8	75-125			S-GC
Surrogate: 1,4-Difluorobenzene	0.0613		"	0.0698		87.9	75-125			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7B0203 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P7B0203-BLK1)</b>				Prepared & Analyzed: 02/02/17						
% Moisture	ND	0.1	%							
<b>Duplicate (P7B0203-DUP1)</b>				Source: 7A31004-01 Prepared & Analyzed: 02/02/17						
% Moisture	15.0	0.1	%		15.0			0.00	20	
<b>Duplicate (P7B0203-DUP2)</b>				Source: 7B01002-04 Prepared & Analyzed: 02/02/17						
% Moisture	14.0	0.1	%		15.0			6.90	20	
<b>Duplicate (P7B0203-DUP3)</b>				Source: 7B01004-04 Prepared & Analyzed: 02/02/17						
% Moisture	8.0	0.1	%		8.0			0.00	20	
<b>Duplicate (P7B0203-DUP4)</b>				Source: 7A31009-04 Prepared & Analyzed: 02/02/17						
% Moisture	14.0	0.1	%		13.0			7.41	20	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7B0801 - TX 1005**

**Blank (P7B0801-BLK1)**

Prepared: 02/03/17 Analyzed: 02/04/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	103		"	100		103	70-130			
Surrogate: o-Terphenyl	59.9		"	50.0		120	70-130			

**LCS (P7B0801-BS1)**

Prepared: 02/03/17 Analyzed: 02/04/17

C6-C12	750	25.0	mg/kg wet	1000		75.0	75-125			
>C12-C28	792	25.0	"	1000		79.2	75-125			
Surrogate: 1-Chlorooctane	85.4		"	100		85.4	70-130			
Surrogate: o-Terphenyl	43.2		"	50.0		86.4	70-130			

**LCS Dup (P7B0801-BSD1)**

Prepared: 02/03/17 Analyzed: 02/04/17

C6-C12	783	25.0	mg/kg wet	1000		78.3	75-125	4.27	20	
>C12-C28	838	25.0	"	1000		83.8	75-125	5.54	20	
Surrogate: 1-Chlorooctane	89.3		"	100		89.3	70-130			
Surrogate: o-Terphenyl	45.6		"	50.0		91.3	70-130			

**Duplicate (P7B0801-DUP1)**

Source: 7B02004-03

Prepared: 02/03/17 Analyzed: 02/04/17

C6-C12	ND	26.6	mg/kg dry		ND				20	
>C12-C28	20.8	26.6	"		19.9			4.50	20	
Surrogate: 1-Chlorooctane	124		"	106		117	70-130			
Surrogate: o-Terphenyl	69.3		"	53.2		130	70-130			

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

2/8/2017

Brent Barron, Laboratory Director/Technical Director

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If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



## Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland, TX 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County NM  
Lab Order Number: 7B20007



NELAP/TCEQ # T104704156-16-6

Report Date: 02/23/17

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2017 SP-15	7B20007-01	Soil	02/17/17 14:00	02-20-2017 10:30
2017 SP-16	7B20007-02	Soil	02/17/17 14:10	02-20-2017 10:30
2017 SP-17	7B20007-03	Soil	02/17/17 14:15	02-20-2017 10:30



TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-15**  
**7B20007-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00106	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Toluene	ND	0.00213	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		114 %	75-125		P7B2101	02/20/17	02/20/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		101 %	75-125		P7B2101	02/20/17	02/20/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	6.0	0.1	%	1	P7B2102	02/21/17	02/21/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.6	mg/kg dry	1	P7B2207	02/21/17	02/21/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7B2207	02/21/17	02/21/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7B2207	02/21/17	02/21/17	TPH 8015M	
Surrogate: 1-Chlorooctane		92.1 %	70-130		P7B2207	02/21/17	02/21/17	TPH 8015M	
Surrogate: o-Terphenyl		105 %	70-130		P7B2207	02/21/17	02/21/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	02/21/17	02/21/17	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-16**  
**7B20007-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00109	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Toluene	ND	0.00217	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		110 %	75-125		P7B2101	02/20/17	02/20/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		115 %	75-125		P7B2101	02/20/17	02/20/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	8.0	0.1	%	1	P7B2102	02/21/17	02/21/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.2	mg/kg dry	1	P7B2207	02/21/17	02/21/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7B2207	02/21/17	02/21/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7B2207	02/21/17	02/21/17	TPH 8015M	
Surrogate: 1-Chlorooctane		92.6 %	70-130		P7B2207	02/21/17	02/21/17	TPH 8015M	
Surrogate: o-Terphenyl		103 %	70-130		P7B2207	02/21/17	02/21/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	02/21/17	02/21/17	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-17**  
**7B20007-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00111	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Toluene	ND	0.00222	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Ethylbenzene	ND	0.00111	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Xylene (p/m)	ND	0.00222	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Xylene (o)	ND	0.00111	mg/kg dry	1	P7B2101	02/20/17	02/20/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		107 %	75-125		P7B2101	02/20/17	02/20/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		98.8 %	75-125		P7B2101	02/20/17	02/20/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	10.0	0.1	%	1	P7B2102	02/21/17	02/21/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.8	mg/kg dry	1	P7B2207	02/21/17	02/21/17	TPH 8015M	
>C12-C28	ND	27.8	mg/kg dry	1	P7B2207	02/21/17	02/21/17	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P7B2207	02/21/17	02/21/17	TPH 8015M	
Surrogate: 1-Chlorooctane		90.6 %	70-130		P7B2207	02/21/17	02/21/17	TPH 8015M	
Surrogate: o-Terphenyl		104 %	70-130		P7B2207	02/21/17	02/21/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	02/21/17	02/21/17	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7B2101 - General Preparation (GC)**

**Blank (P7B2101-BLK1)**

Prepared & Analyzed: 02/20/17

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	0.0674		"	0.0600		112	75-125			
Surrogate: 1,4-Difluorobenzene	0.0648		"	0.0600		108	75-125			

**LCS (P7B2101-BS1)**

Prepared & Analyzed: 02/20/17

Benzene	0.0858	0.00100	mg/kg wet	0.100		85.8	70-130			
Toluene	0.0894	0.00200	"	0.100		89.4	70-130			
Ethylbenzene	0.101	0.00100	"	0.100		101	70-130			
Xylene (p/m)	0.184	0.00200	"	0.200		91.9	70-130			
Xylene (o)	0.0887	0.00100	"	0.100		88.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.0585		"	0.0600		97.6	75-125			
Surrogate: 1,4-Difluorobenzene	0.0637		"	0.0600		106	75-125			

**LCS Dup (P7B2101-BSD1)**

Prepared & Analyzed: 02/20/17

Benzene	0.0954	0.00100	mg/kg wet	0.100		95.4	70-130	10.6	20	
Toluene	0.0988	0.00200	"	0.100		98.8	70-130	9.92	20	
Ethylbenzene	0.114	0.00100	"	0.100		114	70-130	12.9	20	
Xylene (p/m)	0.201	0.00200	"	0.200		101	70-130	8.99	20	
Xylene (o)	0.0987	0.00100	"	0.100		98.7	70-130	10.6	20	
Surrogate: 4-Bromofluorobenzene	0.0651		"	0.0600		108	75-125			
Surrogate: 1,4-Difluorobenzene	0.0695		"	0.0600		116	75-125			

**Matrix Spike (P7B2101-MS1)**

Source: 7B17018-06

Prepared & Analyzed: 02/20/17

Benzene	0.115	0.00105	mg/kg dry	0.105	ND	109	80-120			
Toluene	0.115	0.00211	"	0.105	ND	110	80-120			
Ethylbenzene	0.107	0.00105	"	0.105	ND	101	80-120			
Xylene (p/m)	0.168	0.00211	"	0.211	ND	79.6	80-120			QM-07
Xylene (o)	0.0995	0.00105	"	0.105	ND	94.6	80-120			
Surrogate: 1,4-Difluorobenzene	0.0627		"	0.0632		99.2	75-125			
Surrogate: 4-Bromofluorobenzene	0.0672		"	0.0632		106	75-125			

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7B2101 - General Preparation (GC)**

Matrix Spike Dup (P7B2101-MSD1)		Source: 7B17018-06			Prepared & Analyzed: 02/20/17					
Benzene	0.146	0.00105	mg/kg dry	0.105	ND	138	80-120	23.4	20	QM-07
Toluene	0.152	0.00211	"	0.105	ND	144	80-120	27.4	20	QM-07
Ethylbenzene	0.155	0.00105	"	0.105	ND	147	80-120	37.0	20	QM-07
Xylene (p/m)	0.273	0.00211	"	0.211	ND	130	80-120	47.8	20	QM-07
Xylene (o)	0.145	0.00105	"	0.105	ND	138	80-120	37.0	20	QM-07
Surrogate: 4-Bromofluorobenzene	0.0692		"	0.0632		110	75-125			
Surrogate: 1,4-Difluorobenzene	0.0724		"	0.0632		115	75-125			

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7B2102 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P7B2102-BLK1)**

Prepared & Analyzed: 02/21/17

% Moisture	ND	0.1	%
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**Blank (P7B2102-BLK2)**

Prepared & Analyzed: 02/21/17

% Moisture	ND	0.1	%
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**Duplicate (P7B2102-DUP1)**

**Source: 7B20003-08**

Prepared & Analyzed: 02/21/17

% Moisture	10.0	0.1	%	11.0	9.52	20
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**Duplicate (P7B2102-DUP2)**

**Source: 7B20004-11**

Prepared & Analyzed: 02/21/17

% Moisture	7.0	0.1	%	8.0	13.3	20
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**Duplicate (P7B2102-DUP3)**

**Source: 7B20006-25**

Prepared & Analyzed: 02/21/17

% Moisture	6.0	0.1	%	7.0	15.4	20
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Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P7B2207 - TX 1005</b>										
<b>Blank (P7B2207-BLK1)</b>				Prepared & Analyzed: 02/21/17						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	130		"	100		130	70-130			
Surrogate: o-Terphenyl	74.7		"	50.0		149	70-130			S-GC
<b>LCS (P7B2207-BS1)</b>				Prepared & Analyzed: 02/21/17						
C6-C12	1190	25.0	mg/kg wet	1000		119	75-125			
>C12-C28	1110	25.0	"	1000		111	75-125			
Surrogate: 1-Chlorooctane	124		"	100		124	70-130			
Surrogate: o-Terphenyl	68.3		"	50.0		137	70-130			S-GC
<b>LCS Dup (P7B2207-BSD1)</b>				Prepared & Analyzed: 02/21/17						
C6-C12	1180	25.0	mg/kg wet	1000		118	75-125	1.26	20	
>C12-C28	1080	25.0	"	1000		108	75-125	3.02	20	
Surrogate: 1-Chlorooctane	120		"	100		120	70-130			
Surrogate: o-Terphenyl	65.9		"	50.0		132	70-130			S-GC
<b>Matrix Spike (P7B2207-MS1)</b>				Source: 7B20011-05	Prepared: 02/21/17		Analyzed: 02/22/17			
C6-C12	1620	29.1	mg/kg dry	1160	19.2	138	75-125			QM-05
>C12-C28	2370	29.1	"	1160	308	177	75-125			QM-05
Surrogate: 1-Chlorooctane	132		"	116		114	70-130			
Surrogate: o-Terphenyl	50.1		"	58.1		86.2	70-130			
<b>Matrix Spike Dup (P7B2207-MSD1)</b>				Source: 7B20011-05	Prepared: 02/21/17		Analyzed: 02/22/17			
C6-C12	1660	29.1	mg/kg dry	1160	19.2	141	75-125	2.42	20	QM-05
>C12-C28	2380	29.1	"	1160	308	178	75-125	0.454	20	QM-05
Surrogate: 1-Chlorooctane	133		"	116		114	70-130			
Surrogate: o-Terphenyl	62.7		"	58.1		108	70-130			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

2/23/2017

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



## Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland, TX 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea Co NM  
Lab Order Number: 7C01012



NELAP/TCEQ # T104704156-16-6

Report Date: 03/06/17

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2017 SP-18	7C01012-01	Soil	02/28/17 16:05	03-01-2017 14:38
2017 SP-19	7C01012-02	Soil	02/28/17 16:10	03-01-2017 14:38
2017 SP-20	7C01012-03	Soil	02/28/17 16:15	03-01-2017 14:38
2017 SP-21	7C01012-04	Soil	02/28/17 16:20	03-01-2017 14:38
2017 SP-22	7C01012-05	Soil	02/28/17 16:25	03-01-2017 14:38

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-18**  
**7C01012-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0213	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B
Toluene	ND	0.0426	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B
Ethylbenzene	ND	0.0213	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B
Xylene (p/m)	ND	0.0426	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B
Xylene (o)	ND	0.0213	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B
Surrogate: 4-Bromofluorobenzene		98.8 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B
Surrogate: 1,4-Difluorobenzene		99.7 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	6.0	0.1	%	1	P7C0601	03/06/17	03/06/17	% calculation
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.6	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M
>C12-C28	ND	26.6	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M
>C28-C35	ND	26.6	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M
Surrogate: 1-Chlorooctane		71.0 %	70-130		P7C0606	03/01/17	03/02/17	TPH 8015M
Surrogate: o-Terphenyl		81.2 %	70-130		P7C0606	03/01/17	03/02/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	03/01/17	03/02/17	calc

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-19**  
**7C01012-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00109	mg/kg dry	1	P7C0605	03/03/17	03/03/17	EPA 8021B	
Toluene	ND	0.0435	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Ethylbenzene	ND	0.0217	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (p/m)	ND	0.0435	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (o)	ND	0.0217	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		100 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		100 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	8.0	0.1	%	1	P7C0601	03/06/17	03/06/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.2	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
Surrogate: 1-Chlorooctane		80.1 %	70-130		P7C0606	03/01/17	03/02/17	TPH 8015M	
Surrogate: o-Terphenyl		90.8 %	70-130		P7C0606	03/01/17	03/02/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	03/01/17	03/02/17	calc	

Permian Basin Environmental Lab, L.P.

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Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-20**  
**7C01012-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0225	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Toluene	ND	0.0449	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Ethylbenzene	ND	0.0225	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (p/m)	ND	0.0449	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (o)	ND	0.0225	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		97.6 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		94.6 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	11.0	0.1	%	1	P7C0601	03/06/17	03/06/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	28.1	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
Surrogate: 1-Chlorooctane		80.5 %	70-130		P7C0606	03/01/17	03/02/17	TPH 8015M	
Surrogate: o-Terphenyl		90.5 %	70-130		P7C0606	03/01/17	03/02/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	03/01/17	03/02/17	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79703

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-21**  
**7C01012-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0215	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Toluene	ND	0.0430	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Ethylbenzene	ND	0.0215	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (p/m)	ND	0.0430	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (o)	ND	0.0215	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		101 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		95.6 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P7C0601	03/06/17	03/06/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
Surrogate: 1-Chlorooctane		78.9 %	70-130		P7C0606	03/01/17	03/02/17	TPH 8015M	
Surrogate: o-Terphenyl		89.1 %	70-130		P7C0606	03/01/17	03/02/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	03/01/17	03/02/17	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-22**  
**7C01012-05 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0217	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Toluene	ND	0.0435	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Ethylbenzene	ND	0.0217	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (p/m)	ND	0.0435	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (o)	ND	0.0217	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		101 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		102 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	8.0	0.1	%	1	P7C0601	03/06/17	03/06/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.2	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7C0606	03/01/17	03/02/17	TPH 8015M	
Surrogate: 1-Chlorooctane		81.0 %	70-130		P7C0606	03/01/17	03/02/17	TPH 8015M	
Surrogate: o-Terphenyl		91.9 %	70-130		P7C0606	03/01/17	03/02/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	03/01/17	03/02/17	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C0605 - General Preparation (GC)**

**Blank (P7C0605-BLK1)**

Prepared & Analyzed: 03/03/17

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0626		"	0.0600		104	75-125			
Surrogate: 4-Bromofluorobenzene	0.0649		"	0.0600		108	75-125			

**LCS (P7C0605-BS1)**

Prepared & Analyzed: 03/03/17

Benzene	0.0942	0.00100	mg/kg wet	0.100		94.2	70-130			
Toluene	0.0977	0.00200	"	0.100		97.7	70-130			
Ethylbenzene	0.115	0.00100	"	0.100		115	70-130			
Xylene (p/m)	0.210	0.00200	"	0.200		105	70-130			
Xylene (o)	0.108	0.00100	"	0.100		108	70-130			
Surrogate: 1,4-Difluorobenzene	0.0628		"	0.0600		105	75-125			
Surrogate: 4-Bromofluorobenzene	0.0666		"	0.0600		111	75-125			

**LCS Dup (P7C0605-BS1)**

Prepared & Analyzed: 03/03/17

Benzene	0.0952	0.00100	mg/kg wet	0.100		95.2	70-130	1.13	20	
Toluene	0.104	0.00200	"	0.100		104	70-130	5.90	20	
Ethylbenzene	0.104	0.00100	"	0.100		104	70-130	9.84	20	
Xylene (p/m)	0.197	0.00200	"	0.200		98.4	70-130	6.65	20	
Xylene (o)	0.111	0.00100	"	0.100		111	70-130	2.37	20	
Surrogate: 4-Bromofluorobenzene	0.0692		"	0.0600		115	75-125			
Surrogate: 1,4-Difluorobenzene	0.0649		"	0.0600		108	75-125			

**Matrix Spike (P7C0605-MS1)**

Source: 7C03007-04

Prepared & Analyzed: 03/03/17

Benzene	0.223	0.0217	mg/kg dry	0.217	ND	102	80-120			
Toluene	0.210	0.0435	"	0.217	ND	96.6	80-120			
Ethylbenzene	0.202	0.0217	"	0.217	ND	93.1	80-120			
Xylene (p/m)	0.321	0.0435	"	0.435	ND	73.9	80-120			QM-07
Xylene (o)	0.167	0.0217	"	0.217	ND	77.0	80-120			QM-07
Surrogate: 1,4-Difluorobenzene	0.0649		"	0.0652		99.5	75-125			
Surrogate: 4-Bromofluorobenzene	0.0632		"	0.0652		96.8	75-125			

Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C0605 - General Preparation (GC)**

Matrix Spike Dup (P7C0605-MSD1)		Source: 7C03007-04		Prepared & Analyzed: 03/03/17						
Benzene	0.203	0.0217	mg/kg dry	0.217	ND	93.5	80-120	9.18	20	
Toluene	0.189	0.0435	"	0.217	ND	87.0	80-120	10.5	20	
Ethylbenzene	0.210	0.0217	"	0.217	ND	96.8	80-120	3.90	20	
Xylene (p/m)	0.325	0.0435	"	0.435	ND	74.6	80-120	1.01	20	QM-07
Xylene (o)	0.169	0.0217	"	0.217	ND	77.8	80-120	1.03	20	QM-07
Surrogate: 4-Bromofluorobenzene	0.0633		"	0.0652		97.0	75-125			
Surrogate: 1,4-Difluorobenzene	0.0650		"	0.0652		99.7	75-125			

Permian Basin Environmental Lab, L.P.

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**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C0601 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P7C0601-BLK1)</b>	Prepared & Analyzed: 03/06/17									
% Moisture	ND	0.1	%							
<b>Blank (P7C0601-BLK2)</b>	Prepared & Analyzed: 03/06/17									
% Moisture	ND	0.1	%							
<b>Blank (P7C0601-BLK3)</b>	Prepared & Analyzed: 03/06/17									
% Moisture	ND	0.1	%							
<b>Duplicate (P7C0601-DUP1)</b>	<b>Source: 7C01012-01</b>		Prepared & Analyzed: 03/06/17							
% Moisture	5.0	0.1	%		6.0			18.2	20	
<b>Duplicate (P7C0601-DUP2)</b>	<b>Source: 7C02004-02</b>		Prepared & Analyzed: 03/06/17							
% Moisture	5.0	0.1	%		5.0			0.00	20	
<b>Duplicate (P7C0601-DUP3)</b>	<b>Source: 7C02006-25</b>		Prepared & Analyzed: 03/06/17							
% Moisture	14.0	0.1	%		13.0			7.41	20	
<b>Duplicate (P7C0601-DUP4)</b>	<b>Source: 7C02009-03</b>		Prepared & Analyzed: 03/06/17							
% Moisture	8.0	0.1	%		8.0			0.00	20	
<b>Duplicate (P7C0601-DUP5)</b>	<b>Source: 7C02012-02</b>		Prepared & Analyzed: 03/06/17							
% Moisture	13.0	0.1	%		14.0			7.41	20	
<b>Duplicate (P7C0601-DUP6)</b>	<b>Source: 7C02015-06</b>		Prepared & Analyzed: 03/06/17							
% Moisture	9.0	0.1	%		8.0			11.8	20	
<b>Duplicate (P7C0601-DUP7)</b>	<b>Source: 7C02016-09</b>		Prepared & Analyzed: 03/06/17							
% Moisture	8.0	0.1	%		8.0			0.00	20	

Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C0601 - \*\*\* DEFAULT PREP \*\*\***

**Duplicate (P7C0601-DUP8)**

**Source: 7C03002-02**

Prepared & Analyzed: 03/06/17

% Moisture	3.0	0.1	%		3.0			0.00	20	
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Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C0606 - TX 1005**

**Blank (P7C0606-BLK1)**

Prepared: 03/01/17 Analyzed: 03/02/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	99.4		"	100		99.4	70-130			
Surrogate: o-Terphenyl	57.6		"	50.0		115	70-130			

**LCS (P7C0606-BS1)**

Prepared: 03/01/17 Analyzed: 03/02/17

C6-C12	793	25.0	mg/kg wet	1000		79.3	75-125			
>C12-C28	1090	25.0	"	1000		109	75-125			
Surrogate: 1-Chlorooctane	116		"	100		116	70-130			
Surrogate: o-Terphenyl	51.0		"	50.0		102	70-130			

**LCS Dup (P7C0606-BSD1)**

Prepared: 03/01/17 Analyzed: 03/02/17

C6-C12	823	25.0	mg/kg wet	1000		82.3	75-125	3.78	20	
>C12-C28	1120	25.0	"	1000		112	75-125	3.15	20	
Surrogate: 1-Chlorooctane	124		"	100		124	70-130			
Surrogate: o-Terphenyl	58.4		"	50.0		117	70-130			

**Matrix Spike (P7C0606-MS1)**

Source: 7C01012-05

Prepared: 03/01/17 Analyzed: 03/02/17

C6-C12	865	27.2	mg/kg dry	1090	14.4	78.2	75-125			
>C12-C28	1160	27.2	"	1090	ND	107	75-125			
Surrogate: 1-Chlorooctane	103		"	109		94.9	70-130			
Surrogate: o-Terphenyl	42.2		"	54.3		77.6	70-130			

**Matrix Spike Dup (P7C0606-MSD1)**

Source: 7C01012-05

Prepared: 03/01/17 Analyzed: 03/02/17

C6-C12	902	27.2	mg/kg dry	1090	14.4	81.6	75-125	4.23	20	
>C12-C28	1260	27.2	"	1090	ND	116	75-125	7.67	20	
Surrogate: 1-Chlorooctane	106		"	109		97.8	70-130			
Surrogate: o-Terphenyl	45.8		"	54.3		84.3	70-130			

Permian Basin Environmental Lab, L.P.

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Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

QM-07     The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

BULK     Samples received in Bulk soil containers

DET     Analyte DETECTED

ND     Analyte NOT DETECTED at or above the reporting limit

NR     Not Reported

dry     Sample results reported on a dry weight basis

RPD     Relative Percent Difference

LCS     Laboratory Control Spike

MS     Matrix Spike

Dup     Duplicate

Report Approved By: \_\_\_\_\_



Date: 3/6/2017

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland, TX 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County NM  
Lab Order Number: 7C03007



NELAP/TCEQ # T104704156-16-6

Report Date: 03/13/17

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2017 SP-23	7C03007-01	Soil	03/02/17 16:00	03-03-2017 10:10
2017 SP-24	7C03007-02	Soil	03/02/17 16:10	03-03-2017 10:10
2017 SP-25	7C03007-03	Soil	03/02/17 16:15	03-03-2017 10:10
2017 SP-26	7C03007-04	Soil	03/02/17 16:20	03-03-2017 10:10

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-23**  
**7C03007-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0206	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Toluene	ND	0.0412	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Ethylbenzene	ND	0.0206	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (p/m)	ND	0.0412	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (o)	ND	0.0206	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		93.8 %		75-125	P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		97.0 %		75-125	P7C0605	03/03/17	03/03/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	3.0	0.1	%	1	P7C0604	03/06/17	03/06/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	25.8	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		82.0 %		70-130	P7C0806	03/07/17	03/07/17	TPH 8015M	
Surrogate: o-Terphenyl		91.0 %		70-130	P7C0806	03/07/17	03/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	03/07/17	03/07/17	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-24**  
**7C03007-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0204	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Toluene	ND	0.0408	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Ethylbenzene	ND	0.0204	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (p/m)	ND	0.0408	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (o)	ND	0.0204	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		94.4 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		89.7 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	2.0	0.1	%	1	P7C0604	03/06/17	03/06/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	25.5	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		76.5 %	70-130		P7C0806	03/07/17	03/07/17	TPH 8015M	
Surrogate: o-Terphenyl		84.3 %	70-130		P7C0806	03/07/17	03/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	03/07/17	03/07/17	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-25**  
**7C03007-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0220	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Toluene	ND	0.0440	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Ethylbenzene	ND	0.0220	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (p/m)	ND	0.0440	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (o)	ND	0.0220	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		88.0 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		93.6 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	9.0	0.1	%	1	P7C0604	03/06/17	03/06/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.5	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		83.5 %	70-130		P7C0806	03/07/17	03/07/17	TPH 8015M	
Surrogate: o-Terphenyl		93.4 %	70-130		P7C0806	03/07/17	03/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	03/07/17	03/07/17	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-26**  
**7C03007-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0217	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Toluene	ND	0.0435	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Ethylbenzene	ND	0.0217	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (p/m)	ND	0.0435	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Xylene (o)	ND	0.0217	mg/kg dry	20	P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		100 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		93.2 %	75-125		P7C0605	03/03/17	03/03/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	8.0	0.1	%	1	P7C0604	03/06/17	03/06/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.2	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P7C0806	03/07/17	03/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		82.4 %	70-130		P7C0806	03/07/17	03/07/17	TPH 8015M	
Surrogate: o-Terphenyl		92.5 %	70-130		P7C0806	03/07/17	03/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	03/07/17	03/07/17	calc	

Permian Basin Environmental Lab, L.P.

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Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C0605 - General Preparation (GC)**

**Blank (P7C0605-BLK1)**

Prepared & Analyzed: 03/03/17

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	0.0649		"	0.0600		108	75-125			
Surrogate: 1,4-Difluorobenzene	0.0626		"	0.0600		104	75-125			

**LCS (P7C0605-BS1)**

Prepared & Analyzed: 03/03/17

Benzene	0.0942	0.00100	mg/kg wet	0.100		94.2	70-130			
Toluene	0.0977	0.00200	"	0.100		97.7	70-130			
Ethylbenzene	0.115	0.00100	"	0.100		115	70-130			
Xylene (p/m)	0.210	0.00200	"	0.200		105	70-130			
Xylene (o)	0.108	0.00100	"	0.100		108	70-130			
Surrogate: 1,4-Difluorobenzene	0.0628		"	0.0600		105	75-125			
Surrogate: 4-Bromofluorobenzene	0.0666		"	0.0600		111	75-125			

**LCS Dup (P7C0605-BS1)**

Prepared & Analyzed: 03/03/17

Benzene	0.0952	0.00100	mg/kg wet	0.100		95.2	70-130	1.13	20	
Toluene	0.104	0.00200	"	0.100		104	70-130	5.90	20	
Ethylbenzene	0.104	0.00100	"	0.100		104	70-130	9.84	20	
Xylene (p/m)	0.197	0.00200	"	0.200		98.4	70-130	6.65	20	
Xylene (o)	0.111	0.00100	"	0.100		111	70-130	2.37	20	
Surrogate: 1,4-Difluorobenzene	0.0649		"	0.0600		108	75-125			
Surrogate: 4-Bromofluorobenzene	0.0692		"	0.0600		115	75-125			

**Matrix Spike (P7C0605-MS1)**

Source: 7C03007-04

Prepared & Analyzed: 03/03/17

Benzene	0.223	0.0217	mg/kg dry	0.217	ND	102	80-120			
Toluene	0.210	0.0435	"	0.217	ND	96.6	80-120			
Ethylbenzene	0.202	0.0217	"	0.217	ND	93.1	80-120			
Xylene (p/m)	0.321	0.0435	"	0.435	ND	73.9	80-120			QM-07
Xylene (o)	0.167	0.0217	"	0.217	ND	77.0	80-120			QM-07
Surrogate: 1,4-Difluorobenzene	0.0649		"	0.0652		99.5	75-125			
Surrogate: 4-Bromofluorobenzene	0.0632		"	0.0652		96.8	75-125			

Permian Basin Environmental Lab, L.P.

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Project Manager: Curt Stanley

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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C0605 - General Preparation (GC)**

Matrix Spike Dup (P7C0605-MSD1)		Source: 7C03007-04		Prepared & Analyzed: 03/03/17						
Benzene	0.203	0.0217	mg/kg dry	0.217	ND	93.5	80-120	9.18	20	
Toluene	0.189	0.0435	"	0.217	ND	87.0	80-120	10.5	20	
Ethylbenzene	0.210	0.0217	"	0.217	ND	96.8	80-120	3.90	20	
Xylene (p/m)	0.325	0.0435	"	0.435	ND	74.6	80-120	1.01	20	QM-07
Xylene (o)	0.169	0.0217	"	0.217	ND	77.8	80-120	1.03	20	QM-07
Surrogate: 1,4-Difluorobenzene	0.0650		"	0.0652		99.7	75-125			
Surrogate: 4-Bromofluorobenzene	0.0633		"	0.0652		97.0	75-125			

Permian Basin Environmental Lab, L.P.

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**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C0604 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P7C0604-BLK1)</b>	Prepared & Analyzed: 03/06/17									
% Moisture	ND	0.1	%							
<b>Blank (P7C0604-BLK2)</b>	Prepared & Analyzed: 03/06/17									
% Moisture	ND	0.1	%							
<b>Blank (P7C0604-BLK3)</b>	Prepared & Analyzed: 03/06/17									
% Moisture	ND	0.1	%							
<b>Duplicate (P7C0604-DUP1)</b>	<b>Source: 7C03007-01</b>		Prepared & Analyzed: 03/06/17							
% Moisture	3.0	0.1	%		3.0			0.00	20	
<b>Duplicate (P7C0604-DUP2)</b>	<b>Source: 7C03009-23</b>		Prepared & Analyzed: 03/06/17							
% Moisture	11.0	0.1	%		11.0			0.00	20	
<b>Duplicate (P7C0604-DUP3)</b>	<b>Source: 7C03010-05</b>		Prepared & Analyzed: 03/06/17							
% Moisture	10.0	0.1	%		11.0			9.52	20	
<b>Duplicate (P7C0604-DUP4)</b>	<b>Source: 7C03011-13</b>		Prepared & Analyzed: 03/06/17							
% Moisture	10.0	0.1	%		10.0			0.00	20	
<b>Duplicate (P7C0604-DUP5)</b>	<b>Source: 7C03011-38</b>		Prepared & Analyzed: 03/06/17							
% Moisture	5.0	0.1	%		5.0			0.00	20	
<b>Duplicate (P7C0604-DUP6)</b>	<b>Source: 7C03012-16</b>		Prepared & Analyzed: 03/06/17							
% Moisture	5.0	0.1	%		4.0			22.2	20	R3
<b>Duplicate (P7C0604-DUP7)</b>	<b>Source: 7C03014-08</b>		Prepared & Analyzed: 03/06/17							
% Moisture	4.0	0.1	%		8.0			66.7	20	R3

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C0604 - \*\*\* DEFAULT PREP \*\*\***

<b>Duplicate (P7C0604-DUP8)</b>	<b>Source: 7C03016-06</b>		Prepared & Analyzed: 03/06/17							
% Moisture	16.0	0.1	%		17.0			6.06	20	
<b>Duplicate (P7C0604-DUP9)</b>	<b>Source: 7C03016-13</b>		Prepared & Analyzed: 03/06/17							
% Moisture	11.0	0.1	%		12.0			8.70	20	

Permian Basin Environmental Lab, L.P.

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Project Manager: Curt Stanley

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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C0806 - TX 1005**

**Blank (P7C0806-BLK1)**

Prepared & Analyzed: 03/07/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	83.2		"	100		83.2	70-130			
Surrogate: o-Terphenyl	47.2		"	50.0		94.5	70-130			

**LCS (P7C0806-BS1)**

Prepared & Analyzed: 03/07/17

C6-C12	1120	25.0	mg/kg wet	1000		112	75-125			
>C12-C28	1070	25.0	"	1000		107	75-125			
Surrogate: 1-Chlorooctane	91.4		"	100		91.4	70-130			
Surrogate: o-Terphenyl	40.4		"	50.0		80.7	70-130			

**LCS Dup (P7C0806-BSD1)**

Prepared & Analyzed: 03/07/17

C6-C12	1090	25.0	mg/kg wet	1000		109	75-125	3.01	20	
>C12-C28	1060	25.0	"	1000		106	75-125	1.05	20	
Surrogate: 1-Chlorooctane	81.9		"	100		81.9	70-130			
Surrogate: o-Terphenyl	36.0		"	50.0		72.0	70-130			

**Matrix Spike (P7C0806-MS1)**

Source: 7C03007-01

Prepared: 03/07/17 Analyzed: 03/08/17

C6-C12	1160	25.8	mg/kg dry	1030	14.6	111	75-125			
>C12-C28	1090	25.8	"	1030	22.0	104	75-125			
Surrogate: 1-Chlorooctane	93.9		"	103		91.1	70-130			
Surrogate: o-Terphenyl	44.4		"	51.5		86.0	70-130			

**Matrix Spike Dup (P7C0806-MSD1)**

Source: 7C03007-01

Prepared: 03/07/17 Analyzed: 03/08/17

C6-C12	1160	25.8	mg/kg dry	1030	14.6	112	75-125	0.666	20	
>C12-C28	1100	25.8	"	1030	22.0	105	75-125	0.801	20	
Surrogate: 1-Chlorooctane	91.9		"	103		89.1	70-130			
Surrogate: o-Terphenyl	45.0		"	51.5		87.2	70-130			

Permian Basin Environmental Lab, L.P.

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Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

R3 The RPD exceeded the acceptance limit due to sample matrix effects.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

3/13/2017

Brent Barron, Laboratory Director/Technical Director

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If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



## Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland, TX 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea Co NM  
Lab Order Number: 7C24008



NELAP/TCEQ # T104704156-16-6

Report Date: 04/05/17

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2017 SP-27	7C24008-01	Soil	03/21/17 18:00	03-24-2017 15:10
2017 SP-28	7C24008-02	Soil	03/21/17 18:10	03-24-2017 15:10
2017 SP-29	7C24008-03	Soil	03/21/17 18:15	03-24-2017 15:10
2017 SP-30	7C24008-04	Soil	03/21/17 18:20	03-24-2017 15:10

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
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**2017 SP-27**  
**7C24008-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0208	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B
Toluene	ND	0.0417	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B
Ethylbenzene	ND	0.0208	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B
Xylene (p/m)	ND	0.0417	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B
Xylene (o)	ND	0.0208	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B
Surrogate: 4-Bromofluorobenzene		96.9 %	75-125		P7C2705	03/24/17	03/25/17	EPA 8021B
Surrogate: 1,4-Difluorobenzene		89.1 %	75-125		P7C2705	03/24/17	03/25/17	EPA 8021B

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	4.0	0.1	%	1	P7C2909	03/29/17	03/29/17	% calculation
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.0	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M
>C12-C28	ND	26.0	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M
>C28-C35	ND	26.0	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M
Surrogate: 1-Chlorooctane		77.2 %	70-130		P7D0205	03/30/17	03/31/17	TPH 8015M
Surrogate: o-Terphenyl		82.8 %	70-130		P7D0205	03/30/17	03/31/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	03/30/17	03/31/17	calc

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-28**  
**7C24008-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0208	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Toluene	ND	0.0417	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Ethylbenzene	ND	0.0208	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Xylene (p/m)	ND	0.0417	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Xylene (o)	ND	0.0208	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.7 %	75-125		P7C2705	03/24/17	03/25/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		96.7 %	75-125		P7C2705	03/24/17	03/25/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	4.0	0.1	%	1	P7C2909	03/29/17	03/29/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.0	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M	
Surrogate: 1-Chlorooctane		76.8 %	70-130		P7D0205	03/30/17	03/31/17	TPH 8015M	
Surrogate: o-Terphenyl		83.7 %	70-130		P7D0205	03/30/17	03/31/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	03/30/17	03/31/17	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79703

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-29**  
**7C24008-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0213	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Toluene	ND	0.0426	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Ethylbenzene	ND	0.0213	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Xylene (p/m)	ND	0.0426	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Xylene (o)	ND	0.0213	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		97.8 %	75-125		P7C2705	03/24/17	03/25/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		89.6 %	75-125		P7C2705	03/24/17	03/25/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	6.0	0.1	%	1	P7C2909	03/29/17	03/29/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.6	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M	
Surrogate: 1-Chlorooctane		76.0 %	70-130		P7D0205	03/30/17	03/31/17	TPH 8015M	
Surrogate: o-Terphenyl		82.9 %	70-130		P7D0205	03/30/17	03/31/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	03/30/17	03/31/17	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79703

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-30**  
**7C24008-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0211	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Toluene	ND	0.0421	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Ethylbenzene	ND	0.0211	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Xylene (p/m)	ND	0.0421	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Xylene (o)	ND	0.0211	mg/kg dry	20	P7C2705	03/24/17	03/25/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.0 %	75-125		P7C2705	03/24/17	03/25/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		96.7 %	75-125		P7C2705	03/24/17	03/25/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	5.0	0.1	%	1	P7C2909	03/29/17	03/29/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.3	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P7D0205	03/30/17	03/31/17	TPH 8015M	
Surrogate: 1-Chlorooctane		74.1 %	70-130		P7D0205	03/30/17	03/31/17	TPH 8015M	
Surrogate: o-Terphenyl		78.6 %	70-130		P7D0205	03/30/17	03/31/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	03/30/17	03/31/17	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C2705 - General Preparation (GC)**

**Blank (P7C2705-BLK1)**

Prepared & Analyzed: 03/24/17

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0546		"	0.0600		91.1	75-125			
Surrogate: 4-Bromofluorobenzene	0.0570		"	0.0600		95.0	75-125			

**LCS (P7C2705-BS1)**

Prepared & Analyzed: 03/24/17

Benzene	0.0917	0.00100	mg/kg wet	0.100		91.7	70-130			
Toluene	0.0900	0.00200	"	0.100		90.0	70-130			
Ethylbenzene	0.0984	0.00100	"	0.100		98.4	70-130			
Xylene (p/m)	0.192	0.00200	"	0.200		95.8	70-130			
Xylene (o)	0.0897	0.00100	"	0.100		89.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.0620		"	0.0600		103	75-125			
Surrogate: 1,4-Difluorobenzene	0.0606		"	0.0600		101	75-125			

**LCS Dup (P7C2705-BSD1)**

Prepared & Analyzed: 03/24/17

Benzene	0.0852	0.00100	mg/kg wet	0.100		85.2	70-130	7.30	20	
Toluene	0.0842	0.00200	"	0.100		84.2	70-130	6.69	20	
Ethylbenzene	0.0939	0.00100	"	0.100		93.9	70-130	4.64	20	
Xylene (p/m)	0.186	0.00200	"	0.200		93.2	70-130	2.77	20	
Xylene (o)	0.0870	0.00100	"	0.100		87.0	70-130	3.08	20	
Surrogate: 4-Bromofluorobenzene	0.0625		"	0.0600		104	75-125			
Surrogate: 1,4-Difluorobenzene	0.0606		"	0.0600		101	75-125			

**Matrix Spike (P7C2705-MS1)**

Source: 7C24008-04

Prepared: 03/24/17 Analyzed: 03/25/17

Benzene	0.134	0.0211	mg/kg dry	0.211	ND	63.5	80-120			QM-07
Toluene	0.146	0.0421	"	0.211	ND	69.4	80-120			QM-07
Ethylbenzene	0.178	0.0211	"	0.211	ND	84.6	80-120			
Xylene (p/m)	0.370	0.0421	"	0.421	0.0238	82.2	80-120			
Xylene (o)	0.158	0.0211	"	0.211	0.0158	67.4	80-120			QM-07
Surrogate: 4-Bromofluorobenzene	0.0636		"	0.0632		101	75-125			
Surrogate: 1,4-Difluorobenzene	0.0593		"	0.0632		94.0	75-125			

Permian Basin Environmental Lab, L.P.

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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7C2705 - General Preparation (GC)**

**Matrix Spike Dup (P7C2705-MSD1)**

**Source: 7C24008-04**

Prepared: 03/24/17 Analyzed: 03/25/17

Benzene	0.129	0.0211	mg/kg dry	0.211	ND	61.5	80-120	3.20	20	QM-07
Toluene	0.135	0.0421	"	0.211	ND	64.0	80-120	8.10	20	QM-07
Ethylbenzene	0.163	0.0211	"	0.211	ND	77.3	80-120	9.02	20	QM-07
Xylene (p/m)	0.352	0.0421	"	0.421	0.0238	78.0	80-120	5.31	20	QM-07
Xylene (o)	0.148	0.0211	"	0.211	0.0158	63.0	80-120	6.75	20	QM-07
Surrogate: 1,4-Difluorobenzene	0.0581		"	0.0632		91.9	75-125			
Surrogate: 4-Bromofluorobenzene	0.0614		"	0.0632		97.2	75-125			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P7C2909 - *** DEFAULT PREP ***</b>										
<b>Blank (P7C2909-BLK1)</b>										Prepared & Analyzed: 03/29/17
% Moisture	ND	0.1	%							
<b>Duplicate (P7C2909-DUP1)</b>										Prepared & Analyzed: 03/29/17
% Moisture	14.0	0.1	%		15.0			6.90	20	
<b>Duplicate (P7C2909-DUP2)</b>										Prepared & Analyzed: 03/29/17
% Moisture	11.0	0.1	%		11.0			0.00	20	
<b>Duplicate (P7C2909-DUP3)</b>										Prepared & Analyzed: 03/29/17
% Moisture	8.0	0.1	%		9.0			11.8	20	
<b>Duplicate (P7C2909-DUP4)</b>										Prepared & Analyzed: 03/29/17
% Moisture	7.0	0.1	%		10.0			35.3	20	
<b>Duplicate (P7C2909-DUP5)</b>										Prepared & Analyzed: 03/29/17
% Moisture	3.0	0.1	%		3.0			0.00	20	
<b>Duplicate (P7C2909-DUP6)</b>										Prepared & Analyzed: 03/29/17
% Moisture	8.0	0.1	%		8.0			0.00	20	
<b>Duplicate (P7C2909-DUP7)</b>										Prepared & Analyzed: 03/29/17
% Moisture	5.0	0.1	%		11.0			75.0	20	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79703

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7D0205 - TX 1005**

**Blank (P7D0205-BLK1)**

Prepared: 03/30/17 Analyzed: 03/31/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	84.6		"	100		84.6	70-130			
Surrogate: o-Terphenyl	44.6		"	50.0		89.1	70-130			

**LCS (P7D0205-BS1)**

Prepared: 03/30/17 Analyzed: 03/31/17

C6-C12	843	25.0	mg/kg wet	1000		84.3	75-125			
>C12-C28	870	25.0	"	1000		87.0	75-125			
Surrogate: 1-Chlorooctane	102		"	100		102	70-130			
Surrogate: o-Terphenyl	44.5		"	50.0		89.0	70-130			

**LCS Dup (P7D0205-BSD1)**

Prepared: 03/30/17 Analyzed: 03/31/17

C6-C12	817	25.0	mg/kg wet	1000		81.7	75-125	3.17	20	
>C12-C28	855	25.0	"	1000		85.5	75-125	1.80	20	
Surrogate: 1-Chlorooctane	98.1		"	100		98.1	70-130			
Surrogate: o-Terphenyl	42.0		"	50.0		84.1	70-130			

**Matrix Spike (P7D0205-MS1)**

Source: 7C24006-13

Prepared: 03/30/17 Analyzed: 03/31/17

C6-C12	811	26.9	mg/kg dry	1080	21.1	73.4	75-125			QM-07
>C12-C28	839	26.9	"	1080	13.3	76.8	75-125			
Surrogate: 1-Chlorooctane	99.0		"	108		92.1	70-130			
Surrogate: o-Terphenyl	49.9		"	53.8		92.9	70-130			

**Matrix Spike Dup (P7D0205-MSD1)**

Source: 7C24006-13

Prepared: 03/30/17 Analyzed: 03/31/17

C6-C12	872	26.9	mg/kg dry	1080	21.1	79.2	75-125	7.50	20	
>C12-C28	894	26.9	"	1080	13.3	81.9	75-125	6.45	20	
Surrogate: 1-Chlorooctane	105		"	108		98.0	70-130			
Surrogate: o-Terphenyl	52.2		"	53.8		97.2	70-130			

Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

4/5/2017

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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**PBBLAB**

## CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP  
10014 S. County Road 1213  
Midland, Texas 79706

Phone: 432-661-4184

Page 1 of 1

Project Manager: Curt Stanley

Project Name: Monument 18

Company Name: TRC Environmental Corporation

Project #: TNM - Monument 18

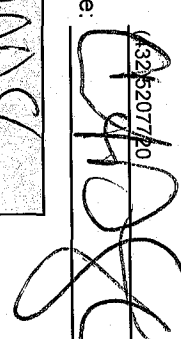
Company Address: 2057 Commerce Dr.

Project Loc: Lea County, NM

City/State/Zip: Midland/TX/79703

PO #:

Telephone No: (325) 207-7200

Report Format: ☒ Standard ☐ TRRP ☐ NPDESSampler Signature: Fax No: e-mail: cdstanley@trcsolutions.com  
cjbryant@paalp.com

(lab use only)

ORDER #:

1624008

LAB # (lab use only)

FIELD CODE

Beginning Depth

Ending Depth

Date Sampled

Time Sampled

Field Filtered

Total #. of Containers

Ice

HNO<sub>3</sub>

HCl

H<sub>2</sub>SO<sub>4</sub>

NaOH

Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>

None

Other (Specify)

DW=Drinking Water SL=Sludge

GW = Groundwater S=Soil/Solid

NP=Non-Potable Specify Other

TPH: 418.1 8015M 8015B

TPH: TX 1005 TX 1006

Cations (Ca, Mg, Na, K)

Anions (Cl, SO<sub>4</sub>, Alkalinity)

SAR / ESP / CEC

Metals: As Ag Ba Cd Cr Pb Hg Se

Volatiles

Semivolatiles

BTEX 8021B/5030 or BTEX 8260

RCI

N.O.R.M.

Chlorides E 300

Paint Filter

TCLP BTEX

RUSH TAT (Pre-Schedule) 24, 48, 72 hrs

Standard TAT

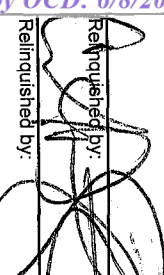
Preservation &amp; # of Containers

Matrix

TCLP: TOTAL:

Analyze For:

## Special Instructions:

Relinquished by: 

Date

Time

Received by:

Date

Time

Relinquished by:

Date

Time

Received by:

Date

Time

Relinquished by:

Date

Time

Received by:

Date

Time

## Laboratory Comments:

Sample Containers Intact? Y N  
VOCs Free of Headspace? Y N  
Labels on container(s) Y N  
Custody seals on container(s) Y N  
Custody seals on cooler(s) Y N  
Sample Hand Delivered by Courier? Y N  
by Sampler/Client Rep.? Y N  
UPS DHL FedEx Lone Star  
Temperature Upon Receipt: °C  
Adjusted: °C Factor



**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland, TX 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea Co NM  
Lab Order Number: 7E08026



NELAP/TCEQ # T104704156-16-6

Report Date: 05/18/17

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2017 SP-31	7E08026-01	Soil	05/04/17 17:30	05-08-2017 13:30
2017 SP-32	7E08026-02	Soil	05/04/17 17:45	05-08-2017 13:30

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-31**  
**7E08026-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0202	mg/kg dry	20	P7E1007	05/09/17	05/10/17	EPA 8021B
Toluene	ND	0.0404	mg/kg dry	20	P7E1007	05/09/17	05/10/17	EPA 8021B
Ethylbenzene	ND	0.0202	mg/kg dry	20	P7E1007	05/09/17	05/10/17	EPA 8021B
Xylene (p/m)	ND	0.0404	mg/kg dry	20	P7E1007	05/09/17	05/10/17	EPA 8021B
Xylene (o)	ND	0.0202	mg/kg dry	20	P7E1007	05/09/17	05/10/17	EPA 8021B
Surrogate: 4-Bromofluorobenzene		94.6 %	75-125		P7E1007	05/09/17	05/10/17	EPA 8021B
Surrogate: 1,4-Difluorobenzene		98.9 %	75-125		P7E1007	05/09/17	05/10/17	EPA 8021B

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	1.0	0.1	%	1	P7E1101	05/11/17	05/11/17	% calculation
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	25.3	mg/kg dry	1	P7E1601	05/10/17	05/11/17	TPH 8015M
>C12-C28	ND	25.3	mg/kg dry	1	P7E1601	05/10/17	05/11/17	TPH 8015M
>C28-C35	ND	25.3	mg/kg dry	1	P7E1601	05/10/17	05/11/17	TPH 8015M
Surrogate: 1-Chlorooctane		81.5 %	70-130		P7E1601	05/10/17	05/11/17	TPH 8015M
Surrogate: o-Terphenyl		88.5 %	70-130		P7E1601	05/10/17	05/11/17	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	25.3	mg/kg dry	1	[CALC]	05/10/17	05/11/17	calc

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 SP-32**  
**7E08026-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0215	mg/kg dry	20	P7E1007	05/09/17	05/10/17	EPA 8021B	
Toluene	ND	0.0430	mg/kg dry	20	P7E1007	05/09/17	05/10/17	EPA 8021B	
Ethylbenzene	ND	0.0215	mg/kg dry	20	P7E1007	05/09/17	05/10/17	EPA 8021B	
Xylene (p/m)	ND	0.0430	mg/kg dry	20	P7E1007	05/09/17	05/10/17	EPA 8021B	
Xylene (o)	ND	0.0215	mg/kg dry	20	P7E1007	05/09/17	05/10/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		94.0 %	75-125		P7E1007	05/09/17	05/10/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		95.7 %	75-125		P7E1007	05/09/17	05/10/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P7E1101	05/11/17	05/11/17	% calculation	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P7E1704	05/16/17	05/17/17	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P7E1704	05/16/17	05/17/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P7E1704	05/16/17	05/17/17	TPH 8015M	
Surrogate: 1-Chlorooctane		125 %	70-130		P7E1704	05/16/17	05/17/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	05/16/17	05/17/17	calc	

Permian Basin Environmental Lab, L.P.

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Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7E1007 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P7E1007-BLK1)**

Prepared & Analyzed: 05/09/17

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0602		"	0.0600		100	75-125			
Surrogate: 4-Bromofluorobenzene	0.0636		"	0.0600		106	75-125			

**LCS (P7E1007-BS1)**

Prepared & Analyzed: 05/09/17

Benzene	0.119	0.00100	mg/kg wet	0.100		119	70-130			
Toluene	0.106	0.00200	"	0.100		106	70-130			
Ethylbenzene	0.116	0.00100	"	0.100		116	70-130			
Xylene (p/m)	0.203	0.00200	"				70-130			
Xylene (o)	0.101	0.00100	"				70-130			
Surrogate: 1,4-Difluorobenzene	0.0616		"	0.0600		103	75-125			
Surrogate: 4-Bromofluorobenzene	0.0627		"	0.0600		105	75-125			

**LCS Dup (P7E1007-BSD1)**

Prepared & Analyzed: 05/09/17

Benzene	0.117	0.00100	mg/kg wet	0.100		117	70-130	2.32	20	
Toluene	0.109	0.00200	"	0.100		109	70-130	2.24	20	
Ethylbenzene	0.117	0.00100	"	0.100		117	70-130	0.815	20	
Xylene (p/m)	0.201	0.00200	"				70-130		20	
Xylene (o)	0.101	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	0.0627		"	0.0600		104	75-125			
Surrogate: 4-Bromofluorobenzene	0.0589		"	0.0600		98.2	75-125			

**Matrix Spike (P7E1007-MS1)**

Source: 7E08026-02

Prepared: 05/09/17 Analyzed: 05/10/17

Benzene	1.68	0.0215	mg/kg dry	4.30	ND	39.1	80-120			QM-07
Toluene	1.48	0.0430	"	4.30	ND	34.3	80-120			QM-07
Ethylbenzene	1.57	0.0215	"	4.30	ND	36.5	80-120			QM-07
Xylene (p/m)	3.70	0.0430	"		ND		80-120			QM-07
Xylene (o)	1.69	0.0215	"		ND		80-120			QM-07
Surrogate: 1,4-Difluorobenzene	1.29		"	1.29		100	75-125			
Surrogate: 4-Bromofluorobenzene	1.28		"	1.29		99.6	75-125			

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Midland TX, 79703

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7E1007 - \*\*\* DEFAULT PREP \*\*\***

Matrix Spike Dup (P7E1007-MSD1)		Source: 7E08026-02		Prepared: 05/09/17		Analyzed: 05/10/17				
Benzene	1.64	0.0215	mg/kg dry	4.30	ND	38.1	80-120	2.59	20	QM-07
Toluene	2.20	0.0430	"	4.30	ND	51.2	80-120	39.5	20	QM-07
Ethylbenzene	1.75	0.0215	"	4.30	ND	40.7	80-120	10.9	20	QM-07
Xylene (p/m)	4.19	0.0430	"		ND		80-120		20	QM-07
Xylene (o)	1.54	0.0215	"		ND		80-120		20	QM-07
Surrogate: 1,4-Difluorobenzene	1.26		"	1.29		98.0	75-125			
Surrogate: 4-Bromofluorobenzene	1.34		"	1.29		104	75-125			

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7E1101 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P7E1101-BLK1)</b>	Prepared & Analyzed: 05/11/17									
% Moisture	ND	0.1	%							
<b>Blank (P7E1101-BLK2)</b>	Prepared & Analyzed: 05/11/17									
% Moisture	ND	0.1	%							
<b>Duplicate (P7E1101-DUP1)</b>	<b>Source: 7E08001-26</b>		Prepared & Analyzed: 05/11/17							
% Moisture	15.0	0.1	%		15.0			0.00	20	
<b>Duplicate (P7E1101-DUP2)</b>	<b>Source: 7E08022-10</b>		Prepared & Analyzed: 05/11/17							
% Moisture	12.0	0.1	%		13.0			8.00	20	
<b>Duplicate (P7E1101-DUP3)</b>	<b>Source: 7E09001-14</b>		Prepared & Analyzed: 05/11/17							
% Moisture	12.0	0.1	%		13.0			8.00	20	
<b>Duplicate (P7E1101-DUP4)</b>	<b>Source: 7E09005-04</b>		Prepared & Analyzed: 05/11/17							
% Moisture	1.0	0.1	%		2.0			66.7	20	
<b>Duplicate (P7E1101-DUP5)</b>	<b>Source: 7E10007-26</b>		Prepared & Analyzed: 05/11/17							
% Moisture	13.0	0.1	%		14.0			7.41	20	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235



TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7E1601 - SW846-1311**

**Blank (P7E1601-BLK1)**

Prepared: 05/10/17 Analyzed: 05/11/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	93.0		"	100		93.0	70-130			
Surrogate: o-Terphenyl	52.7		"	50.0		105	70-130			

**LCS (P7E1601-BS1)**

Prepared: 05/10/17 Analyzed: 05/11/17

C6-C12	820	25.0	mg/kg wet	1000		82.0	75-125			
>C12-C28	1020	25.0	"	1000		102	75-125			
Surrogate: 1-Chlorooctane	106		"	100		106	70-130			
Surrogate: o-Terphenyl	45.2		"	50.0		90.5	70-130			

**LCS Dup (P7E1601-BSD1)**

Prepared: 05/10/17 Analyzed: 05/11/17

C6-C12	850	25.0	mg/kg wet	1000		85.0	75-125	3.55	20	
>C12-C28	1180	25.0	"	1000		118	75-125	14.8	20	
Surrogate: 1-Chlorooctane	123		"	100		123	70-130			
Surrogate: o-Terphenyl	51.3		"	50.0		103	70-130			

**Matrix Spike (P7E1601-MS1)**

Source: 7E08026-01

Prepared: 05/10/17 Analyzed: 05/11/17

C6-C12	327	25.3	mg/kg dry	1010	ND	32.3	75-125			
>C12-C28	339	25.3	"	1010	24.7	31.1	75-125			
Surrogate: 1-Chlorooctane	45.2		"	101		44.8	70-130			
Surrogate: o-Terphenyl	17.8		"	50.5		35.3	70-130			

**Matrix Spike Dup (P7E1601-MSD1)**

Source: 7E08026-01

Prepared: 05/10/17 Analyzed: 05/11/17

C6-C12	315	25.3	mg/kg dry	1010	ND	31.2	75-125	3.51	20	
>C12-C28	324	25.3	"	1010	24.7	29.6	75-125	4.84	20	
Surrogate: 1-Chlorooctane	43.3		"	101		42.9	70-130			
Surrogate: o-Terphenyl	17.0		"	50.5		33.6	70-130			

Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7E1704 - TX 1005**

**Blank (P7E1704-BLK1)**

Prepared: 05/16/17 Analyzed: 05/17/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	97.0		"	100		97.0	70-130			
Surrogate: o-Terphenyl	51.0		"	50.0		102	70-130			

**LCS (P7E1704-BS1)**

Prepared: 05/16/17 Analyzed: 05/17/17

C6-C12	843	25.0	mg/kg wet	1000		84.3	75-125			
>C12-C28	839	25.0	"	1000		83.9	75-125			
Surrogate: 1-Chlorooctane	98.3		"	100		98.3	70-130			
Surrogate: o-Terphenyl	47.4		"	50.0		94.7	70-130			

**LCS Dup (P7E1704-BS1)**

Prepared: 05/16/17 Analyzed: 05/17/17

C6-C12	883	25.0	mg/kg wet	1000		88.3	75-125	4.70	20	
>C12-C28	862	25.0	"	1000		86.2	75-125	2.71	20	
Surrogate: 1-Chlorooctane	100		"	100		100	70-130			
Surrogate: o-Terphenyl	48.0		"	50.0		96.1	70-130			

**Matrix Spike (P7E1704-MS1)**

Source: 7E15004-05

Prepared: 05/16/17 Analyzed: 05/17/17

C6-C12	868	26.3	mg/kg dry	1050	16.9	80.9	75-125			
>C12-C28	860	26.3	"	1050	38.9	78.0	75-125			
Surrogate: 1-Chlorooctane	102		"	105		96.8	70-130			
Surrogate: o-Terphenyl	52.0		"	52.6		98.9	70-130			

**Matrix Spike Dup (P7E1704-MSD1)**

Source: 7E15004-05

Prepared: 05/16/17 Analyzed: 05/17/17

C6-C12	865	26.3	mg/kg dry	1050	16.9	80.6	75-125	0.380	20	
>C12-C28	853	26.3	"	1050	38.9	77.4	75-125	0.880	20	
Surrogate: 1-Chlorooctane	103		"	105		97.7	70-130			
Surrogate: o-Terphenyl	48.9		"	52.6		92.9	70-130			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

QM-07     The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

BULK     Samples received in Bulk soil containers

DET     Analyte DETECTED

ND     Analyte NOT DETECTED at or above the reporting limit

NR     Not Reported

dry     Sample results reported on a dry weight basis

RPD     Relative Percent Difference

LCS     Laboratory Control Spike

MS     Matrix Spike

Dup     Duplicate

Report Approved By:



Date: 5/18/2017

Brent Barron, Laboratory Director/Technical Director

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If you have received this material in error, please notify us immediately at 432-686-7235.

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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland, TX 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County, NM  
Lab Order Number: 7F09002



NELAP/TCEQ # T104704516-16-7

Report Date: 06/14/17

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2017- SP-33	7F09002-01	Soil	06/06/17 15:00	06-09-2017 13:30
2017- SP-34	7F09002-02	Soil	06/06/17 15:30	06-09-2017 13:30

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017- SP-33**  
**7F09002-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00109	mg/kg dry	1	P7F1402	06/13/17	06/13/17	EPA 8021B	
Toluene	ND	0.00217	mg/kg dry	1	P7F1402	06/13/17	06/13/17	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P7F1402	06/13/17	06/13/17	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P7F1402	06/13/17	06/13/17	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P7F1402	06/13/17	06/13/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		94.1 %		75-125	P7F1402	06/13/17	06/13/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.7 %		75-125	P7F1402	06/13/17	06/13/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	8.0	0.1	%	1	P7F1205	06/12/17	06/12/17	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.2	mg/kg dry	1	P7F1204	06/09/17	06/10/17	TPH 8015M	
>C12-C28	204	27.2	mg/kg dry	1	P7F1204	06/09/17	06/10/17	TPH 8015M	
>C28-C35	89.2	27.2	mg/kg dry	1	P7F1204	06/09/17	06/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		92.1 %		70-130	P7F1204	06/09/17	06/10/17	TPH 8015M	
Surrogate: o-Terphenyl		92.5 %		70-130	P7F1204	06/09/17	06/10/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	293	27.2	mg/kg dry	1	[CALC]	06/09/17	06/10/17	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017- SP-34**  
**7F09002-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00106	mg/kg dry	1	P7F1402	06/13/17	06/13/17	EPA 8021B	
Toluene	ND	0.00213	mg/kg dry	1	P7F1402	06/13/17	06/13/17	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P7F1402	06/13/17	06/13/17	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P7F1402	06/13/17	06/13/17	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P7F1402	06/13/17	06/13/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		94.0 %	75-125		P7F1402	06/13/17	06/13/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		85.4 %	75-125		P7F1402	06/13/17	06/13/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	6.0	0.1	%	1	P7F1205	06/12/17	06/12/17	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.6	mg/kg dry	1	P7F1204	06/09/17	06/10/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7F1204	06/09/17	06/10/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7F1204	06/09/17	06/10/17	TPH 8015M	
Surrogate: 1-Chlorooctane		91.9 %	70-130		P7F1204	06/09/17	06/10/17	TPH 8015M	
Surrogate: o-Terphenyl		94.0 %	70-130		P7F1204	06/09/17	06/10/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	06/09/17	06/10/17	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7F1402 - General Preparation (GC)**

**Blank (P7F1402-BLK1)**

Prepared & Analyzed: 06/13/17

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0534		"	0.0600		89.1	75-125			
Surrogate: 4-Bromofluorobenzene	0.0525		"	0.0600		87.5	75-125			

**LCS (P7F1402-BS1)**

Prepared & Analyzed: 06/13/17

Benzene	0.147	0.00100	mg/kg wet	0.140		105	70-130			
Toluene	0.131	0.00200	"	0.140		93.5	70-130			
Ethylbenzene	0.142	0.00100	"	0.140		102	70-130			
Xylene (p/m)	0.246	0.00200	"				70-130			
Xylene (o)	0.124	0.00100	"				70-130			
Surrogate: 4-Bromofluorobenzene	0.0554		"	0.0600		92.4	75-125			
Surrogate: 1,4-Difluorobenzene	0.0637		"	0.0600		106	75-125			

**LCS Dup (P7F1402-BSD1)**

Prepared & Analyzed: 06/13/17

Benzene	0.143	0.00100	mg/kg wet	0.140		102	70-130	2.69	20	
Toluene	0.129	0.00200	"	0.140		92.2	70-130	1.40	20	
Ethylbenzene	0.138	0.00100	"	0.140		98.9	70-130	2.78	20	
Xylene (p/m)	0.236	0.00200	"				70-130		20	
Xylene (o)	0.116	0.00100	"				70-130		20	
Surrogate: 4-Bromofluorobenzene	0.0552		"	0.0600		91.9	75-125			
Surrogate: 1,4-Difluorobenzene	0.0633		"	0.0600		105	75-125			

**Duplicate (P7F1402-DUP1)**

Source: 7F12010-01

Prepared & Analyzed: 06/13/17

Benzene	ND	0.00123	mg/kg dry		ND				20	
Toluene	ND	0.00247	"		ND				20	
Ethylbenzene	ND	0.00123	"		ND				20	
Xylene (p/m)	ND	0.00247	"		ND				20	
Xylene (o)	ND	0.00123	"		ND				20	
Surrogate: 4-Bromofluorobenzene	0.0694		"	0.0741		93.6	75-125			
Surrogate: 1,4-Difluorobenzene	0.0661		"	0.0741		89.3	75-125			

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

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**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7F1205 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P7F1205-BLK1)**

Prepared & Analyzed: 06/12/17

% Moisture	ND	0.1	%
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**Duplicate (P7F1205-DUP1)**

**Source: 7F12019-04**

Prepared & Analyzed: 06/12/17

% Moisture	6.0	0.1	%	7.0	15.4	20
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7F1204 - TX 1005**

**Blank (P7F1204-BLK1)**

Prepared: 06/09/17 Analyzed: 06/10/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	112		"	100		112	70-130			
Surrogate: o-Terphenyl	58.6		"	50.0		117	70-130			

**LCS (P7F1204-BS1)**

Prepared: 06/09/17 Analyzed: 06/10/17

C6-C12	871	25.0	mg/kg wet	1000		87.1	75-125			
>C12-C28	841	25.0	"	1000		84.1	75-125			
Surrogate: 1-Chlorooctane	114		"	100		114	70-130			
Surrogate: o-Terphenyl	55.2		"	50.0		110	70-130			

**LCS Dup (P7F1204-BSD1)**

Prepared: 06/09/17 Analyzed: 06/10/17

C6-C12	856	25.0	mg/kg wet	1000		85.6	75-125	1.81	20	
>C12-C28	838	25.0	"	1000		83.8	75-125	0.384	20	
Surrogate: 1-Chlorooctane	116		"	100		116	70-130			
Surrogate: o-Terphenyl	55.5		"	50.0		111	70-130			

**Matrix Spike (P7F1204-MS1)**

Source: 7F08006-06

Prepared: 06/09/17 Analyzed: 06/10/17

C6-C12	873	26.9	mg/kg dry	1080	11.5	80.1	75-125			
>C12-C28	834	26.9	"	1080	ND	77.5	75-125			
Surrogate: 1-Chlorooctane	99.6		"	108		92.7	70-130			
Surrogate: o-Terphenyl	44.4		"	53.8		82.6	70-130			

**Matrix Spike Dup (P7F1204-MSD1)**

Source: 7F08006-06

Prepared: 06/09/17 Analyzed: 06/10/17

C6-C12	875	26.9	mg/kg dry	1080	11.5	80.3	75-125	0.183	20	
>C12-C28	860	26.9	"	1080	ND	80.0	75-125	3.19	20	
Surrogate: 1-Chlorooctane	99.2		"	108		92.3	70-130			
Surrogate: o-Terphenyl	45.6		"	53.8		84.8	70-130			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:



Date: 6/14/2017

Brent Barron, Laboratory Director/Technical Director

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1400 Rankin HWY Midland, TX 79701 432-686-7235

# CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

**Project Manager:** Curt Stanley

**Company Name** TRC Environmental Corporation

Company Address: 2057 Commerce Dr.

City/State/Zip: Midland/TX 79703

Telephone No: (432) 520 7720

Sampler Signature: Atty. Mark H. Hirscht E-mail: mark@hirschtgad.com

(lab use only)

ORDER #: 150004

Fax No.:

cdstanley@trcsolutions.com

cbryant@paalp.com

**Project Name:** Monument 18

**Project #:** TNM-Monument 18

**Project Loc:** Lea County, NM

PO #:

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

Page 9 of 9

(lab use only)		LAB # (lab use only)	
ORDER #:	7F091002		
		FIELD CODE	
		Beginning Depth	
		Ending Depth	
		Date Sampled	
		Time Sampled	
		Field Filtered	
		Total #. of Containers	
		Ice	
		HNO <sub>3</sub>	
		HCl	
		H <sub>2</sub> SO <sub>4</sub>	
		NaOH	
		Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	
		None	
		Other (Specify)	
		DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	
		TPH: 418.1 8015M 8015B	
		TPH: TX 1005 TX 1006	
		Cations (Ca, Mg, Na, K)	
		Anions (Cl, SO <sub>4</sub> , Alkalinity)	
		SAR / ESP / CEC	
		Metals: As Ag Ba Cd Cr Pb Hg Se	
		Volatiles	
		Semivolatiles	
		BTEX 8021 75030 or BTEX 8260	
		RCl	
		N.O.R.M.	
		Chlorides E 300	
		Paint Filter	
		TCLP BTEX	
		RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	
		Standard TAT	

**Special Instructions:**

Relinquished by: 110

Relinquished by: 

Relinquished by: \_\_\_\_\_

Date	Time
------	------

Date	Time
------	------

Date	Time
------	------

Received by:

Received by:

Received by:

Date	Time
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Date	Time
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Date	Time
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Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on Containers?	Y	N

Sample Hand Delivered

Temperature Upon Receipt: 71

**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland, TX 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Location: Lea Co NM  
Lab Order Number: 7G06005



NELAP/TCEQ # T104704516-16-7

Report Date: 07/10/17



TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2017 ESW-1 @ 18'	7G06005-01	Soil	07/05/17 14:00	07-06-2017 09:48
2017 ESW-2 @ 18'	7G06005-02	Soil	07/05/17 14:05	07-06-2017 09:48
2017 ESW-3 @ 18'	7G06005-03	Soil	07/05/17 14:10	07-06-2017 09:48
2017 ESW-4 @ 18'	7G06005-04	Soil	07/05/17 14:15	07-06-2017 09:48
2017 ESW-5 @ 18'	7G06005-05	Soil	07/05/17 14:20	07-06-2017 09:48
2017 ESW-6 @ 18'	7G06005-06	Soil	07/05/17 14:25	07-06-2017 09:48
2017 ESW-7 @ 18'	7G06005-07	Soil	07/05/17 14:30	07-06-2017 09:48
2017 NSW-1 @ 18'	7G06005-08	Soil	07/05/17 14:35	07-06-2017 09:48
2017 NSW-2 @ 18'	7G06005-09	Soil	07/05/17 14:40	07-06-2017 09:48
2017 NSW-3 @ 18'	7G06005-10	Soil	07/05/17 14:45	07-06-2017 09:48

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

## 2017 ESW-1 @ 18'

### 7G06005-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00128	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Toluene	ND	0.00256	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Ethylbenzene	ND	0.00128	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (p/m)	ND	0.00256	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (o)	ND	0.00128	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		96.8 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		85.9 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	22.0	0.1	%	1	P7G1001	07/10/17	07/10/17	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	32.1	mg/kg dry	1	P7G0710	07/06/17	07/07/17	TPH 8015M	
>C12-C28	ND	32.1	mg/kg dry	1	P7G0710	07/06/17	07/07/17	TPH 8015M	
>C28-C35	ND	32.1	mg/kg dry	1	P7G0710	07/06/17	07/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		94.4 %	70-130		P7G0710	07/06/17	07/07/17	TPH 8015M	
Surrogate: o-Terphenyl		98.8 %	70-130		P7G0710	07/06/17	07/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	32.1	mg/kg dry	1	[CALC]	07/06/17	07/07/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

## 2017 ESW-2 @ 18'

### 7G06005-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00118	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Toluene	ND	0.00235	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Ethylbenzene	ND	0.00118	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (p/m)	ND	0.00235	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (o)	ND	0.00118	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		96.3 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		86.8 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	15.0	0.1	%	1	P7G1001	07/10/17	07/10/17	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	29.4	mg/kg dry	1	P7G0710	07/06/17	07/07/17	TPH 8015M	
>C12-C28	ND	29.4	mg/kg dry	1	P7G0710	07/06/17	07/07/17	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P7G0710	07/06/17	07/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		93.7 %	70-130		P7G0710	07/06/17	07/07/17	TPH 8015M	
Surrogate: o-Terphenyl		97.8 %	70-130		P7G0710	07/06/17	07/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.4	mg/kg dry	1	[CALC]	07/06/17	07/07/17	calc	

Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### 2017 ESW-3 @ 18'

#### 7G06005-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00125	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Toluene	ND	0.00250	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Ethylbenzene	ND	0.00125	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (p/m)	ND	0.00250	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (o)	ND	0.00125	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.8 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		94.5 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	20.0	0.1	%	1	P7G1001	07/10/17	07/10/17	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	31.2	mg/kg dry	1	P7G0710	07/06/17	07/07/17	TPH 8015M	
>C12-C28	ND	31.2	mg/kg dry	1	P7G0710	07/06/17	07/07/17	TPH 8015M	
>C28-C35	ND	31.2	mg/kg dry	1	P7G0710	07/06/17	07/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		96.3 %	70-130		P7G0710	07/06/17	07/07/17	TPH 8015M	
Surrogate: o-Terphenyl		99.4 %	70-130		P7G0710	07/06/17	07/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	31.2	mg/kg dry	1	[CALC]	07/06/17	07/07/17	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79703

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Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### 2017 ESW-4 @ 18'

#### 7G06005-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00112	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Toluene	ND	0.00225	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Ethylbenzene	ND	0.00112	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (p/m)	ND	0.00225	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (o)	ND	0.00112	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		83.2 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		93.1 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	11.0	0.1	%	1	P7G1001	07/10/17	07/10/17	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	28.1	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C12-C28	ND	28.1	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C28-C35	ND	28.1	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		93.2 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: o-Terphenyl		96.7 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.1	mg/kg dry	1	[CALC]	07/06/17	07/07/17	calc	

Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### 2017 ESW-5 @ 18'

#### 7G06005-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00118	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Toluene	ND	0.00235	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Ethylbenzene	ND	0.00118	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (p/m)	ND	0.00235	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (o)	ND	0.00118	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		98.2 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		91.1 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	15.0	0.1	%	1	P7G1001	07/10/17	07/10/17	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	29.4	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C12-C28	ND	29.4	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		89.1 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: o-Terphenyl		92.1 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.4	mg/kg dry	1	[CALC]	07/06/17	07/07/17	calc	

Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### 2017 ESW-6 @ 18'

#### 7G06005-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00105	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Toluene	ND	0.00211	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Ethylbenzene	ND	0.00105	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (p/m)	ND	0.00211	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (o)	ND	0.00105	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		95.7 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		89.9 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	5.0	0.1	%	1	P7G1001	07/10/17	07/10/17	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.3	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		86.0 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: o-Terphenyl		89.1 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	07/06/17	07/07/17	calc	

Permian Basin Environmental Lab, L.P.

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2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### 2017 ESW-7 @ 18'

#### 7G06005-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00123	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Toluene	ND	0.00247	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Ethylbenzene	ND	0.00123	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (p/m)	ND	0.00247	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (o)	ND	0.00123	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		90.0 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		90.9 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	19.0	0.1	%	1	P7G1001	07/10/17	07/10/17	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	30.9	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C12-C28	ND	30.9	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C28-C35	ND	30.9	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		83.2 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: o-Terphenyl		85.0 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	30.9	mg/kg dry	1	[CALC]	07/06/17	07/07/17	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### 2017 NSW-1 @ 18'

#### 7G06005-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00128	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Toluene	ND	0.00256	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Ethylbenzene	ND	0.00128	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (p/m)	ND	0.00256	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (o)	ND	0.00128	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		84.5 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		91.5 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	22.0	0.1	%	1	P7G1001	07/10/17	07/10/17	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	32.1	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C12-C28	ND	32.1	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C28-C35	ND	32.1	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		84.7 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: o-Terphenyl		87.5 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	32.1	mg/kg dry	1	[CALC]	07/06/17	07/07/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### 2017 NSW-2 @ 18'

#### 7G06005-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00106	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Toluene	ND	0.00213	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		85.0 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		93.7 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	6.0	0.1	%	1	P7G1001	07/10/17	07/10/17	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.6	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		88.2 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: o-Terphenyl		92.2 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	07/06/17	07/07/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2017 NSW-3 @ 18'**  
**7G06005-10 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00114	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Toluene	ND	0.00227	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Ethylbenzene	ND	0.00114	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (p/m)	ND	0.00227	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Xylene (o)	ND	0.00114	mg/kg dry	1	P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		90.2 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		100 %	75-125		P7G0702	07/06/17	07/06/17	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	12.0	0.1	%	1	P7G1001	07/10/17	07/10/17	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	28.4	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: 1-Chlorooctane		85.5 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Surrogate: o-Terphenyl		89.1 %	70-130		P7G0711	07/06/17	07/07/17	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	07/06/17	07/07/17	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7G0702 - General Preparation (GC)**

**Blank (P7G0702-BLK1)**

Prepared & Analyzed: 07/06/17

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	0.0568		"	0.0600		94.6	75-125			
Surrogate: 1,4-Difluorobenzene	0.0537		"	0.0600		89.5	75-125			

**LCS (P7G0702-BS1)**

Prepared & Analyzed: 07/06/17

Benzene	0.118	0.00100	mg/kg wet	0.100		118	70-130			
Toluene	0.113	0.00200	"	0.100		113	70-130			
Ethylbenzene	0.115	0.00100	"	0.100		115	70-130			
Xylene (p/m)	0.205	0.00200	"				70-130			
Xylene (o)	0.0999	0.00100	"				70-130			
Surrogate: 4-Bromofluorobenzene	0.0600		"	0.0600		100	75-125			
Surrogate: 1,4-Difluorobenzene	0.0651		"	0.0600		108	75-125			

**LCS Dup (P7G0702-BSD1)**

Prepared & Analyzed: 07/06/17

Benzene	0.109	0.00100	mg/kg wet	0.100		109	70-130	7.85	20	
Toluene	0.100	0.00200	"	0.100		100	70-130	11.7	20	
Ethylbenzene	0.104	0.00100	"	0.100		104	70-130	10.1	20	
Xylene (p/m)	0.184	0.00200	"				70-130		20	
Xylene (o)	0.0901	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	0.0591		"	0.0600		98.5	75-125			
Surrogate: 4-Bromofluorobenzene	0.0577		"	0.0600		96.2	75-125			

**Matrix Spike (P7G0702-MS1)**

Source: 7G05008-01

Prepared & Analyzed: 07/06/17

Benzene	0.113	0.00105	mg/kg dry	0.105	ND	108	80-120			
Toluene	0.110	0.00211	"	0.105	ND	104	80-120			
Ethylbenzene	0.114	0.00105	"	0.105	ND	109	80-120			
Xylene (p/m)	0.209	0.00211	"		ND		80-120			
Xylene (o)	0.102	0.00105	"		ND		80-120			
Surrogate: 4-Bromofluorobenzene	0.0735		"	0.0632		116	75-125			
Surrogate: 1,4-Difluorobenzene	0.0687		"	0.0632		109	75-125			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7G0702 - General Preparation (GC)**

<b>Matrix Spike Dup (P7G0702-MSD1)</b>	<b>Source: 7G05008-01</b>			<b>Prepared &amp; Analyzed: 07/06/17</b>						
Benzene	0.124	0.00105	mg/kg dry	0.105	ND	118	80-120	9.00	20	
Toluene	0.112	0.00211	"	0.105	ND	107	80-120	2.02	20	
Ethylbenzene	0.113	0.00105	"	0.105	ND	108	80-120	0.878	20	
Xylene (p/m)	0.200	0.00211	"		ND		80-120		20	
Xylene (o)	0.103	0.00105	"		ND		80-120		20	
Surrogate: 1,4-Difluorobenzene	0.0655		"	0.0632		104	75-125			
Surrogate: 4-Bromofluorobenzene	0.0633		"	0.0632		100	75-125			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7G1001 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P7G1001-BLK1)**

Prepared & Analyzed: 07/10/17

% Moisture	ND	0.1	%
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**Duplicate (P7G1001-DUP1)**

**Source: 7G06003-14**

Prepared & Analyzed: 07/10/17

% Moisture	12.0	0.1	%	13.0	8.00	20
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**Duplicate (P7G1001-DUP2)**

**Source: 7G06005-09**

Prepared & Analyzed: 07/10/17

% Moisture	6.0	0.1	%	6.0	0.00	20
------------	-----	-----	---	-----	------	----

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7G0710 - TX 1005**

**Blank (P7G0710-BLK1)**

Prepared & Analyzed: 07/06/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	101		"	100		101	70-130			
Surrogate: o-Terphenyl	54.8		"	50.0		110	70-130			

**LCS (P7G0710-BS1)**

Prepared & Analyzed: 07/06/17

C6-C12	965	25.0	mg/kg wet	1000		96.5	75-125			
>C12-C28	918	25.0	"	1000		91.8	75-125			
Surrogate: 1-Chlorooctane	97.8		"	100		97.8	70-130			
Surrogate: o-Terphenyl	53.9		"	50.0		108	70-130			

**LCS Dup (P7G0710-BSD1)**

Prepared & Analyzed: 07/06/17

C6-C12	972	25.0	mg/kg wet	1000		97.2	75-125	0.762	20	
>C12-C28	939	25.0	"	1000		93.9	75-125	2.29	20	
Surrogate: 1-Chlorooctane	98.8		"	100		98.8	70-130			
Surrogate: o-Terphenyl	45.6		"	50.0		91.1	70-130			

**Matrix Spike (P7G0710-MS1)**

Source: 7G06001-09

Prepared: 07/06/17 Analyzed: 07/07/17

C6-C12	928	26.9	mg/kg dry	1080	ND	86.3	75-125			
>C12-C28	892	26.9	"	1080	40.6	79.2	75-125			
Surrogate: 1-Chlorooctane	97.6		"	108		90.8	70-130			
Surrogate: o-Terphenyl	46.1		"	53.8		85.8	70-130			

**Matrix Spike Dup (P7G0710-MSD1)**

Source: 7G06001-09

Prepared: 07/06/17 Analyzed: 07/07/17

C6-C12	927	26.9	mg/kg dry	1080	ND	86.2	75-125	0.123	20	
>C12-C28	913	26.9	"	1080	40.6	81.1	75-125	2.46	20	
Surrogate: 1-Chlorooctane	96.8		"	108		90.0	70-130			
Surrogate: o-Terphenyl	45.4		"	53.8		84.4	70-130			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P7G0711 - TX 1005**

**Blank (P7G0711-BLK1)**

Prepared: 07/06/17 Analyzed: 07/07/17

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	104		"	100		104	70-130			
Surrogate: o-Terphenyl	57.6		"	50.0		115	70-130			

**LCS (P7G0711-BS1)**

Prepared: 07/06/17 Analyzed: 07/07/17

C6-C12	1010	25.0	mg/kg wet	1000		101	75-125			
>C12-C28	1000	25.0	"	1000		100	75-125			
Surrogate: 1-Chlorooctane	102		"	100		102	70-130			
Surrogate: o-Terphenyl	48.8		"	50.0		97.6	70-130			

**LCS Dup (P7G0711-BSD1)**

Prepared: 07/06/17 Analyzed: 07/07/17

C6-C12	993	25.0	mg/kg wet	1000		99.3	75-125	1.84	20	
>C12-C28	1000	25.0	"	1000		100	75-125	0.0588	20	
Surrogate: 1-Chlorooctane	102		"	100		102	70-130			
Surrogate: o-Terphenyl	48.8		"	50.0		97.5	70-130			

**Matrix Spike (P7G0711-MS1)**

Source: 7G06005-04

Prepared: 07/06/17 Analyzed: 07/07/17

C6-C12	985	28.1	mg/kg dry	1120	ND	87.7	75-125			
>C12-C28	980	28.1	"	1120	ND	87.3	75-125			
Surrogate: 1-Chlorooctane	108		"	112		96.0	70-130			
Surrogate: o-Terphenyl	51.4		"	56.2		91.5	70-130			

**Matrix Spike Dup (P7G0711-MSD1)**

Source: 7G06005-04

Prepared: 07/06/17 Analyzed: 07/07/17

C6-C12	991	28.1	mg/kg dry	1120	ND	88.2	75-125	0.601	20	
>C12-C28	996	28.1	"	1120	ND	88.6	75-125	1.55	20	
Surrogate: 1-Chlorooctane	109		"	112		97.0	70-130			
Surrogate: o-Terphenyl	52.1		"	56.2		92.8	70-130			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
2057 Commerce Street  
Midland TX, 79703

Project: Monument 18  
Project Number: SRS-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

BULK Samples received in Bulk soil containers  
DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:



Date:

7/10/2017

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

**PB&L LAB****CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST**

Permian Basin Environmental Lab, LP  
10014 S. County Road 1213  
Midland, Texas 79706

Phone: 432-661-4184

Page 1 of 1

Project Manager: Curt Stanley

Project Name: Monument 18

Company Name: TRC Environmental Corporation

Project #: SRS - Monument 18

Company Address: 2057 Commerce Dr.


Project Loc: Lee County, NM

City/State/Zip: Midland, TX 79703

PO #:

Telephone No: (432) 520-7720

Fax No:

Sampler Signature: e-mail: cstanley@trcsolutions.com  
clbryant@paalp.com

Report Format:

☒ Standard☐ TRRP☐ NPDES

(lab use only)

ORDER #:

9606005

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other ( Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO <sub>4</sub> , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chlorides E 300	Paint Filter	TCLP BTEX	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT	
	2017 ESW-1 @ 18'			7/5/2017	1400		1	X								Soil	X								X						X	X	
	2017 ESW-2 @ 18'			7/5/2017	1405		1	X								Soil	X								X							X	X
	2017 ESW-3 @ 18'			7/5/2017	1410		1	X								Soil	X								X							X	X
	2017 ESW-4 @ 18'			7/5/2017	1415		1	X								Soil	X								X							X	X
	2017 ESW-5 @ 18'			7/5/2017	1420		1	X								Soil	X								X							X	X
	2017 ESW-6 @ 18'			7/5/2017	1425		1	X								Soil	X								X							X	X
	2017 ESW-7 @ 18'			7/5/2017	1430		1	X								Soil	X								X							X	X
	2017 NSW-1 @ 18'			7/5/2017	1435		1	X								Soil	X								X							X	X
	2017 NSW-2 @ 18'			7/5/2017	1440		1	X								Soil	X								X							X	X
	2017 NSW-3 @ 18'			7/5/2017	1445		1	X								Soil	X								X							X	X

Special Instructions:

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Laboratory Comments:

Sample Containers intact?

N

VOCs Free of Headspace?

N

Labels on containers?

N

Custody seals on containers?

N

Custody seals on cooler?

N

Sample Hand Delivered by Courier?

N

Temperature Upon Receipt:

N

Adjusted:

N

**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County, New Mexico  
Lab Order Number: 8K27013



**NELAP/TCEQ # T104704516-17-8**

Report Date: 12/05/18

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2018 SP-35	8K27013-01	Soil	11/27/18 09:10	11-27-2018 16:46

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2018 SP-35**  
**8K27013-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00109	mg/kg dry	1	P8K3001	11/30/18	11/30/18	EPA 8021B	
Toluene	ND	0.0109	mg/kg dry	1	P8K3001	11/30/18	11/30/18	EPA 8021B	
Ethylbenzene	ND	0.00543	mg/kg dry	1	P8K3001	11/30/18	11/30/18	EPA 8021B	
Xylene (p/m)	ND	0.0217	mg/kg dry	1	P8K3001	11/30/18	11/30/18	EPA 8021B	
Xylene (o)	ND	0.0109	mg/kg dry	1	P8K3001	11/30/18	11/30/18	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		103 %	75-125		P8K3001	11/30/18	11/30/18	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		86.0 %	75-125		P8K3001	11/30/18	11/30/18	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	8.0	0.1	%	1	P8L0301	12/03/18	12/03/18	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.2	mg/kg dry	1	P8K2908	11/29/18	11/30/18	TPH 8015M	
>C12-C28	261	27.2	mg/kg dry	1	P8K2908	11/29/18	11/30/18	TPH 8015M	
>C28-C35	96.5	27.2	mg/kg dry	1	P8K2908	11/29/18	11/30/18	TPH 8015M	
Surrogate: 1-Chlorooctane		103 %	70-130		P8K2908	11/29/18	11/30/18	TPH 8015M	
Surrogate: o-Terphenyl		119 %	70-130		P8K2908	11/29/18	11/30/18	TPH 8015M	
<b>Total Petroleum Hydrocarbon C6-C35</b>	<b>358</b>	27.2	mg/kg dry	1	[CALC]	11/29/18	11/30/18	calc	

Permian Basin Environmental Lab, L.P.

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10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P8K3001 - General Preparation (GC)**

**Blank (P8K3001-BLK1)**

Prepared & Analyzed: 11/30/18

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.0100	"							
Ethylbenzene	ND	0.00500	"							
Xylene (p/m)	ND	0.0200	"							
Xylene (o)	ND	0.0100	"							
Surrogate: 1,4-Difluorobenzene	0.0518		"	0.0600		86.4	75-125			
Surrogate: 4-Bromofluorobenzene	0.0560		"	0.0600		93.3	75-125			

**LCS (P8K3001-BS1)**

Prepared & Analyzed: 11/30/18

Benzene	0.115	0.00100	mg/kg wet	0.100		115	70-130			
Toluene	0.107	0.0100	"	0.100		107	70-130			
Ethylbenzene	0.117	0.00500	"	0.100		117	70-130			
Xylene (p/m)	0.201	0.0200	"	0.200		101	70-130			
Xylene (o)	0.105	0.0100	"	0.100		105	70-130			
Surrogate: 4-Bromofluorobenzene	0.0620		"	0.0600		103	75-125			
Surrogate: 1,4-Difluorobenzene	0.0632		"	0.0600		105	75-125			

**LCS Dup (P8K3001-BS1)**

Prepared & Analyzed: 11/30/18

Benzene	0.112	0.00100	mg/kg wet	0.100		112	70-130	2.70	20	
Toluene	0.106	0.0100	"	0.100		106	70-130	0.678	20	
Ethylbenzene	0.117	0.00500	"	0.100		117	70-130	0.307	20	
Xylene (p/m)	0.208	0.0200	"	0.200		104	70-130	3.24	20	
Xylene (o)	0.114	0.0100	"	0.100		114	70-130	7.91	20	
Surrogate: 4-Bromofluorobenzene	0.0651		"	0.0600		108	75-125			
Surrogate: 1,4-Difluorobenzene	0.0636		"	0.0600		106	75-125			

**Matrix Spike (P8K3001-MS1)**

Source: 8K29006-02

Prepared & Analyzed: 11/30/18

Benzene	0.0961	0.00119	mg/kg dry	0.119	ND	80.8	80-120			
Toluene	0.0806	0.0119	"	0.119	0.00346	64.8	80-120			QM-05
Ethylbenzene	0.0754	0.00595	"	0.119	0.0109	54.2	80-120			QM-05
Xylene (p/m)	0.141	0.0238	"	0.238	0.0506	37.9	80-120			QM-05
Xylene (o)	0.0804	0.0119	"	0.119	0.0347	38.4	80-120			QM-05
Surrogate: 4-Bromofluorobenzene	0.0770		"	0.0714		108	75-125			
Surrogate: 1,4-Difluorobenzene	0.0728		"	0.0714		102	75-125			

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P8K3001 - General Preparation (GC)**

**Matrix Spike Dup (P8K3001-MSD1)**

**Source: 8K29006-02**

Prepared: 11/30/18 Analyzed: 12/01/18

Benzene	0.0894	0.00119	mg/kg dry	0.119	ND	75.1	80-120	7.29	20	QM-05
Toluene	0.0784	0.0119	"	0.119	0.00346	62.9	80-120	2.96	20	QM-05
Ethylbenzene	0.0753	0.00595	"	0.119	0.0109	54.1	80-120	0.166	20	QM-05
Xylene (p/m)	0.151	0.0238	"	0.238	0.0506	42.3	80-120	11.0	20	QM-05
Xylene (o)	0.0834	0.0119	"	0.119	0.0347	40.9	80-120	6.35	20	QM-05
Surrogate: 1,4-Difluorobenzene	0.0784		"	0.0714		110	75-125			
Surrogate: 4-Bromofluorobenzene	0.0826		"	0.0714		116	75-125			

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P8L0301 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P8L0301-BLK1)</b>	Prepared & Analyzed: 12/03/18									
% Moisture	ND	0.1	%							
<b>Duplicate (P8L0301-DUP1)</b>	Source: 8K28012-10 Prepared & Analyzed: 12/03/18									
% Moisture	22.0	0.1	%		22.0			0.00	20	
<b>Duplicate (P8L0301-DUP2)</b>	Source: 8K28017-06 Prepared & Analyzed: 12/03/18									
% Moisture	14.0	0.1	%		16.0			13.3	20	
<b>Duplicate (P8L0301-DUP3)</b>	Source: 8K28018-14 Prepared & Analyzed: 12/03/18									
% Moisture	17.0	0.1	%		17.0			0.00	20	
<b>Duplicate (P8L0301-DUP4)</b>	Source: 8K28020-02 Prepared & Analyzed: 12/03/18									
% Moisture	15.0	0.1	%		16.0			6.45	20	
<b>Duplicate (P8L0301-DUP5)</b>	Source: 8K28021-07 Prepared & Analyzed: 12/03/18									
% Moisture	18.0	0.1	%		15.0			18.2	20	
<b>Duplicate (P8L0301-DUP6)</b>	Source: 8K28022-01 Prepared & Analyzed: 12/03/18									
% Moisture	9.0	0.1	%		10.0			10.5	20	

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P8K2908 - TX 1005**

**Blank (P8K2908-BLK1)**

Prepared: 11/29/18 Analyzed: 11/30/18

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	118		"	100		118	70-130			
Surrogate: o-Terphenyl	68.2		"	50.0		136	70-130			S-GC

**LCS (P8K2908-BS1)**

Prepared: 11/29/18 Analyzed: 11/30/18

C6-C12	1070	25.0	mg/kg wet	1000		107	75-125			
>C12-C28	1220	25.0	"	1000		122	75-125			
Surrogate: 1-Chlorooctane	127		"	100		127	70-130			
Surrogate: o-Terphenyl	60.9		"	50.0		122	70-130			

**Matrix Spike (P8K2908-MS1)**

Source: 8K28003-07

Prepared: 11/29/18 Analyzed: 11/30/18

C6-C12	1150	28.1	mg/kg dry	1120	13.8	101	75-125			
>C12-C28	1280	28.1	"	1120	142	101	75-125			
Surrogate: 1-Chlorooctane	125		"	112		111	70-130			
Surrogate: o-Terphenyl	60.7		"	56.2		108	70-130			

**Matrix Spike Dup (P8K2908-MSD1)**

Source: 8K28003-07

Prepared: 11/29/18 Analyzed: 11/30/18

C6-C12	1120	28.1	mg/kg dry	1120	13.8	98.8	75-125	2.19	20	
>C12-C28	1250	28.1	"	1120	142	99.0	75-125	2.39	20	
Surrogate: 1-Chlorooctane	122		"	112		109	70-130			
Surrogate: o-Terphenyl	59.2		"	56.2		105	70-130			

Permian Basin Environmental Lab, L.P.

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10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date: 12/5/2018

Brent Barron, Laboratory Director/Technical Director

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If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Location: Lea County, NM  
Lab Order Number: 9E15013



NELAP/TCEQ # T104704516-18-9

Report Date: 05/30/19



TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2019 SP-36	9E15013-01	Soil	05/14/19 10:00	05-15-2019 15:57
2019 SP-37	9E15013-02	Soil	05/14/19 10:10	05-15-2019 15:57
2019 SP-38	9E15013-03	Soil	05/14/19 10:20	05-15-2019 15:57
2019 SP-39	9E15013-04	Soil	05/14/19 10:30	05-15-2019 15:57
2019 SP-40	9E15013-05	Soil	05/14/19 10:40	05-15-2019 15:57
2019 SP-41	9E15013-06	Soil	05/14/19 10:50	05-15-2019 15:57

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-36**  
**9E15013-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0233	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Toluene	ND	0.0233	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Ethylbenzene	ND	0.0233	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (p/m)	ND	0.0465	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (o)	ND	0.0233	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		71.4 %		75-125	P9E2403	05/24/19	05/26/19	EPA 8021B	S-GC
Surrogate: 1,4-Difluorobenzene		116 %		75-125	P9E2403	05/24/19	05/26/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	14.0	0.1	%	1	P9E1602	05/16/19	05/16/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	29.1	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: 1-Chlorooctane		94.9 %		70-130	P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: o-Terphenyl		109 %		70-130	P9E1802	05/18/19	05/18/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	05/18/19	05/18/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-37**  
**9E15013-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0227	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Toluene	ND	0.0227	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (o)	ND	0.0227	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		93.3 %	75-125		P9E2403	05/24/19	05/26/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		83.3 %	75-125		P9E2403	05/24/19	05/26/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	12.0	0.1	%	1	P9E1602	05/16/19	05/16/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	28.4	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: 1-Chlorooctane		91.8 %	70-130		P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: o-Terphenyl		99.9 %	70-130		P9E1802	05/18/19	05/18/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	05/18/19	05/18/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-38**  
**9E15013-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0227	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Toluene	ND	0.0227	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Ethylbenzene	ND	0.0227	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (p/m)	ND	0.0455	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (o)	ND	0.0227	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		90.2 %	75-125		P9E2403	05/24/19	05/26/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		103 %	75-125		P9E2403	05/24/19	05/26/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	12.0	0.1	%	1	P9E1602	05/16/19	05/16/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	28.4	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: 1-Chlorooctane		92.1 %	70-130		P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: o-Terphenyl		103 %	70-130		P9E1802	05/18/19	05/18/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	05/18/19	05/18/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-39**  
**9E15013-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0208	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Toluene	ND	0.0208	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Ethylbenzene	ND	0.0208	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (p/m)	ND	0.0417	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (o)	ND	0.0208	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		87.3 %	75-125		P9E2403	05/24/19	05/26/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		103 %	75-125		P9E2403	05/24/19	05/26/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	4.0	0.1	%	1	P9E1602	05/16/19	05/16/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.0	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: 1-Chlorooctane		96.4 %	70-130		P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: o-Terphenyl		110 %	70-130		P9E1802	05/18/19	05/18/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	05/18/19	05/18/19	calc	

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-40**  
**9E15013-05 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0208	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Toluene	ND	0.0208	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Ethylbenzene	ND	0.0208	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (p/m)	ND	0.0417	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (o)	ND	0.0208	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		95.1 %	75-125		P9E2403	05/24/19	05/26/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		84.3 %	75-125		P9E2403	05/24/19	05/26/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	4.0	0.1	%	1	P9E1602	05/16/19	05/16/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.0	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: 1-Chlorooctane		84.9 %	70-130		P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: o-Terphenyl		95.8 %	70-130		P9E1802	05/18/19	05/18/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	05/18/19	05/18/19	calc	

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
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Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-41**  
**9E15013-06 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0222	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Toluene	ND	0.0222	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Ethylbenzene	ND	0.0222	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (p/m)	ND	0.0444	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Xylene (o)	ND	0.0222	mg/kg dry	20	P9E2403	05/24/19	05/26/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		84.6 %	75-125		P9E2403	05/24/19	05/26/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		106 %	75-125		P9E2403	05/24/19	05/26/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	10.0	0.1	%	1	P9E1602	05/16/19	05/16/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.8	mg/kg dry	1	P9E1802	05/18/19	05/19/19	TPH 8015M	
>C12-C28	ND	27.8	mg/kg dry	1	P9E1802	05/18/19	05/19/19	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P9E1802	05/18/19	05/19/19	TPH 8015M	
Surrogate: 1-Chlorooctane		113 %	70-130		P9E1802	05/18/19	05/19/19	TPH 8015M	
Surrogate: o-Terphenyl		124 %	70-130		P9E1802	05/18/19	05/19/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	05/18/19	05/19/19	calc	

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9E2403 - General Preparation (GC)**

**Blank (P9E2403-BLK1)**

Prepared: 05/24/19 Analyzed: 05/25/19

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0608		"	0.0600		101	75-125			
Surrogate: 4-Bromofluorobenzene	0.0570		"	0.0600		95.1	75-125			

**LCS (P9E2403-BS1)**

Prepared: 05/24/19 Analyzed: 05/25/19

Benzene	0.0933	0.00100	mg/kg wet	0.100		93.3	70-130			
Toluene	0.0978	0.00100	"	0.100		97.8	70-130			
Ethylbenzene	0.106	0.00100	"	0.100		106	70-130			
Xylene (p/m)	0.168	0.00200	"	0.200		83.9	70-130			
Xylene (o)	0.0895	0.00100	"	0.100		89.5	70-130			
Surrogate: 1,4-Difluorobenzene	0.0587		"	0.0600		97.8	75-125			
Surrogate: 4-Bromofluorobenzene	0.0620		"	0.0600		103	75-125			

**LCS Dup (P9E2403-BS1)**

Prepared: 05/24/19 Analyzed: 05/25/19

Benzene	0.0955	0.00100	mg/kg wet	0.100		95.5	70-130	2.26	20	
Toluene	0.0981	0.00100	"	0.100		98.1	70-130	0.296	20	
Ethylbenzene	0.107	0.00100	"	0.100		107	70-130	0.948	20	
Xylene (p/m)	0.166	0.00200	"	0.200		83.0	70-130	1.10	20	
Xylene (o)	0.0913	0.00100	"	0.100		91.3	70-130	2.02	20	
Surrogate: 4-Bromofluorobenzene	0.0628		"	0.0600		105	75-125			
Surrogate: 1,4-Difluorobenzene	0.0637		"	0.0600		106	75-125			

**Calibration Blank (P9E2403-CCB1)**

Prepared: 05/24/19 Analyzed: 05/25/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.0592		"	0.0600		98.6	75-125			
Surrogate: 4-Bromofluorobenzene	0.0509		"	0.0600		84.9	75-125			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9E2403 - General Preparation (GC)**

**Calibration Blank (P9E2403-CCB2)**

Prepared: 05/24/19 Analyzed: 05/26/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	0.0679		"	0.0600		113	75-125			
Surrogate: 1,4-Difluorobenzene	0.0702		"	0.0600		117	75-125			

**Calibration Check (P9E2403-CCV1)**

Prepared: 05/24/19 Analyzed: 05/25/19

Benzene	0.0961	0.00100	mg/kg wet	0.100		96.1	80-120			
Toluene	0.0944	0.00100	"	0.100		94.4	80-120			
Ethylbenzene	0.0936	0.00100	"	0.100		93.6	80-120			
Xylene (p/m)	0.161	0.00200	"	0.200		80.4	80-120			
Xylene (o)	0.0922	0.00100	"	0.100		92.2	80-120			
Surrogate: 1,4-Difluorobenzene	0.0647		"	0.0600		108	75-125			
Surrogate: 4-Bromofluorobenzene	0.0627		"	0.0600		104	75-125			

**Calibration Check (P9E2403-CCV2)**

Prepared: 05/24/19 Analyzed: 05/26/19

Benzene	0.102	0.00100	mg/kg wet	0.100		102	80-120			
Toluene	0.107	0.00100	"	0.100		107	80-120			
Ethylbenzene	0.101	0.00100	"	0.100		101	80-120			
Xylene (p/m)	0.182	0.00200	"	0.200		90.8	80-120			
Xylene (o)	0.0991	0.00100	"	0.100		99.1	80-120			
Surrogate: 1,4-Difluorobenzene	0.0904		"	0.0600		151	75-125			S-GC
Surrogate: 4-Bromofluorobenzene	0.0655		"	0.0600		109	75-125			

**Calibration Check (P9E2403-CCV3)**

Prepared: 05/24/19 Analyzed: 05/26/19

Benzene	0.0955	0.00100	mg/kg wet	0.100		95.5	80-120			
Toluene	0.0981	0.00100	"	0.100		98.1	80-120			
Ethylbenzene	0.0943	0.00100	"	0.100		94.3	80-120			
Xylene (p/m)	0.162	0.00200	"	0.200		81.1	80-120			
Xylene (o)	0.0920	0.00100	"	0.100		92.0	80-120			
Surrogate: 4-Bromofluorobenzene	0.0646		"	0.0600		108	75-125			
Surrogate: 1,4-Difluorobenzene	0.0880		"	0.0600		147	75-125			S-GC

Permian Basin Environmental Lab, L.P.

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10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9E2403 - General Preparation (GC)**

<b>Matrix Spike (P9E2403-MS1)</b>		<b>Source: 9E17005-01</b>		Prepared: 05/24/19		Analyzed: 05/26/19				
Benzene	1.98	0.0208	mg/kg dry	2.08	ND	95.2	80-120			
Toluene	2.06	0.0208	"	2.08	ND	98.9	80-120			
Ethylbenzene	2.28	0.0208	"	2.08	ND	109	80-120			
Xylene (p/m)	3.57	0.0417	"	4.17	ND	85.6	80-120			
Xylene (o)	1.89	0.0208	"	2.08	ND	90.7	80-120			
Surrogate: 4-Bromofluorobenzene	0.0626		"	0.0625		100	75-125			
Surrogate: 1,4-Difluorobenzene	0.0674		"	0.0625		108	75-125			
<b>Matrix Spike Dup (P9E2403-MSD1)</b>		<b>Source: 9E17005-01</b>		Prepared: 05/24/19		Analyzed: 05/26/19				
Benzene	2.04	0.0208	mg/kg dry	2.08	ND	98.1	80-120	3.00	20	
Toluene	2.12	0.0208	"	2.08	ND	102	80-120	3.01	20	
Ethylbenzene	2.42	0.0208	"	2.08	ND	116	80-120	6.28	20	
Xylene (p/m)	3.71	0.0417	"	4.17	ND	89.1	80-120	4.02	20	
Xylene (o)	2.01	0.0208	"	2.08	ND	96.7	80-120	6.35	20	
Surrogate: 1,4-Difluorobenzene	0.0939		"	0.0625		150	75-125			S-GC
Surrogate: 4-Bromofluorobenzene	0.0645		"	0.0625		103	75-125			

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9E1602 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P9E1602-BLK1)**

Prepared & Analyzed: 05/16/19

% Moisture	ND	0.1	%
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**Duplicate (P9E1602-DUP1)**

**Source: 9E15008-01**

Prepared & Analyzed: 05/16/19

% Moisture	13.0	0.1	%	14.0	7.41	20
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**Duplicate (P9E1602-DUP2)**

**Source: 9E15009-45**

Prepared & Analyzed: 05/16/19

% Moisture	21.0	0.1	%	20.0	4.88	20
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**Duplicate (P9E1602-DUP3)**

**Source: 9E15011-01**

Prepared & Analyzed: 05/16/19

% Moisture	11.0	0.1	%	11.0	0.00	20
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Permian Basin Environmental Lab, L.P.

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10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9E1802 - TX 1005**

**Blank (P9E1802-BLK1)**

Prepared & Analyzed: 05/18/19

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	95.7		"	100		95.7	70-130			
Surrogate: o-Terphenyl	52.2		"	50.0		104	70-130			

**LCS (P9E1802-BS1)**

Prepared & Analyzed: 05/18/19

C6-C12	1080	25.0	mg/kg wet	1000		108	75-125			
>C12-C28	1070	25.0	"	1000		107	75-125			
Surrogate: 1-Chlorooctane	123		"	100		123	70-130			
Surrogate: o-Terphenyl	46.0		"	50.0		91.9	70-130			

**LCS Dup (P9E1802-BSD1)**

Prepared & Analyzed: 05/18/19

C6-C12	1190	25.0	mg/kg wet	1000		119	75-125	9.90	20	
>C12-C28	1120	25.0	"	1000		112	75-125	4.78	20	
Surrogate: 1-Chlorooctane	108		"	100		108	70-130			
Surrogate: o-Terphenyl	51.0		"	50.0		102	70-130			

**Calibration Blank (P9E1802-CCB1)**

Prepared & Analyzed: 05/18/19

C6-C12	10.7		mg/kg wet							
>C12-C28	7.98		"							
Surrogate: 1-Chlorooctane	95.8		"	100		95.8	70-130			
Surrogate: o-Terphenyl	52.2		"	50.0		104	70-130			

**Calibration Blank (P9E1802-CCB2)**

Prepared & Analyzed: 05/18/19

C6-C12	10.6		mg/kg wet							
>C12-C28	14.8		"							
Surrogate: 1-Chlorooctane	100		"	100		100	70-130			
Surrogate: o-Terphenyl	54.5		"	50.0		109	70-130			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
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Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9E1802 - TX 1005**

**Calibration Check (P9E1802-CCV1)**

Prepared & Analyzed: 05/18/19

C6-C12	498	25.0	mg/kg wet	500		99.6	85-115			
>C12-C28	529	25.0	"	500		106	85-115			
Surrogate: 1-Chlorooctane	110		"	100		110	70-130			
Surrogate: o-Terphenyl	49.1		"	50.0		98.3	70-130			

**Calibration Check (P9E1802-CCV2)**

Prepared & Analyzed: 05/18/19

C6-C12	561	25.0	mg/kg wet	500		112	85-115			
>C12-C28	554	25.0	"	500		111	85-115			
Surrogate: 1-Chlorooctane	115		"	100		115	70-130			
Surrogate: o-Terphenyl	51.5		"	50.0		103	70-130			

**Calibration Check (P9E1802-CCV3)**

Prepared: 05/18/19 Analyzed: 05/19/19

C6-C12	503	25.0	mg/kg wet	500		101	85-115			
>C12-C28	503	25.0	"	500		101	85-115			
Surrogate: 1-Chlorooctane	97.0		"	100		97.0	70-130			
Surrogate: o-Terphenyl	43.7		"	50.0		87.5	70-130			

**Duplicate (P9E1802-DUP1)**

Source: 9E16007-01

Prepared: 05/18/19 Analyzed: 05/19/19

C6-C12	ND	29.1	mg/kg dry		13.8				20	
>C12-C28	15.1	29.1	"		17.1			12.6	20	
Surrogate: 1-Chlorooctane	102		"	116		87.5	70-130			
Surrogate: o-Terphenyl	57.5		"	58.1		98.9	70-130			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: tnm Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

ROI Received on Ice

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date: 5/30/2019

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County, NM  
Lab Order Number: 9F11036



**NELAP/TCEQ # T104704516-18-9**

Report Date: 06/19/19

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2019 SP-42	9F11036-01	Soil	06/10/19 14:55	06-11-2019 15:13
2019 SP-43	9F11036-02	Soil	06/10/19 15:05	06-11-2019 15:13

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-42**  
**9F11036-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00101	mg/kg dry	1	P9F1701	06/17/19	06/17/19	EPA 8021B	
Toluene	ND	0.00101	mg/kg dry	1	P9F1701	06/17/19	06/17/19	EPA 8021B	
Ethylbenzene	ND	0.00101	mg/kg dry	1	P9F1701	06/17/19	06/17/19	EPA 8021B	
Xylene (p/m)	ND	0.00202	mg/kg dry	1	P9F1701	06/17/19	06/17/19	EPA 8021B	
Xylene (o)	ND	0.00101	mg/kg dry	1	P9F1701	06/17/19	06/17/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		89.4 %	75-125		P9F1701	06/17/19	06/17/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		81.5 %	75-125		P9F1701	06/17/19	06/17/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	1.0	0.1	%	1	P9F1308	06/13/19	06/13/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	25.3	mg/kg dry	1	P9F1405	06/14/19	06/15/19	TPH 8015M	
>C12-C28	ND	25.3	mg/kg dry	1	P9F1405	06/14/19	06/15/19	TPH 8015M	
>C28-C35	ND	25.3	mg/kg dry	1	P9F1405	06/14/19	06/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		128 %	70-130		P9F1405	06/14/19	06/15/19	TPH 8015M	
Surrogate: o-Terphenyl		140 %	70-130		P9F1405	06/14/19	06/15/19	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	25.3	mg/kg dry	1	[CALC]	06/14/19	06/15/19	calc	

Permian Basin Environmental Lab, L.P.

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Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-43**  
**9F11036-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00114	mg/kg dry	1	P9F1701	06/17/19	06/17/19	EPA 8021B	
Toluene	ND	0.00114	mg/kg dry	1	P9F1701	06/17/19	06/17/19	EPA 8021B	
Ethylbenzene	ND	0.00114	mg/kg dry	1	P9F1701	06/17/19	06/17/19	EPA 8021B	
Xylene (p/m)	ND	0.00227	mg/kg dry	1	P9F1701	06/17/19	06/17/19	EPA 8021B	
Xylene (o)	ND	0.00114	mg/kg dry	1	P9F1701	06/17/19	06/17/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		95.3 %	75-125		P9F1701	06/17/19	06/17/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		85.9 %	75-125		P9F1701	06/17/19	06/17/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	12.0	0.1	%	1	P9F1308	06/13/19	06/13/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	28.4	mg/kg dry	1	P9F1405	06/14/19	06/15/19	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P9F1405	06/14/19	06/15/19	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P9F1405	06/14/19	06/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		129 %	70-130		P9F1405	06/14/19	06/15/19	TPH 8015M	
Surrogate: o-Terphenyl		145 %	70-130		P9F1405	06/14/19	06/15/19	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	06/14/19	06/15/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9F1701 - General Preparation (GC)**

**Blank (P9F1701-BLK1)**

Prepared & Analyzed: 06/17/19

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0557		"	0.0600		92.8	75-125			
Surrogate: 4-Bromofluorobenzene	0.0712		"	0.0600		119	75-125			

**LCS (P9F1701-BS1)**

Prepared & Analyzed: 06/17/19

Benzene	0.119	0.00100	mg/kg wet	0.100		119	70-130			
Toluene	0.117	0.00100	"	0.100		117	70-130			
Ethylbenzene	0.117	0.00100	"	0.100		117	70-130			
Xylene (p/m)	0.226	0.00200	"	0.200		113	70-130			
Xylene (o)	0.116	0.00100	"	0.100		116	70-130			
Surrogate: 1,4-Difluorobenzene	0.0675		"	0.0600		112	75-125			
Surrogate: 4-Bromofluorobenzene	0.0661		"	0.0600		110	75-125			

**LCS Dup (P9F1701-BSD1)**

Prepared & Analyzed: 06/17/19

Benzene	0.0972	0.00100	mg/kg wet	0.100		97.2	70-130	19.9	20	
Toluene	0.0943	0.00100	"	0.100		94.3	70-130	21.4	20	
Ethylbenzene	0.111	0.00100	"	0.100		111	70-130	5.89	20	
Xylene (p/m)	0.191	0.00200	"	0.200		95.5	70-130	16.9	20	
Xylene (o)	0.0989	0.00100	"	0.100		98.9	70-130	16.0	20	
Surrogate: 1,4-Difluorobenzene	0.0518		"	0.0600		86.3	75-125			
Surrogate: 4-Bromofluorobenzene	0.0503		"	0.0600		83.8	75-125			

**Calibration Blank (P9F1701-CCB1)**

Prepared & Analyzed: 06/17/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.0572		"	0.0600		95.4	75-125			
Surrogate: 4-Bromofluorobenzene	0.0586		"	0.0600		97.6	75-125			

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9F1701 - General Preparation (GC)**

**Calibration Blank (P9F1701-CCB2)**

Prepared & Analyzed: 06/17/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.0497		"	0.0600		82.8	75-125			
Surrogate: 4-Bromofluorobenzene	0.0625		"	0.0600		104	75-125			

**Calibration Check (P9F1701-CCV1)**

Prepared & Analyzed: 06/17/19

Benzene	0.0999	0.00100	mg/kg wet	0.100		99.9	80-120			
Toluene	0.0875	0.00100	"	0.100		87.5	80-120			
Ethylbenzene	0.0864	0.00100	"	0.100		86.4	80-120			
Xylene (p/m)	0.196	0.00200	"	0.200		98.0	80-120			
Xylene (o)	0.0970	0.00100	"	0.100		97.0	80-120			
Surrogate: 4-Bromofluorobenzene	0.0542		"	0.0600		90.2	75-125			
Surrogate: 1,4-Difluorobenzene	0.0586		"	0.0600		97.6	75-125			

**Calibration Check (P9F1701-CCV2)**

Prepared & Analyzed: 06/17/19

Benzene	0.0982	0.00100	mg/kg wet	0.100		98.2	80-120			
Toluene	0.0948	0.00100	"	0.100		94.8	80-120			
Ethylbenzene	0.0934	0.00100	"	0.100		93.4	80-120			
Xylene (p/m)	0.179	0.00200	"	0.200		89.7	80-120			
Xylene (o)	0.100	0.00100	"	0.100		100	80-120			
Surrogate: 1,4-Difluorobenzene	0.0525		"	0.0600		87.5	75-125			
Surrogate: 4-Bromofluorobenzene	0.0595		"	0.0600		99.2	75-125			

**Matrix Spike (P9F1701-MS1)**

Source: 9F11036-01

Prepared & Analyzed: 06/17/19

Benzene	0.111	0.00101	mg/kg dry	0.101	ND	109	80-120			
Toluene	0.0765	0.00101	"	0.101	ND	75.7	80-120			QM-05
Ethylbenzene	0.0898	0.00101	"	0.101	ND	88.9	80-120			
Xylene (p/m)	0.188	0.00202	"	0.202	ND	93.1	80-120			
Xylene (o)	0.116	0.00101	"	0.101	ND	115	80-120			
Surrogate: 1,4-Difluorobenzene	0.0843		"	0.0606		139	75-125			S-GC
Surrogate: 4-Bromofluorobenzene	0.0759		"	0.0606		125	75-125			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9F1701 - General Preparation (GC)**

<b>Matrix Spike Dup (P9F1701-MSD1)</b>		<b>Source: 9F11036-01</b>		<b>Prepared &amp; Analyzed: 06/17/19</b>						
Benzene	0.0775	0.00101	mg/kg dry	0.101	ND	76.7	80-120	35.1	20	QM-05
Toluene	0.0463	0.00101	"	0.101	ND	45.8	80-120	49.1	20	QM-05
Ethylbenzene	0.0636	0.00101	"	0.101	ND	62.9	80-120	34.3	20	QM-05
Xylene (p/m)	0.135	0.00202	"	0.202	ND	67.0	80-120	32.6	20	QM-05
Xylene (o)	0.0878	0.00101	"	0.101	ND	86.9	80-120	28.1	20	QM-05
Surrogate: 1,4-Difluorobenzene	0.0712		"	0.0606		118	75-125			
Surrogate: 4-Bromofluorobenzene	0.0730		"	0.0606		120	75-125			

Permian Basin Environmental Lab, L.P.

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Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9F1308 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P9F1308-BLK1)</b>		Prepared & Analyzed: 06/13/19								
% Moisture	ND	0.1	%							
<b>Duplicate (P9F1308-DUP1)</b>		<b>Source: 9F11033-05</b>		Prepared & Analyzed: 06/13/19						
% Moisture	10.0	0.1	%		15.0			40.0	20	
<b>Duplicate (P9F1308-DUP2)</b>		<b>Source: 9F11036-01</b>		Prepared & Analyzed: 06/13/19						
% Moisture	9.0	0.1	%		1.0			160	20	
<b>Duplicate (P9F1308-DUP3)</b>		<b>Source: 9F12003-10</b>		Prepared & Analyzed: 06/13/19						
% Moisture	4.0	0.1	%		4.0			0.00	20	
<b>Duplicate (P9F1308-DUP4)</b>		<b>Source: 9F12011-05</b>		Prepared & Analyzed: 06/13/19						
% Moisture	3.0	0.1	%		3.0			0.00	20	

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Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9F1405 - TX 1005**

**Blank (P9F1405-BLK1)**

Prepared: 06/14/19 Analyzed: 06/15/19

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	91.8		"	100		91.8	70-130			
Surrogate: o-Terphenyl	49.8		"	50.0		99.7	70-130			

**LCS (P9F1405-BS1)**

Prepared: 06/14/19 Analyzed: 06/15/19

C6-C12	959	25.0	mg/kg wet	1000		95.9	75-125			
>C12-C28	1020	25.0	"	1000		102	75-125			
Surrogate: 1-Chlorooctane	110		"	100		110	70-130			
Surrogate: o-Terphenyl	48.6		"	50.0		97.3	70-130			

**LCS Dup (P9F1405-BS1)**

Prepared: 06/14/19 Analyzed: 06/15/19

C6-C12	934	25.0	mg/kg wet	1000		93.4	75-125	2.70	20	
>C12-C28	1000	25.0	"	1000		100	75-125	1.41	20	
Surrogate: 1-Chlorooctane	118		"	100		118	70-130			
Surrogate: o-Terphenyl	47.4		"	50.0		94.9	70-130			

**Calibration Blank (P9F1405-CCB1)**

Prepared: 06/14/19 Analyzed: 06/15/19

C6-C12	7.39		mg/kg wet							
>C12-C28	14.0		"							
Surrogate: 1-Chlorooctane	99.0		"	100		99.0	70-130			
Surrogate: o-Terphenyl	53.3		"	50.0		107	70-130			

**Calibration Blank (P9F1405-CCB2)**

Prepared: 06/14/19 Analyzed: 06/15/19

C6-C12	6.18		mg/kg wet							
>C12-C28	17.2		"							
Surrogate: 1-Chlorooctane	98.4		"	100		98.4	70-130			
Surrogate: o-Terphenyl	51.8		"	50.0		104	70-130			

Permian Basin Environmental Lab, L.P.

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10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9F1405 - TX 1005**

**Calibration Check (P9F1405-CCV1)**

Prepared: 06/14/19 Analyzed: 06/15/19

C6-C12	531	25.0	mg/kg wet	500		106	85-115			
>C12-C28	525	25.0	"	500		105	85-115			
Surrogate: 1-Chlorooctane	113		"	100		113	70-130			
Surrogate: o-Terphenyl	52.2		"	50.0		104	70-130			

**Calibration Check (P9F1405-CCV2)**

Prepared: 06/14/19 Analyzed: 06/15/19

C6-C12	523	25.0	mg/kg wet	500		105	85-115			
>C12-C28	523	25.0	"	500		105	85-115			
Surrogate: 1-Chlorooctane	112		"	100		112	70-130			
Surrogate: o-Terphenyl	51.0		"	50.0		102	70-130			

**Calibration Check (P9F1405-CCV3)**

Prepared: 06/14/19 Analyzed: 06/16/19

C6-C12	545	25.0	mg/kg wet	500		109	85-115			
>C12-C28	513	25.0	"	500		103	85-115			
Surrogate: 1-Chlorooctane	126		"	100		126	70-130			
Surrogate: o-Terphenyl	57.4		"	50.0		115	70-130			

**Duplicate (P9F1405-DUP1)**

Source: 9F13004-07

Prepared: 06/14/19 Analyzed: 06/15/19

C6-C12	21.1	26.3	mg/kg dry		20.2			4.39	20	
>C12-C28	143	26.3	"		119			17.9	20	
Surrogate: 1-Chlorooctane	93.1		"	105		88.4	70-130			
Surrogate: o-Terphenyl	49.9		"	52.6		94.8	70-130			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

ROI Received on Ice

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

6/19/2019

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County, NM  
Lab Order Number: 9F28009



**NELAP/TCEQ # T104704516-18-9**

Report Date: 07/08/19

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2019 SP-44	9F28009-01	Soil	06/24/19 14:40	06-27-2019 16:47
2019 SP-45	9F28009-02	Soil	06/24/19 15:15	06-27-2019 16:47

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-44**  
**9F28009-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		111 %	80-120		P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		106 %	80-120		P9G0206	07/02/19	07/02/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P9G0101	07/01/19	07/01/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		71.5 %	70-130		P9F2905	06/29/19	07/01/19	TPH 8015M	
Surrogate: o-Terphenyl		78.1 %	70-130		P9F2905	06/29/19	07/01/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	06/29/19	07/01/19	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-45**  
**9F28009-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		109 %	80-120		P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		87.2 %	80-120		P9G0206	07/02/19	07/02/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P9G0101	07/01/19	07/01/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		73.7 %	70-130		P9F2905	06/29/19	07/01/19	TPH 8015M	
Surrogate: o-Terphenyl		81.1 %	70-130		P9F2905	06/29/19	07/01/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	06/29/19	07/01/19	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G0206 - General Preparation (GC)**

**Blank (P9G0206-BLK1)**

Prepared & Analyzed: 07/02/19

Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	0.0679		"	0.0600		113	80-120			
Surrogate: 1,4-Difluorobenzene	0.0593		"	0.0600		98.8	80-120			

**LCS (P9G0206-BS1)**

Prepared & Analyzed: 07/02/19

Benzene	0.105	0.00100	mg/L	0.100		105	80-120			
Toluene	0.0901	0.00100	"	0.100		90.1	80-120			
Ethylbenzene	0.111	0.00100	"	0.100		111	80-120			
Xylene (p/m)	0.198	0.00200	"	0.200		98.9	80-120			
Xylene (o)	0.114	0.00100	"	0.100		114	80-120			
Surrogate: 4-Bromofluorobenzene	0.0497		"	0.0600		82.8	80-120			
Surrogate: 1,4-Difluorobenzene	0.0482		"	0.0600		80.3	80-120			

**LCS Dup (P9G0206-BSD1)**

Prepared & Analyzed: 07/02/19

Benzene	0.111	0.00100	mg/L	0.100		111	80-120	5.03	20	
Toluene	0.0971	0.00100	"	0.100		97.1	80-120	7.46	20	
Ethylbenzene	0.107	0.00100	"	0.100		107	80-120	3.59	20	
Xylene (p/m)	0.209	0.00200	"	0.200		104	80-120	5.28	20	
Xylene (o)	0.118	0.00100	"	0.100		118	80-120	3.70	20	
Surrogate: 4-Bromofluorobenzene	0.0584		"	0.0600		97.3	80-120			
Surrogate: 1,4-Difluorobenzene	0.0532		"	0.0600		88.7	80-120			

**Calibration Blank (P9G0206-CCB1)**

Prepared & Analyzed: 07/02/19

Benzene	0.00		mg/L							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	0.0545		"	0.0600		90.8	80-120			
Surrogate: 1,4-Difluorobenzene	0.0574		"	0.0600		95.6	80-120			

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G0206 - General Preparation (GC)**

**Calibration Blank (P9G0206-CCB2)**

Prepared & Analyzed: 07/02/19

Benzene	0.00		mg/L							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	0.0592		"	0.0600		98.6	80-120			
Surrogate: 1,4-Difluorobenzene	0.0582		"	0.0600		96.9	80-120			

**Calibration Check (P9G0206-CCV1)**

Prepared & Analyzed: 07/02/19

Benzene	0.104	0.00100	mg/L	0.100		104	80-120			
Toluene	0.0901	0.00100	"	0.100		90.1	80-120			
Ethylbenzene	0.0868	0.00100	"	0.100		86.8	80-120			
Xylene (p/m)	0.186	0.00200	"	0.200		92.9	80-120			
Xylene (o)	0.108	0.00100	"	0.100		108	80-120			
Surrogate: 4-Bromofluorobenzene	0.0607		"	0.0600		101	80-120			
Surrogate: 1,4-Difluorobenzene	0.0672		"	0.0600		112	80-120			

**Calibration Check (P9G0206-CCV2)**

Prepared & Analyzed: 07/02/19

Benzene	0.110	0.00100	mg/L	0.100		110	80-120			
Toluene	0.0951	0.00100	"	0.100		95.1	80-120			
Ethylbenzene	0.0868	0.00100	"	0.100		86.8	80-120			
Xylene (p/m)	0.192	0.00200	"	0.200		96.1	80-120			
Xylene (o)	0.109	0.00100	"	0.100		109	80-120			
Surrogate: 4-Bromofluorobenzene	0.0556		"	0.0600		92.6	80-120			
Surrogate: 1,4-Difluorobenzene	0.0644		"	0.0600		107	80-120			

**Calibration Check (P9G0206-CCV3)**

Prepared & Analyzed: 07/02/19

Benzene	0.119	0.00100	mg/L	0.100		119	80-120			
Toluene	0.102	0.00100	"	0.100		102	80-120			
Ethylbenzene	0.0890	0.00100	"	0.100		89.0	80-120			
Xylene (p/m)	0.199	0.00200	"	0.200		99.6	80-120			
Xylene (o)	0.118	0.00100	"	0.100		118	80-120			
Surrogate: 4-Bromofluorobenzene	0.0555		"	0.0600		92.5	80-120			
Surrogate: 1,4-Difluorobenzene	0.0695		"	0.0600		116	80-120			

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Project Manager: Curt Stanley

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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G0206 - General Preparation (GC)**

<b>Matrix Spike (P9G0206-MS1)</b>		<b>Source: 9F28010-03</b>			<b>Prepared &amp; Analyzed: 07/02/19</b>					
Benzene	0.0912	0.00100	mg/L	0.100	ND	91.2	80-120			
Toluene	0.0708	0.00100	"	0.100	ND	70.8	80-120			QM-07
Ethylbenzene	0.0601	0.00100	"	0.100	ND	60.1	80-120			QM-07
Xylene (p/m)	0.144	0.00200	"	0.200	ND	72.1	80-120			QM-07
Xylene (o)	0.0840	0.00100	"	0.100	ND	84.0	80-120			
Surrogate: 4-Bromofluorobenzene	0.0574		"	0.0600		95.6	80-120			
Surrogate: 1,4-Difluorobenzene	0.0622		"	0.0600		104	80-120			

<b>Matrix Spike Dup (P9G0206-MSD1)</b>		<b>Source: 9F28010-03</b>			<b>Prepared &amp; Analyzed: 07/02/19</b>					
Benzene	0.103	0.00100	mg/L	0.100	ND	103	80-120	12.1	20	
Toluene	0.0825	0.00100	"	0.100	ND	82.5	80-120	15.3	20	
Ethylbenzene	0.0769	0.00100	"	0.100	ND	76.9	80-120	24.6	20	QM-07, R2
Xylene (p/m)	0.175	0.00200	"	0.200	ND	87.6	80-120	19.5	20	
Xylene (o)	0.103	0.00100	"	0.100	ND	103	80-120	20.8	20	R2
Surrogate: 4-Bromofluorobenzene	0.0624		"	0.0600		104	80-120			
Surrogate: 1,4-Difluorobenzene	0.0701		"	0.0600		117	80-120			

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Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G0101 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P9G0101-BLK1)**

Prepared & Analyzed: 07/01/19

% Moisture	ND	0.1	%
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**Duplicate (P9G0101-DUP1)**

**Source: 9F28014-05**

Prepared & Analyzed: 07/01/19

% Moisture	2.0	0.1	%	1.0	66.7	20
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**Duplicate (P9G0101-DUP2)**

**Source: 9F28019-05**

Prepared & Analyzed: 07/01/19

% Moisture	17.0	0.1	%	18.0	5.71	20
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**Duplicate (P9G0101-DUP3)**

**Source: 9F28021-01**

Prepared & Analyzed: 07/01/19

% Moisture	3.0	0.1	%	3.0	0.00	20
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**Duplicate (P9G0101-DUP4)**

**Source: 9F28024-01**

Prepared & Analyzed: 07/01/19

% Moisture	3.0	0.1	%	2.0	40.0	20
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Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P9F2905 - TX 1005</b>										
<b>Blank (P9F2905-BLK1)</b>										
					Prepared: 06/29/19 Analyzed: 07/01/19					
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	79.5		"	100		79.5	70-130			
Surrogate: o-Terphenyl	41.5		"	50.0		83.0	70-130			
<b>LCS (P9F2905-BS1)</b>										
					Prepared: 06/29/19 Analyzed: 07/01/19					
C6-C12	908	25.0	mg/kg wet	1000		90.8	75-125			
>C12-C28	839	25.0	"	1000		83.9	75-125			
Surrogate: 1-Chlorooctane	97.5		"	100		97.5	70-130			
Surrogate: o-Terphenyl	37.7		"	50.0		75.3	70-130			
<b>LCS Dup (P9F2905-BSD1)</b>										
					Prepared: 06/29/19 Analyzed: 07/01/19					
C6-C12	856	25.0	mg/kg wet	1000		85.6	75-125	5.84	20	
>C12-C28	821	25.0	"	1000		82.1	75-125	2.17	20	
Surrogate: 1-Chlorooctane	92.4		"	100		92.4	70-130			
Surrogate: o-Terphenyl	36.2		"	50.0		72.4	70-130			
<b>Calibration Blank (P9F2905-CCB1)</b>										
					Prepared: 06/29/19 Analyzed: 07/01/19					
C6-C12	5.92		mg/kg wet							
>C12-C28	12.8		"							
Surrogate: 1-Chlorooctane	68.8		"	100		68.8	70-130			S-GC
Surrogate: o-Terphenyl	36.4		"	50.0		72.7	70-130			
<b>Calibration Blank (P9F2905-CCB2)</b>										
					Prepared: 06/29/19 Analyzed: 07/01/19					
C6-C12	7.37		mg/kg wet							
>C12-C28	14.7		"							
Surrogate: 1-Chlorooctane	66.3		"	100		66.3	70-130			S-GC
Surrogate: o-Terphenyl	36.2		"	50.0		72.4	70-130			

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9F2905 - TX 1005**

**Calibration Check (P9F2905-CCV1)**

Prepared: 06/29/19 Analyzed: 07/01/19

C6-C12	441	25.0	mg/kg wet	500		88.2	85-115			
>C12-C28	461	25.0	"	500		92.2	85-115			
Surrogate: 1-Chlorooctane	94.0		"	100		94.0	70-130			
Surrogate: o-Terphenyl	42.8		"	50.0		85.5	70-130			

**Calibration Check (P9F2905-CCV2)**

Prepared: 06/29/19 Analyzed: 07/01/19

C6-C12	485	25.0	mg/kg wet	500		96.9	85-115			
>C12-C28	522	25.0	"	500		104	85-115			
Surrogate: 1-Chlorooctane	102		"	100		102	70-130			
Surrogate: o-Terphenyl	47.4		"	50.0		94.8	70-130			

**Duplicate (P9F2905-DUP1)**

Source: 9F28013-03

Prepared: 06/29/19 Analyzed: 07/02/19

C6-C12	ND	25.5	mg/kg dry		9.86				20	
>C12-C28	21.0	25.5	"		15.2			32.2	20	
Surrogate: 1-Chlorooctane	80.2		"	102		78.6	70-130			
Surrogate: o-Terphenyl	44.6		"	51.0		87.5	70-130			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

S-GC      Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

ROI      Received on Ice

R2      The RPD exceeded the acceptance limit.

QM-07      The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

BULK      Samples received in Bulk soil containers

DET      Analyte DETECTED

ND      Analyte NOT DETECTED at or above the reporting limit

NR      Not Reported

dry      Sample results reported on a dry weight basis

RPD      Relative Percent Difference

LCS      Laboratory Control Spike

MS      Matrix Spike

Dup      Duplicate

Report Approved By:



Date:

7/8/2019

Brent Barron, Laboratory Director/Technical Director

Permian Basin Environmental Lab, L.P.

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If you have received this material in error, please notify us immediately at 432-686-7235.



**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County, NM  
Lab Order Number: 9F28010



**NELAP/TCEQ # T104704516-18-9**

Report Date: 07/08/19



TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2019 SP-46	9F28010-01	Soil	06/27/19 10:30	06-27-2019 16:47
2019 SP-47	9F28010-02	Soil	06/27/19 10:40	06-27-2019 16:47
2019 SP-48	9F28010-03	Soil	06/27/19 10:50	06-27-2019 16:47

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-46**  
**9F28010-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		99.2 %		80-120	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.0 %		80-120	P9G0206	07/02/19	07/02/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P9G0101	07/01/19	07/01/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		76.3 %		70-130	P9F2905	06/29/19	07/01/19	TPH 8015M	
Surrogate: o-Terphenyl		83.4 %		70-130	P9F2905	06/29/19	07/01/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	06/29/19	07/01/19	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-47**  
**9F28010-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		108 %	80-120		P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		98.0 %	80-120		P9G0206	07/02/19	07/02/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	4.0	0.1	%	1	P9G0101	07/01/19	07/01/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.0	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		69.0 %	70-130		P9F2905	06/29/19	07/01/19	TPH 8015M	S-GC
Surrogate: o-Terphenyl		75.6 %	70-130		P9F2905	06/29/19	07/01/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	06/29/19	07/01/19	calc	

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-48**  
**9F28010-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Toluene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Xylene (o)	ND	0.00100	mg/L	1	P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		108 %	80-120		P9G0206	07/02/19	07/02/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		97.8 %	80-120		P9G0206	07/02/19	07/02/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	10.0	0.1	%	1	P9G0101	07/01/19	07/01/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.8	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
>C12-C28	ND	27.8	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P9F2905	06/29/19	07/01/19	TPH 8015M	
Surrogate: 1-Chlorooctane		72.0 %	70-130		P9F2905	06/29/19	07/01/19	TPH 8015M	
Surrogate: o-Terphenyl		79.4 %	70-130		P9F2905	06/29/19	07/01/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	06/29/19	07/01/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G0206 - General Preparation (GC)**

**Blank (P9G0206-BLK1)**

Prepared & Analyzed: 07/02/19

Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	0.0679		"	0.0600		113	80-120			
Surrogate: 1,4-Difluorobenzene	0.0593		"	0.0600		98.8	80-120			

**LCS (P9G0206-BS1)**

Prepared & Analyzed: 07/02/19

Benzene	0.105	0.00100	mg/L	0.100		105	80-120			
Toluene	0.0901	0.00100	"	0.100		90.1	80-120			
Ethylbenzene	0.111	0.00100	"	0.100		111	80-120			
Xylene (p/m)	0.198	0.00200	"	0.200		98.9	80-120			
Xylene (o)	0.114	0.00100	"	0.100		114	80-120			
Surrogate: 4-Bromofluorobenzene	0.0497		"	0.0600		82.8	80-120			
Surrogate: 1,4-Difluorobenzene	0.0482		"	0.0600		80.3	80-120			

**LCS Dup (P9G0206-BSD1)**

Prepared & Analyzed: 07/02/19

Benzene	0.111	0.00100	mg/L	0.100		111	80-120	5.03	20	
Toluene	0.0971	0.00100	"	0.100		97.1	80-120	7.46	20	
Ethylbenzene	0.107	0.00100	"	0.100		107	80-120	3.59	20	
Xylene (p/m)	0.209	0.00200	"	0.200		104	80-120	5.28	20	
Xylene (o)	0.118	0.00100	"	0.100		118	80-120	3.70	20	
Surrogate: 4-Bromofluorobenzene	0.0584		"	0.0600		97.3	80-120			
Surrogate: 1,4-Difluorobenzene	0.0532		"	0.0600		88.7	80-120			

**Calibration Blank (P9G0206-CCB1)**

Prepared & Analyzed: 07/02/19

Benzene	0.00		mg/L							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	0.0545		"	0.0600		90.8	80-120			
Surrogate: 1,4-Difluorobenzene	0.0574		"	0.0600		95.6	80-120			

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G0206 - General Preparation (GC)**

**Calibration Blank (P9G0206-CCB2)**

Prepared & Analyzed: 07/02/19

Benzene	0.00		mg/L							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	0.0592		"	0.0600		98.6	80-120			
Surrogate: 1,4-Difluorobenzene	0.0582		"	0.0600		96.9	80-120			

**Calibration Check (P9G0206-CCV1)**

Prepared & Analyzed: 07/02/19

Benzene	0.104	0.00100	mg/L	0.100		104	80-120			
Toluene	0.0901	0.00100	"	0.100		90.1	80-120			
Ethylbenzene	0.0868	0.00100	"	0.100		86.8	80-120			
Xylene (p/m)	0.186	0.00200	"	0.200		92.9	80-120			
Xylene (o)	0.108	0.00100	"	0.100		108	80-120			
Surrogate: 4-Bromofluorobenzene	0.0607		"	0.0600		101	80-120			
Surrogate: 1,4-Difluorobenzene	0.0672		"	0.0600		112	80-120			

**Calibration Check (P9G0206-CCV2)**

Prepared & Analyzed: 07/02/19

Benzene	0.110	0.00100	mg/L	0.100		110	80-120			
Toluene	0.0951	0.00100	"	0.100		95.1	80-120			
Ethylbenzene	0.0868	0.00100	"	0.100		86.8	80-120			
Xylene (p/m)	0.192	0.00200	"	0.200		96.1	80-120			
Xylene (o)	0.109	0.00100	"	0.100		109	80-120			
Surrogate: 4-Bromofluorobenzene	0.0556		"	0.0600		92.6	80-120			
Surrogate: 1,4-Difluorobenzene	0.0644		"	0.0600		107	80-120			

**Calibration Check (P9G0206-CCV3)**

Prepared & Analyzed: 07/02/19

Benzene	0.119	0.00100	mg/L	0.100		119	80-120			
Toluene	0.102	0.00100	"	0.100		102	80-120			
Ethylbenzene	0.0890	0.00100	"	0.100		89.0	80-120			
Xylene (p/m)	0.199	0.00200	"	0.200		99.6	80-120			
Xylene (o)	0.118	0.00100	"	0.100		118	80-120			
Surrogate: 4-Bromofluorobenzene	0.0555		"	0.0600		92.5	80-120			
Surrogate: 1,4-Difluorobenzene	0.0695		"	0.0600		116	80-120			

Permian Basin Environmental Lab, L.P.

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G0206 - General Preparation (GC)**

<b>Matrix Spike (P9G0206-MS1)</b>		<b>Source: 9F28010-03</b>			<b>Prepared &amp; Analyzed: 07/02/19</b>					
Benzene	0.0912	0.00100	mg/L	0.100	ND	91.2	80-120			
Toluene	0.0708	0.00100	"	0.100	ND	70.8	80-120			QM-07
Ethylbenzene	0.0601	0.00100	"	0.100	ND	60.1	80-120			QM-07
Xylene (p/m)	0.144	0.00200	"	0.200	ND	72.1	80-120			QM-07
Xylene (o)	0.0840	0.00100	"	0.100	ND	84.0	80-120			
Surrogate: 4-Bromofluorobenzene	0.0574		"	0.0600		95.6	80-120			
Surrogate: 1,4-Difluorobenzene	0.0622		"	0.0600		104	80-120			

<b>Matrix Spike Dup (P9G0206-MSD1)</b>		<b>Source: 9F28010-03</b>			<b>Prepared &amp; Analyzed: 07/02/19</b>					
Benzene	0.103	0.00100	mg/L	0.100	ND	103	80-120	12.1	20	
Toluene	0.0825	0.00100	"	0.100	ND	82.5	80-120	15.3	20	
Ethylbenzene	0.0769	0.00100	"	0.100	ND	76.9	80-120	24.6	20	QM-07, R2
Xylene (p/m)	0.175	0.00200	"	0.200	ND	87.6	80-120	19.5	20	
Xylene (o)	0.103	0.00100	"	0.100	ND	103	80-120	20.8	20	R2
Surrogate: 4-Bromofluorobenzene	0.0624		"	0.0600		104	80-120			
Surrogate: 1,4-Difluorobenzene	0.0701		"	0.0600		117	80-120			

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G0101 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P9G0101-BLK1)**

Prepared & Analyzed: 07/01/19

% Moisture	ND	0.1	%
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**Duplicate (P9G0101-DUP1)**

**Source: 9F28014-05**

Prepared & Analyzed: 07/01/19

% Moisture	2.0	0.1	%	1.0	66.7	20
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**Duplicate (P9G0101-DUP2)**

**Source: 9F28019-05**

Prepared & Analyzed: 07/01/19

% Moisture	17.0	0.1	%	18.0	5.71	20
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**Duplicate (P9G0101-DUP3)**

**Source: 9F28021-01**

Prepared & Analyzed: 07/01/19

% Moisture	3.0	0.1	%	3.0	0.00	20
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**Duplicate (P9G0101-DUP4)**

**Source: 9F28024-01**

Prepared & Analyzed: 07/01/19

% Moisture	3.0	0.1	%	2.0	40.0	20
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Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P9F2905 - TX 1005</b>										
<b>Blank (P9F2905-BLK1)</b>										
					Prepared: 06/29/19 Analyzed: 07/01/19					
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	79.5		"	100		79.5	70-130			
Surrogate: o-Terphenyl	41.5		"	50.0		83.0	70-130			
<b>LCS (P9F2905-BS1)</b>										
					Prepared: 06/29/19 Analyzed: 07/01/19					
C6-C12	908	25.0	mg/kg wet	1000		90.8	75-125			
>C12-C28	839	25.0	"	1000		83.9	75-125			
Surrogate: 1-Chlorooctane	97.5		"	100		97.5	70-130			
Surrogate: o-Terphenyl	37.7		"	50.0		75.3	70-130			
<b>LCS Dup (P9F2905-BSD1)</b>										
					Prepared: 06/29/19 Analyzed: 07/01/19					
C6-C12	856	25.0	mg/kg wet	1000		85.6	75-125	5.84	20	
>C12-C28	821	25.0	"	1000		82.1	75-125	2.17	20	
Surrogate: 1-Chlorooctane	92.4		"	100		92.4	70-130			
Surrogate: o-Terphenyl	36.2		"	50.0		72.4	70-130			
<b>Calibration Blank (P9F2905-CCB1)</b>										
					Prepared: 06/29/19 Analyzed: 07/01/19					
C6-C12	5.92		mg/kg wet							
>C12-C28	12.8		"							
Surrogate: 1-Chlorooctane	68.8		"	100		68.8	70-130			S-GC
Surrogate: o-Terphenyl	36.4		"	50.0		72.7	70-130			
<b>Calibration Blank (P9F2905-CCB2)</b>										
					Prepared: 06/29/19 Analyzed: 07/01/19					
C6-C12	7.37		mg/kg wet							
>C12-C28	14.7		"							
Surrogate: 1-Chlorooctane	66.3		"	100		66.3	70-130			S-GC
Surrogate: o-Terphenyl	36.2		"	50.0		72.4	70-130			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9F2905 - TX 1005**

**Calibration Check (P9F2905-CCV1)**

Prepared: 06/29/19 Analyzed: 07/01/19

C6-C12	441	25.0	mg/kg wet	500		88.2	85-115			
>C12-C28	461	25.0	"	500		92.2	85-115			
Surrogate: 1-Chlorooctane	94.0		"	100		94.0	70-130			
Surrogate: o-Terphenyl	42.8		"	50.0		85.5	70-130			

**Calibration Check (P9F2905-CCV2)**

Prepared: 06/29/19 Analyzed: 07/01/19

C6-C12	485	25.0	mg/kg wet	500		96.9	85-115			
>C12-C28	522	25.0	"	500		104	85-115			
Surrogate: 1-Chlorooctane	102		"	100		102	70-130			
Surrogate: o-Terphenyl	47.4		"	50.0		94.8	70-130			

**Duplicate (P9F2905-DUP1)**

Source: 9F28013-03

Prepared: 06/29/19 Analyzed: 07/02/19

C6-C12	ND	25.5	mg/kg dry		9.86				20	
>C12-C28	21.0	25.5	"		15.2			32.2	20	
Surrogate: 1-Chlorooctane	80.2		"	102		78.6	70-130			
Surrogate: o-Terphenyl	44.6		"	51.0		87.5	70-130			

Permian Basin Environmental Lab, L.P.

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### Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

ROI Received on Ice

R2 The RPD exceeded the acceptance limit.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

7/8/2019

Brent Barron, Laboratory Director/Technical Director

Permian Basin Environmental Lab, L.P.

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Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County, NM  
Lab Order Number: 9G26017



NELAP/TCEQ # T104704516-18-9

Report Date: 07/29/19



TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2019 SP-49	9G26017-01	Soil	07/25/19 15:10	07-26-2019 13:35
2019 SP-50	9G26017-02	Soil	07/25/19 15:15	07-26-2019 13:35
2019 SP-51	9G26017-03	Soil	07/25/19 15:20	07-26-2019 13:35
2019 SP-52	9G26017-04	Soil	07/25/19 15:25	07-26-2019 13:35
2019 SP-53	9G26017-05	Soil	07/25/19 15:30	07-26-2019 13:35
2019 SP-54	9G26017-06	Soil	07/25/19 15:35	07-26-2019 13:35
2019 SP-55	9G26017-07	Soil	07/25/19 15:40	07-26-2019 13:35
2019 SP-56	9G26017-08	Soil	07/25/19 15:45	07-26-2019 13:35

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10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-49**  
**9G26017-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00114	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Toluene	ND	0.00114	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Ethylbenzene	ND	0.00114	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (p/m)	ND	0.00227	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (o)	ND	0.00114	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		105 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		92.2 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	12.0	0.1	%	1	P9G2901	07/29/19	07/29/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	28.4	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		76.3 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: o-Terphenyl		78.9 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	07/26/19	07/28/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-50**  
**9G26017-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Toluene	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		95.9 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		119 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P9G2901	07/29/19	07/29/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		70.3 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: o-Terphenyl		72.9 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	07/26/19	07/28/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-51**  
**9G26017-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Toluene	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		94.4 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		118 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P9G2901	07/29/19	07/29/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		84.1 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: o-Terphenyl		86.6 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	07/26/19	07/28/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-52**  
**9G26017-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Toluene	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		94.9 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		117 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P9G2901	07/29/19	07/29/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		69.7 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	S-GC
Surrogate: o-Terphenyl		73.4 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	07/26/19	07/28/19	calc	

Permian Basin Environmental Lab, L.P.

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Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

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**2019 SP-53**  
**9G26017-05 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00109	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Toluene	ND	0.00109	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		119 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		96.1 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	8.0	0.1	%	1	P9G2901	07/29/19	07/29/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.2	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		83.1 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: o-Terphenyl		86.6 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	07/26/19	07/28/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-54**  
**9G26017-06 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00110	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Toluene	ND	0.00110	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Ethylbenzene	ND	0.00110	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (p/m)	ND	0.00220	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (o)	ND	0.00110	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		91.9 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		114 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	9.0	0.1	%	1	P9G2901	07/29/19	07/29/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.5	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		72.0 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: o-Terphenyl		75.6 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	07/26/19	07/28/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-55**  
**9G26017-07 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00109	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Toluene	ND	0.00109	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		113 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		106 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	8.0	0.1	%	1	P9G2901	07/29/19	07/29/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.2	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		74.4 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Surrogate: o-Terphenyl		78.2 %	70-130		P9G2606	07/26/19	07/28/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	07/26/19	07/28/19	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-56**  
**9G26017-08 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00106	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Toluene	ND	0.00106	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		93.1 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		119 %	75-125		P9G2608	07/26/19	07/28/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	6.0	0.1	%	1	P9G2901	07/29/19	07/29/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.6	mg/kg dry	1	P9G2605	07/26/19	07/29/19	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P9G2605	07/26/19	07/29/19	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P9G2605	07/26/19	07/29/19	TPH 8015M	
Surrogate: 1-Chlorooctane		71.2 %	70-130		P9G2605	07/26/19	07/29/19	TPH 8015M	
Surrogate: o-Terphenyl		74.6 %	70-130		P9G2605	07/26/19	07/29/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	07/26/19	07/29/19	calc	

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G2608 - General Preparation (GC)**

**Blank (P9G2608-BLK1)**

Prepared: 07/26/19 Analyzed: 07/28/19

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	0.132		"	0.120		110	75-125			
Surrogate: 1,4-Difluorobenzene	0.117		"	0.120		97.9	75-125			

**LCS (P9G2608-BS1)**

Prepared: 07/26/19 Analyzed: 07/28/19

Benzene	0.0963	0.00100	mg/kg wet	0.100		96.3	70-130			
Toluene	0.0899	0.00100	"	0.100		89.9	70-130			
Ethylbenzene	0.104	0.00100	"	0.100		104	70-130			
Xylene (p/m)	0.209	0.00200	"	0.200		104	70-130			
Xylene (o)	0.107	0.00100	"	0.100		107	70-130			
Surrogate: 1,4-Difluorobenzene	0.115		"	0.120		96.0	75-125			
Surrogate: 4-Bromofluorobenzene	0.123		"	0.120		102	75-125			

**LCS Dup (P9G2608-BSD1)**

Prepared: 07/26/19 Analyzed: 07/28/19

Benzene	0.0848	0.00100	mg/kg wet	0.100		84.8	70-130	12.6	20	
Toluene	0.0871	0.00100	"	0.100		87.1	70-130	3.13	20	
Ethylbenzene	0.103	0.00100	"	0.100		103	70-130	0.804	20	
Xylene (p/m)	0.196	0.00200	"	0.200		98.2	70-130	6.17	20	
Xylene (o)	0.0981	0.00100	"	0.100		98.1	70-130	8.22	20	
Surrogate: 1,4-Difluorobenzene	0.129		"	0.120		108	75-125			
Surrogate: 4-Bromofluorobenzene	0.104		"	0.120		86.9	75-125			

**Calibration Blank (P9G2608-CCB3)**

Prepared: 07/26/19 Analyzed: 07/28/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.121		"	0.120		101	75-125			
Surrogate: 4-Bromofluorobenzene	0.142		"	0.120		118	75-125			

Permian Basin Environmental Lab, L.P.

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10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G2608 - General Preparation (GC)**

**Calibration Check (P9G2608-CCV3)**

Prepared: 07/26/19 Analyzed: 07/28/19

Benzene	0.0805	0.00100	mg/kg wet	0.100		80.5	80-120			
Toluene	0.0904	0.00100	"	0.100		90.4	80-120			
Ethylbenzene	0.0832	0.00100	"	0.100		83.2	80-120			
Xylene (p/m)	0.204	0.00200	"	0.200		102	80-120			
Xylene (o)	0.0952	0.00100	"	0.100		95.2	80-120			
Surrogate: 1,4-Difluorobenzene	0.143		"	0.120		119	75-125			
Surrogate: 4-Bromofluorobenzene	0.143		"	0.120		119	75-125			

**Matrix Spike (P9G2608-MS1)**

Source: 9G26017-01

Prepared: 07/26/19 Analyzed: 07/28/19

Benzene	0.0303	0.00114	mg/kg dry	0.114	ND	26.7	80-120			QM-05
Toluene	0.0345	0.00114	"	0.114	ND	30.4	80-120			QM-05
Ethylbenzene	0.0216	0.00114	"	0.114	ND	19.0	80-120			QM-05
Xylene (p/m)	0.0627	0.00227	"	0.227	ND	27.6	80-120			QM-05
Xylene (o)	0.0779	0.00114	"	0.114	ND	68.6	80-120			QM-05
Surrogate: 1,4-Difluorobenzene	0.152		"	0.136		112	75-125			
Surrogate: 4-Bromofluorobenzene	0.155		"	0.136		114	75-125			

**Matrix Spike Dup (P9G2608-MSD1)**

Source: 9G26017-01

Prepared: 07/26/19 Analyzed: 07/28/19

Benzene	0.0378	0.00114	mg/kg dry	0.114	ND	33.2	80-120	21.8	20	QM-05
Toluene	0.0344	0.00114	"	0.114	ND	30.3	80-120	0.198	20	QM-05
Ethylbenzene	0.0212	0.00114	"	0.114	ND	18.7	80-120	1.86	20	QM-05
Xylene (p/m)	0.0356	0.00227	"	0.227	ND	15.6	80-120	55.2	20	QM-05
Xylene (o)	0.0821	0.00114	"	0.114	ND	72.3	80-120	5.25	20	QM-05
Surrogate: 4-Bromofluorobenzene	0.159		"	0.136		117	75-125			
Surrogate: 1,4-Difluorobenzene	0.153		"	0.136		112	75-125			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G2901 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P9G2901-BLK1)</b>	Prepared & Analyzed: 07/29/19									
% Moisture	ND	0.1	%							
<b>Blank (P9G2901-BLK2)</b>	Prepared & Analyzed: 07/29/19									
% Moisture	ND	0.1	%							
<b>Duplicate (P9G2901-DUP1)</b>	<b>Source: 9G25012-19</b>	Prepared & Analyzed: 07/29/19								
% Moisture	8.0	0.1	%		8.0			0.00	20	
<b>Duplicate (P9G2901-DUP2)</b>	<b>Source: 9G26005-01</b>	Prepared & Analyzed: 07/29/19								
% Moisture	ND	0.1	%		ND				20	
<b>Duplicate (P9G2901-DUP3)</b>	<b>Source: 9G26011-09</b>	Prepared & Analyzed: 07/29/19								
% Moisture	4.0	0.1	%		4.0			0.00	20	
<b>Duplicate (P9G2901-DUP4)</b>	<b>Source: 9G26013-08</b>	Prepared & Analyzed: 07/29/19								
% Moisture	5.0	0.1	%		5.0			0.00	20	
<b>Duplicate (P9G2901-DUP5)</b>	<b>Source: 9G26014-19</b>	Prepared & Analyzed: 07/29/19								
% Moisture	8.0	0.1	%		9.0			11.8	20	
<b>Duplicate (P9G2901-DUP6)</b>	<b>Source: 9G26015-26</b>	Prepared & Analyzed: 07/29/19								
% Moisture	8.0	0.1	%		10.0			22.2	20	
<b>Duplicate (P9G2901-DUP7)</b>	<b>Source: 9G26015-28</b>	Prepared & Analyzed: 07/29/19								
% Moisture	8.0	0.1	%		8.0			0.00	20	
<b>Duplicate (P9G2901-DUP8)</b>	<b>Source: 9G26018-26</b>	Prepared & Analyzed: 07/29/19								
% Moisture	9.0	0.1	%		10.0			10.5	20	

Permian Basin Environmental Lab, L.P.

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10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G2901 - \*\*\* DEFAULT PREP \*\*\***

**Duplicate (P9G2901-DUP9)**

**Source: 9G26019-06**

Prepared & Analyzed: 07/29/19

% Moisture	11.0	0.1	%		10.0			9.52	20	
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Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G2605 - TX 1005**

**Calibration Blank (P9G2605-CCB2)**

Prepared: 07/26/19 Analyzed: 07/29/19

C6-C12	7.70		mg/kg wet							
>C12-C28	6.45		"							
Surrogate: 1-Chlorooctane	75.8		"	100		75.8	70-130			
Surrogate: o-Terphenyl	40.0		"	50.0		79.9	70-130			

**Calibration Check (P9G2605-CCV2)**

Prepared: 07/26/19 Analyzed: 07/29/19

C6-C12	449	25.0	mg/kg wet	500		89.8	85-115			
>C12-C28	452	25.0	"	500		90.4	85-115			
Surrogate: 1-Chlorooctane	90.0		"	100		90.0	70-130			
Surrogate: o-Terphenyl	40.8		"	50.0		81.6	70-130			

**Batch P9G2606 - TX 1005**

**Blank (P9G2606-BLK1)**

Prepared: 07/26/19 Analyzed: 07/27/19

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	74.7		"	100		74.7	70-130			
Surrogate: o-Terphenyl	37.5		"	50.0		74.9	70-130			

**LCS (P9G2606-BS1)**

Prepared: 07/26/19 Analyzed: 07/27/19

C6-C12	833	25.0	mg/kg wet	1000		83.3	75-125			
>C12-C28	827	25.0	"	1000		82.7	75-125			
Surrogate: 1-Chlorooctane	99.6		"	100		99.6	70-130			
Surrogate: o-Terphenyl	36.7		"	50.0		73.4	70-130			

**LCS Dup (P9G2606-BSD1)**

Prepared: 07/26/19 Analyzed: 07/27/19

C6-C12	819	25.0	mg/kg wet	1000		81.9	75-125	1.68	20	
>C12-C28	831	25.0	"	1000		83.1	75-125	0.492	20	
Surrogate: 1-Chlorooctane	98.3		"	100		98.3	70-130			
Surrogate: o-Terphenyl	36.0		"	50.0		71.9	70-130			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G2606 - TX 1005**

**Calibration Blank (P9G2606-CCB1)**

Prepared: 07/26/19 Analyzed: 07/27/19

C6-C12	11.5		mg/kg wet							
>C12-C28	7.26		"							
Surrogate: 1-Chlorooctane	74.4		"	100		74.4	70-130			
Surrogate: o-Terphenyl	38.0		"	50.0		76.0	70-130			

**Calibration Blank (P9G2606-CCB2)**

Prepared: 07/26/19 Analyzed: 07/28/19

C6-C12	12.9		mg/kg wet							
>C12-C28	18.0		"							
Surrogate: 1-Chlorooctane	76.4		"	100		76.4	70-130			
Surrogate: o-Terphenyl	40.1		"	50.0		80.2	70-130			

**Calibration Check (P9G2606-CCV1)**

Prepared: 07/26/19 Analyzed: 07/27/19

C6-C12	444	25.0	mg/kg wet	500		88.8	85-115			
>C12-C28	436	25.0	"	500		87.2	85-115			
Surrogate: 1-Chlorooctane	88.1		"	100		88.1	70-130			
Surrogate: o-Terphenyl	37.8		"	50.0		75.6	70-130			

**Calibration Check (P9G2606-CCV2)**

Prepared: 07/26/19 Analyzed: 07/28/19

C6-C12	442	25.0	mg/kg wet	500		88.3	85-115			
>C12-C28	441	25.0	"	500		88.2	85-115			
Surrogate: 1-Chlorooctane	91.5		"	100		91.5	70-130			
Surrogate: o-Terphenyl	39.4		"	50.0		78.8	70-130			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

ROI Received on Ice

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

7/29/2019

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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Permian Basin Environmental Lab, L.P.

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## CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP  
10014 S. County Road 1213  
Midland, Texas 79706

Phone: 432-661-4164

Page 2 of 2

Project Manager: Curt Stanley

Project Name: Monument 18

Company Name: TRC Environmental Corporation

Project #: TNM Monument 18

Company Address: 10 Desia Drive Suite 150E

Project Loc: Lea County, New Mexico

City/State/Zip: Midland/TX/79705

PO #:

Telephone No: (432)5207720

Fax No:

Report Format:

☒ Standard☐ TRRP☐ NPDES

Sampler Signature:

e-mail:

cdstanley@trcsolutions.com  
clbryant@paalp.com  
sstanley@trcsolutions.com

(lab use only)

ORDER #: 9626017

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO <sub>4</sub> , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/8030 or BTEX 8260	RCI	N.O.R.M.	Chlorides E 300	Paint Filter	TCLP Benzene	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT	
1	2019 SP-49	N/A	N/A	7/25/2019	15:10		1	X									X																X
2	2019 SP-50	N/A	N/A	7/25/2019	15:15		1	X									X																X
3	2019 SP-51	N/A	N/A	7/25/2019	15:20		1	X									X																X
4	2019 SP-52	N/A	N/A	7/25/2019	15:25		1	X									X																X
5	2019 SP-53	N/A	N/A	7/25/2019	15:30		1	X									X																X
6	2019 SP-54	N/A	N/A	7/25/2019	15:35		1	X									X																X
7	2019 SP-55	N/A	N/A	7/25/2019	15:40		1	X									X																X
8	2019 SP-56	N/A	N/A	7/25/2019	15:45		1	X									X																X

Special Instructions:  
Bill to PlainsRelinquished by: *[Signature]* Date: 7/26/19 Time: 13:35 Received by: *[Signature]* Date: 7/26/19 Time: 13:35Relinquished by: *[Signature]* Date: 7/26/19 Time: 13:35 Received by: *[Signature]* Date: 7/26/19 Time: 13:35Relinquished by: *[Signature]* Date: 7/26/19 Time: 13:35 Received by: *[Signature]* Date: 7/26/19 Time: 13:35

Laboratory Comments:

Sample Containers: In tact?

VOCs Free of Headspace?

Labels on container(s)?

Custody seals on container(s)?

Sample Hand Delivered by Sampler/Client Rep.?

Temperature Upon Receipt: 42.2 °C

Adjusted: 42.2 °C

Yc Nc

Yc Nc

Yc Nc

Yc Nc

Yc Nc

Yc Nc

Yc Nc

**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County, NM  
Lab Order Number: 9G31001



NELAP/TCEQ # T104704516-18-9

Report Date: 08/03/19

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2019 SP-57	9G31001-01	Soil	07/30/19 11:00	07-31-2019 13:00

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SP-57**  
**9G31001-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00114	mg/kg dry	1	P9G3105	07/31/19	08/01/19	EPA 8021B	
Toluene	ND	0.00114	mg/kg dry	1	P9G3105	07/31/19	08/01/19	EPA 8021B	
Ethylbenzene	ND	0.00114	mg/kg dry	1	P9G3105	07/31/19	08/01/19	EPA 8021B	
Xylene (p/m)	ND	0.00227	mg/kg dry	1	P9G3105	07/31/19	08/01/19	EPA 8021B	
Xylene (o)	ND	0.00114	mg/kg dry	1	P9G3105	07/31/19	08/01/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		116 %	75-125		P9G3105	07/31/19	08/01/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		96.1 %	75-125		P9G3105	07/31/19	08/01/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	12.0	0.1	%	1	P9H0102	08/01/19	08/01/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	28.4	mg/kg dry	1	P9H0103	08/01/19	08/02/19	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	P9H0103	08/01/19	08/02/19	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	P9H0103	08/01/19	08/02/19	TPH 8015M	
Surrogate: 1-Chlorooctane		81.1 %	70-130		P9H0103	08/01/19	08/02/19	TPH 8015M	
Surrogate: o-Terphenyl		86.6 %	70-130		P9H0103	08/01/19	08/02/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	08/01/19	08/02/19	calc	

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G3105 - General Preparation (GC)**

**Blank (P9G3105-BLK1)**

Prepared: 07/31/19 Analyzed: 08/01/19

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	0.118		"	0.120		98.1	75-125			
Surrogate: 1,4-Difluorobenzene	0.102		"	0.120		85.1	75-125			

**LCS (P9G3105-BS1)**

Prepared & Analyzed: 07/31/19

Benzene	0.0960	0.00100	mg/kg wet	0.100		96.0	70-130			
Toluene	0.108	0.00100	"	0.100		108	70-130			
Ethylbenzene	0.109	0.00100	"	0.100		109	70-130			
Xylene (p/m)	0.222	0.00200	"	0.200		111	70-130			
Xylene (o)	0.118	0.00100	"	0.100		118	70-130			
Surrogate: 1,4-Difluorobenzene	0.133		"	0.120		111	75-125			
Surrogate: 4-Bromofluorobenzene	0.115		"	0.120		95.8	75-125			

**LCS Dup (P9G3105-BSD1)**

Prepared & Analyzed: 07/31/19

Benzene	0.102	0.00100	mg/kg wet	0.100		102	70-130	6.19	20	
Toluene	0.113	0.00100	"	0.100		113	70-130	4.24	20	
Ethylbenzene	0.120	0.00100	"	0.100		120	70-130	9.19	20	
Xylene (p/m)	0.240	0.00200	"	0.200		120	70-130	7.91	20	
Xylene (o)	0.120	0.00100	"	0.100		120	70-130	1.42	20	
Surrogate: 4-Bromofluorobenzene	0.127		"	0.120		105	75-125			
Surrogate: 1,4-Difluorobenzene	0.138		"	0.120		115	75-125			

**Calibration Blank (P9G3105-CCB1)**

Prepared & Analyzed: 07/31/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	0.141		"	0.120		117	75-125			
Surrogate: 1,4-Difluorobenzene	0.107		"	0.120		89.0	75-125			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235



TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G3105 - General Preparation (GC)**

**Calibration Blank (P9G3105-CCB2)**

Prepared: 07/31/19 Analyzed: 08/01/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.115		"	0.120		96.2	75-125			
Surrogate: 4-Bromofluorobenzene	0.138		"	0.120		115	75-125			

**Calibration Check (P9G3105-CCV1)**

Prepared & Analyzed: 07/31/19

Benzene	0.110	0.00100	mg/kg wet	0.100		110	80-120			
Toluene	0.112	0.00100	"	0.100		112	80-120			
Ethylbenzene	0.105	0.00100	"	0.100		105	80-120			
Xylene (p/m)	0.212	0.00200	"	0.200		106	80-120			
Xylene (o)	0.117	0.00100	"	0.100		117	80-120			
Surrogate: 4-Bromofluorobenzene	0.124		"	0.120		103	75-125			
Surrogate: 1,4-Difluorobenzene	0.137		"	0.120		114	75-125			

**Calibration Check (P9G3105-CCV2)**

Prepared: 07/31/19 Analyzed: 08/01/19

Benzene	0.116	0.00100	mg/kg wet	0.100		116	80-120			
Toluene	0.117	0.00100	"	0.100		117	80-120			
Ethylbenzene	0.111	0.00100	"	0.100		111	80-120			
Xylene (p/m)	0.224	0.00200	"	0.200		112	80-120			
Xylene (o)	0.120	0.00100	"	0.100		120	80-120			
Surrogate: 4-Bromofluorobenzene	0.143		"	0.120		119	75-125			
Surrogate: 1,4-Difluorobenzene	0.133		"	0.120		111	75-125			

**Calibration Check (P9G3105-CCV3)**

Prepared: 07/31/19 Analyzed: 08/01/19

Benzene	0.102	0.00100	mg/kg wet	0.100		102	80-120			
Toluene	0.0931	0.00100	"	0.100		93.1	80-120			
Ethylbenzene	0.0875	0.00100	"	0.100		87.5	80-120			
Xylene (p/m)	0.220	0.00200	"	0.200		110	80-120			
Xylene (o)	0.113	0.00100	"	0.100		113	80-120			
Surrogate: 1,4-Difluorobenzene	0.112		"	0.120		93.1	75-125			
Surrogate: 4-Bromofluorobenzene	0.103		"	0.120		85.6	75-125			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9G3105 - General Preparation (GC)**

<b>Matrix Spike (P9G3105-MS1)</b>		<b>Source: 9G30012-12</b>		<b>Prepared: 07/31/19</b>		<b>Analyzed: 08/01/19</b>				
Benzene	0.0658	0.00115	mg/kg dry	0.115	ND	57.3	80-120			QM-05
Toluene	0.0799	0.00115	"	0.115	ND	69.5	80-120			QM-05
Ethylbenzene	0.103	0.00115	"	0.115	ND	89.8	80-120			
Xylene (p/m)	0.193	0.00230	"	0.230	ND	84.0	80-120			
Xylene (o)	0.0894	0.00115	"	0.115	ND	77.8	80-120			QM-05
Surrogate: 4-Bromofluorobenzene	0.162		"	0.138		117	75-125			
Surrogate: 1,4-Difluorobenzene	0.156		"	0.138		113	75-125			

<b>Matrix Spike Dup (P9G3105-MSD1)</b>		<b>Source: 9G30012-12</b>		<b>Prepared: 07/31/19</b>		<b>Analyzed: 08/01/19</b>				
Benzene	0.0734	0.00115	mg/kg dry	0.115	ND	63.9	80-120	11.0	20	QM-05
Toluene	0.0873	0.00115	"	0.115	ND	76.0	80-120	8.85	20	QM-05
Ethylbenzene	0.110	0.00115	"	0.115	ND	95.4	80-120	6.01	20	
Xylene (p/m)	0.200	0.00230	"	0.230	ND	87.1	80-120	3.60	20	
Xylene (o)	0.0922	0.00115	"	0.115	ND	80.3	80-120	3.15	20	
Surrogate: 1,4-Difluorobenzene	0.160		"	0.138		116	75-125			
Surrogate: 4-Bromofluorobenzene	0.161		"	0.138		117	75-125			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H0102 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P9H0102-BLK1)**

Prepared & Analyzed: 08/01/19

% Moisture	ND	0.1	%
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**Duplicate (P9H0102-DUP1)**

**Source: 9G30012-01**

Prepared & Analyzed: 08/01/19

% Moisture	10.0	0.1	%	10.0	0.00	20
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**Duplicate (P9H0102-DUP2)**

**Source: 9G30014-02**

Prepared & Analyzed: 08/01/19

% Moisture	1.0	0.1	%	1.0	0.00	20
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Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H0103 - TX 1005**

**Blank (P9H0103-BLK1)**

Prepared: 08/01/19 Analyzed: 08/02/19

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	84.2		"	100		84.2	70-130			
Surrogate: o-Terphenyl	44.5		"	50.0		88.9	70-130			

**LCS (P9H0103-BS1)**

Prepared: 08/01/19 Analyzed: 08/02/19

C6-C12	892	25.0	mg/kg wet	1000		89.2	75-125			
>C12-C28	912	25.0	"	1000		91.2	75-125			
Surrogate: 1-Chlorooctane	112		"	100		112	70-130			
Surrogate: o-Terphenyl	41.5		"	50.0		82.9	70-130			

**LCS Dup (P9H0103-BSD1)**

Prepared: 08/01/19 Analyzed: 08/02/19

C6-C12	870	25.0	mg/kg wet	1000		87.0	75-125	2.40	20	
>C12-C28	816	25.0	"	1000		81.6	75-125	11.2	20	
Surrogate: 1-Chlorooctane	98.8		"	100		98.8	70-130			
Surrogate: o-Terphenyl	37.0		"	50.0		74.1	70-130			

**Calibration Blank (P9H0103-CCB1)**

Prepared: 08/01/19 Analyzed: 08/02/19

C6-C12	11.4		mg/kg wet							
>C12-C28	5.61		"							
Surrogate: 1-Chlorooctane	98.6		"	100		98.6	70-130			
Surrogate: o-Terphenyl	52.1		"	50.0		104	70-130			

**Calibration Blank (P9H0103-CCB2)**

Prepared: 08/01/19 Analyzed: 08/02/19

C6-C12	18.0		mg/kg wet							
>C12-C28	9.10		"							
Surrogate: 1-Chlorooctane	101		"	100		101	70-130			
Surrogate: o-Terphenyl	52.3		"	50.0		105	70-130			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P9H0103 - TX 1005</b>										
<b>Calibration Check (P9H0103-CCV1)</b>				Prepared: 08/01/19 Analyzed: 08/02/19						
C6-C12	455	25.0	mg/kg wet	500		91.0	85-115			
>C12-C28	463	25.0	"	500		92.6	85-115			
Surrogate: 1-Chlorooctane	95.9		"	100		95.9	70-130			
Surrogate: o-Terphenyl	42.6		"	50.0		85.1	70-130			
<b>Calibration Check (P9H0103-CCV2)</b>				Prepared: 08/01/19 Analyzed: 08/02/19						
C6-C12	455	25.0	mg/kg wet	500		91.0	85-115			
>C12-C28	469	25.0	"	500		93.8	85-115			
Surrogate: 1-Chlorooctane	96.4		"	100		96.4	70-130			
Surrogate: o-Terphenyl	42.3		"	50.0		84.6	70-130			
<b>Calibration Check (P9H0103-CCV3)</b>				Prepared: 08/01/19 Analyzed: 08/02/19						
C6-C12	461	25.0	mg/kg wet	500		92.2	85-115			
>C12-C28	487	25.0	"	500		97.4	85-115			
Surrogate: 1-Chlorooctane	98.8		"	100		98.8	70-130			
Surrogate: o-Terphenyl	44.5		"	50.0		88.9	70-130			
<b>Duplicate (P9H0103-DUP1)</b>		<b>Source: 9H01022-04</b>		Prepared: 08/01/19 Analyzed: 08/02/19						
C6-C12	574	154	mg/kg dry		564			1.72	20	
>C12-C28	5170	154	"		5160			0.178	20	
Surrogate: 1-Chlorooctane	113		"	123		91.4	70-130			
Surrogate: o-Terphenyl	63.1		"	61.7		102	70-130			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

ROI Received on Ice

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

8/3/2019

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235



**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



## Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County, NM  
Lab Order Number: 9H12010



NELAP/TCEQ # T104704516-18-9

Report Date: 08/20/19



TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2019 ESW-1 @ 19'	9H12010-01	Soil	08/12/19 10:30	08-12-2019 16:29
2019 SSW-1 @ 19'	9H12010-03	Soil	08/12/19 10:45	08-12-2019 16:29
2019 SSW-2 @ 19'	9H12010-04	Soil	08/12/19 10:50	08-12-2019 16:29

TRC Solutions- Midland, Texas  
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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

## 2019 ESW-1 @ 19'

### 9H12010-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00109	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Toluene	ND	0.00109	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		96.6 %	75-125		P9H1403	08/14/19	08/14/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		86.9 %	75-125		P9H1403	08/14/19	08/14/19	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	8.0	0.1	%	1	P9H1302	08/13/19	08/13/19	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	27.2	mg/kg dry	1	P9H1410	08/14/19	08/15/19	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P9H1410	08/14/19	08/15/19	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P9H1410	08/14/19	08/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		106 %	70-130		P9H1410	08/14/19	08/15/19	TPH 8015M	
Surrogate: o-Terphenyl		110 %	70-130		P9H1410	08/14/19	08/15/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	08/14/19	08/15/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019 SSW-1 @ 19'**  
**9H12010-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00108	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Toluene	ND	0.00108	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		89.0 %	75-125		P9H1403	08/14/19	08/14/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		102 %	75-125		P9H1403	08/14/19	08/14/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	7.0	0.1	%	1	P9H1302	08/13/19	08/13/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	26.9	mg/kg dry	1	P9H1410	08/14/19	08/15/19	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P9H1410	08/14/19	08/15/19	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P9H1410	08/14/19	08/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		82.4 %	70-130		P9H1410	08/14/19	08/15/19	TPH 8015M	
Surrogate: o-Terphenyl		82.6 %	70-130		P9H1410	08/14/19	08/15/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	08/14/19	08/15/19	calc	

Permian Basin Environmental Lab, L.P.

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**2019 SSW-2 @ 19'**  
**9H12010-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00110	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Toluene	ND	0.00110	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Ethylbenzene	ND	0.00110	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Xylene (p/m)	ND	0.00220	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Xylene (o)	ND	0.00110	mg/kg dry	1	P9H1403	08/14/19	08/14/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		103 %	75-125		P9H1403	08/14/19	08/14/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		87.7 %	75-125		P9H1403	08/14/19	08/14/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

% Moisture	9.0	0.1	%	1	P9H1302	08/13/19	08/13/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.5	mg/kg dry	1	P9H1410	08/14/19	08/15/19	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P9H1410	08/14/19	08/15/19	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P9H1410	08/14/19	08/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		85.6 %	70-130		P9H1410	08/14/19	08/15/19	TPH 8015M	
Surrogate: o-Terphenyl		86.5 %	70-130		P9H1410	08/14/19	08/15/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	08/14/19	08/15/19	calc	

Permian Basin Environmental Lab, L.P.

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Project Manager: Curt Stanley

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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1403 - General Preparation (GC)**

**Blank (P9H1403-BLK1)**

Prepared & Analyzed: 08/14/19

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.102		"	0.120		85.4	75-125			
Surrogate: 4-Bromofluorobenzene	0.124		"	0.120		103	75-125			

**LCS (P9H1403-BS1)**

Prepared & Analyzed: 08/14/19

Benzene	0.108	0.00100	mg/kg wet	0.100		108	70-130			
Toluene	0.116	0.00100	"	0.100		116	70-130			
Ethylbenzene	0.113	0.00100	"	0.100		113	70-130			
Xylene (p/m)	0.213	0.00200	"	0.200		106	70-130			
Xylene (o)	0.120	0.00100	"	0.100		120	70-130			
Surrogate: 4-Bromofluorobenzene	0.127		"	0.120		106	75-125			
Surrogate: 1,4-Difluorobenzene	0.122		"	0.120		102	75-125			

**LCS Dup (P9H1403-BSD1)**

Prepared & Analyzed: 08/14/19

Benzene	0.0961	0.00100	mg/kg wet	0.100		96.1	70-130	11.2	20	
Toluene	0.115	0.00100	"	0.100		115	70-130	1.40	20	
Ethylbenzene	0.110	0.00100	"	0.100		110	70-130	2.37	20	
Xylene (p/m)	0.239	0.00200	"	0.200		120	70-130	11.7	20	
Xylene (o)	0.114	0.00100	"	0.100		114	70-130	5.18	20	
Surrogate: 1,4-Difluorobenzene	0.122		"	0.120		102	75-125			
Surrogate: 4-Bromofluorobenzene	0.137		"	0.120		114	75-125			

**Calibration Blank (P9H1403-CCB1)**

Prepared & Analyzed: 08/14/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.106		"	0.120		87.9	75-125			
Surrogate: 4-Bromofluorobenzene	0.136		"	0.120		113	75-125			

Permian Basin Environmental Lab, L.P.

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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1403 - General Preparation (GC)**

**Calibration Blank (P9H1403-CCB2)**

Prepared & Analyzed: 08/14/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.107		"	0.120		88.8	75-125			
Surrogate: 4-Bromofluorobenzene	0.128		"	0.120		107	75-125			

**Calibration Blank (P9H1403-CCB3)**

Prepared: 08/14/19 Analyzed: 08/15/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.101		"	0.120		83.8	75-125			
Surrogate: 4-Bromofluorobenzene	0.141		"	0.120		117	75-125			

**Calibration Check (P9H1403-CCV1)**

Prepared & Analyzed: 08/14/19

Benzene	0.0881	0.00100	mg/kg wet	0.100		88.1	80-120			
Toluene	0.109	0.00100	"	0.100		109	80-120			
Ethylbenzene	0.111	0.00100	"	0.100		111	80-120			
Xylene (p/m)	0.231	0.00200	"	0.200		115	80-120			
Xylene (o)	0.118	0.00100	"	0.100		118	80-120			
Surrogate: 1,4-Difluorobenzene	0.115		"	0.120		95.8	75-125			
Surrogate: 4-Bromofluorobenzene	0.125		"	0.120		104	75-125			

**Calibration Check (P9H1403-CCV2)**

Prepared & Analyzed: 08/14/19

Benzene	0.0971	0.00100	mg/kg wet	0.100		97.1	80-120			
Toluene	0.0994	0.00100	"	0.100		99.4	80-120			
Ethylbenzene	0.0930	0.00100	"	0.100		93.0	80-120			
Xylene (p/m)	0.197	0.00200	"	0.200		98.6	80-120			
Xylene (o)	0.112	0.00100	"	0.100		112	80-120			
Surrogate: 4-Bromofluorobenzene	0.111		"	0.120		92.4	75-125			
Surrogate: 1,4-Difluorobenzene	0.124		"	0.120		104	75-125			

Permian Basin Environmental Lab, L.P.

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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1403 - General Preparation (GC)**

Calibration Check (P9H1403-CCV3)				Prepared & Analyzed: 08/14/19						
Benzene	0.0909	0.00100	mg/kg wet	0.100		90.9	80-120			
Toluene	0.105	0.00100	"	0.100		105	80-120			
Ethylbenzene	0.103	0.00100	"	0.100		103	80-120			
Xylene (p/m)	0.204	0.00200	"	0.200		102	80-120			
Xylene (o)	0.110	0.00100	"	0.100		110	80-120			
Surrogate: 1,4-Difluorobenzene	0.123		"	0.120		102	75-125			
Surrogate: 4-Bromofluorobenzene	0.123		"	0.120		102	75-125			

Matrix Spike (P9H1403-MS1)				Source: 9H12010-01 Prepared & Analyzed: 08/14/19						
Benzene	0.0972	0.00109	mg/kg dry	0.109	ND	89.5	80-120			
Toluene	0.112	0.00109	"	0.109	ND	103	80-120			
Ethylbenzene	0.108	0.00109	"	0.109	ND	99.2	80-120			
Xylene (p/m)	0.226	0.00217	"	0.217	ND	104	80-120			
Xylene (o)	0.119	0.00109	"	0.109	ND	110	80-120			
Surrogate: 4-Bromofluorobenzene	0.143		"	0.130		110	75-125			
Surrogate: 1,4-Difluorobenzene	0.153		"	0.130		117	75-125			

Matrix Spike Dup (P9H1403-MSD1)				Source: 9H12010-01 Prepared & Analyzed: 08/14/19						
Benzene	0.0888	0.00109	mg/kg dry	0.109	ND	81.6	80-120	9.13	20	
Toluene	0.0950	0.00109	"	0.109	ND	87.4	80-120	16.2	20	
Ethylbenzene	0.114	0.00109	"	0.109	ND	105	80-120	5.41	20	
Xylene (p/m)	0.195	0.00217	"	0.217	ND	89.9	80-120	14.5	20	
Xylene (o)	0.102	0.00109	"	0.109	ND	94.0	80-120	15.6	20	
Surrogate: 1,4-Difluorobenzene	0.141		"	0.130		108	75-125			
Surrogate: 4-Bromofluorobenzene	0.139		"	0.130		106	75-125			

Permian Basin Environmental Lab, L.P.

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**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1302 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P9H1302-BLK1)**

Prepared & Analyzed: 08/13/19

% Moisture	ND	0.1	%
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**Duplicate (P9H1302-DUP1)**

**Source: 9H12002-03**

Prepared & Analyzed: 08/13/19

% Moisture	13.0	0.1	%	13.0	0.00	20
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**Duplicate (P9H1302-DUP2)**

**Source: 9H12005-18**

Prepared & Analyzed: 08/13/19

% Moisture	21.0	0.1	%	21.0	0.00	20
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**Duplicate (P9H1302-DUP3)**

**Source: 9H12005-28**

Prepared & Analyzed: 08/13/19

% Moisture	7.0	0.1	%	8.0	13.3	20
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**Duplicate (P9H1302-DUP4)**

**Source: 9H12010-04**

Prepared & Analyzed: 08/13/19

% Moisture	9.0	0.1	%	9.0	0.00	20
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Permian Basin Environmental Lab, L.P.

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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1410 - TX 1005**

**Blank (P9H1410-BLK1)**

Prepared & Analyzed: 08/14/19

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	110		"	100		110	70-130			
Surrogate: o-Terphenyl	55.7		"	50.0		111	70-130			

**LCS (P9H1410-BS1)**

Prepared & Analyzed: 08/14/19

C6-C12	909	25.0	mg/kg wet	1000		90.9	75-125			
>C12-C28	1000	25.0	"	1000		100	75-125			
Surrogate: 1-Chlorooctane	129		"	100		129	70-130			
Surrogate: o-Terphenyl	48.9		"	50.0		97.9	70-130			

**LCS Dup (P9H1410-BSD1)**

Prepared & Analyzed: 08/14/19

C6-C12	925	25.0	mg/kg wet	1000		92.5	75-125	1.70	20	
>C12-C28	1010	25.0	"	1000		101	75-125	0.435	20	
Surrogate: 1-Chlorooctane	128		"	100		128	70-130			
Surrogate: o-Terphenyl	52.5		"	50.0		105	70-130			

**Calibration Blank (P9H1410-CCB1)**

Prepared & Analyzed: 08/14/19

C6-C12	8.73		mg/kg wet							
>C12-C28	14.5		"							
Surrogate: 1-Chlorooctane	107		"	100		107	70-130			
Surrogate: o-Terphenyl	54.5		"	50.0		109	70-130			

**Calibration Blank (P9H1410-CCB2)**

Prepared: 08/14/19 Analyzed: 08/15/19

C6-C12	6.77		mg/kg wet							
>C12-C28	15.6		"							
Surrogate: 1-Chlorooctane	109		"	100		109	70-130			
Surrogate: o-Terphenyl	54.2		"	50.0		108	70-130			

Permian Basin Environmental Lab, L.P.

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Project Manager: Curt Stanley

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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1410 - TX 1005**

**Calibration Check (P9H1410-CCV1)**

Prepared & Analyzed: 08/14/19

C6-C12	498	25.0	mg/kg wet	500		99.5	85-115			
>C12-C28	494	25.0	"	500		98.8	85-115			
Surrogate: 1-Chlorooctane	121		"	100		121	70-130			
Surrogate: o-Terphenyl	53.0		"	50.0		106	70-130			

**Calibration Check (P9H1410-CCV2)**

Prepared: 08/14/19 Analyzed: 08/15/19

C6-C12	509	25.0	mg/kg wet	500		102	85-115			
>C12-C28	550	25.0	"	500		110	85-115			
Surrogate: 1-Chlorooctane	128		"	100		128	70-130			
Surrogate: o-Terphenyl	54.3		"	50.0		109	70-130			

**Calibration Check (P9H1410-CCV3)**

Prepared: 08/14/19 Analyzed: 08/15/19

C6-C12	506	25.0	mg/kg wet	500		101	85-115			
>C12-C28	553	25.0	"	500		111	85-115			
Surrogate: 1-Chlorooctane	124		"	100		124	70-130			
Surrogate: o-Terphenyl	53.5		"	50.0		107	70-130			

**Duplicate (P9H1410-DUP1)**

Source: 9H12010-04

Prepared: 08/14/19 Analyzed: 08/15/19

C6-C12	11.3	27.5	mg/kg dry		ND					20
>C12-C28	14.4	27.5	"		13.9			3.72		20
Surrogate: 1-Chlorooctane	104		"	110		94.4	70-130			
Surrogate: o-Terphenyl	52.4		"	54.9		95.4	70-130			

Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

ROI Received on Ice  
BULK Samples received in Bulk soil containers  
DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:



Date:

8/20/2019

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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**PBETLAB**

## CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP  
10014 S. County Road 1213  
Midland, Texas 79706

Phone: 432-661-4184

Page 1 of 1

Project Manager: Curt StanleyCompany Name: TREC Environmental CorporationCompany Address: 10 Desta Drive Ste 150ECity/State/Zip: Midland/TX/79705Telephone No: (432) 620-7720Sampler Signature: [Signature]e-mail: cdstanley@trcsolutions.com  
clbrvant@paalp.com

Fax No: \_\_\_\_\_

Report Format: ☒ Standard ☐ TRRP ☐ NPDESProject Name: Monument 18Project #: TNM Monument 18Project Loc: Lea County, NM

PO #: \_\_\_\_\_

Page 13 of 13

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other (Specify)	Matrix	TPH: 418.1	TPH: TX 1005	Cations (Ca, Mg, Na, K)	Anions (Cl, SO <sub>4</sub> , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Metals: Al, B, Co, Cu, Fe, Mn, Mo	Metals: Ni, Zn	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chlorides E 300	Paint Filter	TCLP BTEX	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
1	2019 ESW-1 @ 19'			8/12/2019	1030		1	X								Soil	X															X
2	2019 ESW-2 @ 19'			8/12/2019	1040		1	X								Soil	X															X
3	2019 SSW-1 @ 19'			8/12/2019	1045		1	X								Soil	X															X
4	2019 SSW-2 @ 19'			8/12/2019	1050		1	X								Soil	X															X

## Special Instructions:

Bill to Plains

Relinquished by: [Signature]

Date

Time

Received by:

Date

Time

Relinquished by: [Signature]

Date

Time

Received by:

Date

Time

Relinquished by: \_\_\_\_\_

Date

Time

Received by: [Signature]

Date

Time

## Laboratory Comments:

Sample Containers: metalsVOCS Free of Headspace? NCustody seals on containers? NCustody seals on containers? NSample Hand Delivered by Sampler/Client Rep.? NTemperature Upon Receipt: 55Adjusted: 55

**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County, NM  
Lab Order Number: 9H15003



NELAP/TCEQ # T104704516-18-9

Report Date: 08/28/19

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2019 ESW-2 @ 19'	9H15003-01	Soil	08/14/19 10:00	08-15-2019 09:36

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

## 2019 ESW-2 @ 19'

### 9H15003-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00118	mg/kg dry	1	P9H1602	08/16/19	08/16/19	EPA 8021B	
Toluene	ND	0.00118	mg/kg dry	1	P9H1602	08/16/19	08/16/19	EPA 8021B	
Ethylbenzene	ND	0.00118	mg/kg dry	1	P9H1602	08/16/19	08/16/19	EPA 8021B	
Xylene (p/m)	ND	0.00235	mg/kg dry	1	P9H1602	08/16/19	08/16/19	EPA 8021B	
Xylene (o)	ND	0.00118	mg/kg dry	1	P9H1602	08/16/19	08/16/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		112 %	75-125		P9H1602	08/16/19	08/16/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		81.7 %	75-125		P9H1602	08/16/19	08/16/19	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	15.0	0.1	%	1	P9H1603	08/16/19	08/16/19	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	29.4	mg/kg dry	1	P9H1611	08/16/19	08/18/19	TPH 8015M	
>C12-C28	ND	29.4	mg/kg dry	1	P9H1611	08/16/19	08/18/19	TPH 8015M	
>C28-C35	ND	29.4	mg/kg dry	1	P9H1611	08/16/19	08/18/19	TPH 8015M	
Surrogate: 1-Chlorooctane		124 %	70-130		P9H1611	08/16/19	08/18/19	TPH 8015M	
Surrogate: o-Terphenyl		120 %	70-130		P9H1611	08/16/19	08/18/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.4	mg/kg dry	1	[CALC]	08/16/19	08/18/19	calc	

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1602 - General Preparation (GC)**

**Blank (P9H1602-BLK1)**

Prepared & Analyzed: 08/16/19

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.100		"	0.120		83.5	75-125			
Surrogate: 4-Bromofluorobenzene	0.121		"	0.120		101	75-125			

**LCS (P9H1602-BS1)**

Prepared & Analyzed: 08/16/19

Benzene	0.0863	0.00100	mg/kg wet	0.100		86.3	70-130			
Toluene	0.104	0.00100	"	0.100		104	70-130			
Ethylbenzene	0.105	0.00100	"	0.100		105	70-130			
Xylene (p/m)	0.208	0.00200	"	0.200		104	70-130			
Xylene (o)	0.110	0.00100	"	0.100		110	70-130			
Surrogate: 1,4-Difluorobenzene	0.127		"	0.120		106	75-125			
Surrogate: 4-Bromofluorobenzene	0.130		"	0.120		108	75-125			

**LCS Dup (P9H1602-BSD1)**

Prepared & Analyzed: 08/16/19

Benzene	0.106	0.00100	mg/kg wet	0.100		106	70-130	20.4	20	R2
Toluene	0.120	0.00100	"	0.100		120	70-130	13.8	20	
Ethylbenzene	0.113	0.00100	"	0.100		113	70-130	7.68	20	
Xylene (p/m)	0.229	0.00200	"	0.200		114	70-130	9.32	20	
Xylene (o)	0.119	0.00100	"	0.100		119	70-130	8.04	20	
Surrogate: 1,4-Difluorobenzene	0.135		"	0.120		113	75-125			
Surrogate: 4-Bromofluorobenzene	0.126		"	0.120		105	75-125			

**Calibration Blank (P9H1602-CCB1)**

Prepared & Analyzed: 08/16/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.0989		"	0.120		82.4	75-125			
Surrogate: 4-Bromofluorobenzene	0.122		"	0.120		102	75-125			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1602 - General Preparation (GC)**

**Calibration Blank (P9H1602-CCB2)**

Prepared & Analyzed: 08/16/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.102		"	0.120		85.0	75-125			
Surrogate: 4-Bromofluorobenzene	0.132		"	0.120		110	75-125			

**Calibration Blank (P9H1602-CCB3)**

Prepared: 08/16/19 Analyzed: 08/17/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.112		"	0.120		93.2	75-125			
Surrogate: 4-Bromofluorobenzene	0.126		"	0.120		105	75-125			

**Calibration Check (P9H1602-CCV1)**

Prepared & Analyzed: 08/16/19

Benzene	0.0910	0.00100	mg/kg wet	0.100		91.0	80-120			
Toluene	0.112	0.00100	"	0.100		112	80-120			
Ethylbenzene	0.118	0.00100	"	0.100		118	80-120			
Xylene (p/m)	0.223	0.00200	"	0.200		112	80-120			
Xylene (o)	0.115	0.00100	"	0.100		115	80-120			
Surrogate: 4-Bromofluorobenzene	0.140		"	0.120		116	75-125			
Surrogate: 1,4-Difluorobenzene	0.128		"	0.120		107	75-125			

**Calibration Check (P9H1602-CCV2)**

Prepared & Analyzed: 08/16/19

Benzene	0.0947	0.00100	mg/kg wet	0.100		94.7	80-120			
Toluene	0.103	0.00100	"	0.100		103	80-120			
Ethylbenzene	0.0934	0.00100	"	0.100		93.4	80-120			
Xylene (p/m)	0.205	0.00200	"	0.200		103	80-120			
Xylene (o)	0.114	0.00100	"	0.100		114	80-120			
Surrogate: 4-Bromofluorobenzene	0.126		"	0.120		105	75-125			
Surrogate: 1,4-Difluorobenzene	0.130		"	0.120		109	75-125			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1602 - General Preparation (GC)**

**Calibration Check (P9H1602-CCV3)**

Prepared: 08/16/19 Analyzed: 08/17/19

Benzene	0.103	0.00100	mg/kg wet	0.100		103	80-120			
Toluene	0.102	0.00100	"	0.100		102	80-120			
Ethylbenzene	0.0992	0.00100	"	0.100		99.2	80-120			
Xylene (p/m)	0.208	0.00200	"	0.200		104	80-120			
Xylene (o)	0.118	0.00100	"	0.100		118	80-120			
Surrogate: 4-Bromofluorobenzene	0.125		"	0.120		104	75-125			
Surrogate: 1,4-Difluorobenzene	0.127		"	0.120		106	75-125			

**Matrix Spike (P9H1602-MS1)**

Source: 9H16002-01

Prepared: 08/16/19 Analyzed: 08/17/19

Benzene	0.0674	0.00103	mg/kg dry	0.103	ND	65.4	80-120			QM-07
Toluene	0.0674	0.00103	"	0.103	ND	65.4	80-120			QM-07
Ethylbenzene	0.0767	0.00103	"	0.103	ND	74.4	80-120			QM-07
Xylene (p/m)	0.134	0.00206	"	0.206	ND	65.0	80-120			QM-07
Xylene (o)	0.0742	0.00103	"	0.103	ND	72.0	80-120			QM-07
Surrogate: 1,4-Difluorobenzene	0.125		"	0.124		101	75-125			
Surrogate: 4-Bromofluorobenzene	0.111		"	0.124		89.3	75-125			

**Matrix Spike Dup (P9H1602-MSD1)**

Source: 9H16002-01

Prepared: 08/16/19 Analyzed: 08/17/19

Benzene	0.0773	0.00103	mg/kg dry	0.103	ND	75.0	80-120	13.6	20	QM-07
Toluene	0.0788	0.00103	"	0.103	ND	76.4	80-120	15.5	20	QM-07
Ethylbenzene	0.0899	0.00103	"	0.103	ND	87.2	80-120	15.9	20	
Xylene (p/m)	0.154	0.00206	"	0.206	ND	74.7	80-120	13.9	20	QM-07
Xylene (o)	0.0844	0.00103	"	0.103	ND	81.9	80-120	12.8	20	
Surrogate: 4-Bromofluorobenzene	0.118		"	0.124		95.5	75-125			
Surrogate: 1,4-Difluorobenzene	0.130		"	0.124		105	75-125			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1603 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P9H1603-BLK1)**

Prepared & Analyzed: 08/16/19

% Moisture	ND	0.1	%
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**Blank (P9H1603-BLK2)**

Prepared & Analyzed: 08/16/19

% Moisture	ND	0.1	%
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**Duplicate (P9H1603-DUP1)**

**Source: 9H14012-11**

Prepared & Analyzed: 08/16/19

% Moisture	6.0	0.1	%	ND	200	20
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**Duplicate (P9H1603-DUP2)**

**Source: 9H14019-09**

Prepared & Analyzed: 08/16/19

% Moisture	20.0	0.1	%	20.0	0.00	20
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**Duplicate (P9H1603-DUP3)**

**Source: 9H15013-03**

Prepared & Analyzed: 08/16/19

% Moisture	1.0	0.1	%	1.0	0.00	20
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**Duplicate (P9H1603-DUP4)**

**Source: 9H15014-12**

Prepared & Analyzed: 08/16/19

% Moisture	ND	0.1	%	ND		20
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**Duplicate (P9H1603-DUP5)**

**Source: 9H15015-16**

Prepared & Analyzed: 08/16/19

% Moisture	ND	0.1	%	ND		20
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Permian Basin Environmental Lab, L.P.

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1400 Rankin HWY Midland, TX 79701 432-686-7235

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1611 - TX 1005**

**Blank (P9H1611-BLK1)**

Prepared: 08/16/19 Analyzed: 08/17/19

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	105		"	100		105	70-130			
Surrogate: o-Terphenyl	61.6		"	50.0		123	70-130			

**LCS (P9H1611-BS1)**

Prepared: 08/16/19 Analyzed: 08/17/19

C6-C12	977	25.0	mg/kg wet	1000		97.7	75-125			
>C12-C28	837	25.0	"	1000		83.7	75-125			
Surrogate: 1-Chlorooctane	128		"	100		128	70-130			
Surrogate: o-Terphenyl	47.4		"	50.0		94.9	70-130			

**Calibration Blank (P9H1611-CCB1)**

Prepared: 08/16/19 Analyzed: 08/17/19

C6-C12	11.2		mg/kg wet							
>C12-C28	9.70		"							
Surrogate: 1-Chlorooctane	118		"	100		118	70-130			
Surrogate: o-Terphenyl	54.4		"	50.0		109	70-130			

**Calibration Blank (P9H1611-CCB2)**

Prepared: 08/16/19 Analyzed: 08/17/19

C6-C12	8.91		mg/kg wet							
>C12-C28	0.460		"							
Surrogate: 1-Chlorooctane	120		"	100		120	70-130			
Surrogate: o-Terphenyl	55.0		"	50.0		110	70-130			

**Calibration Check (P9H1611-CCV2)**

Prepared: 08/16/19 Analyzed: 08/17/19

C6-C12	532	25.0	mg/kg wet	500		106	85-115			
>C12-C28	426	25.0	"	500		85.2	85-115			
Surrogate: 1-Chlorooctane	124		"	100		124	70-130			
Surrogate: o-Terphenyl	52.4		"	50.0		105	70-130			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1611 - TX 1005**

**Calibration Check (P9H1611-CCV3)**

Prepared: 08/16/19 Analyzed: 08/18/19

C6-C12	475	25.0	mg/kg wet	500		95.0	85-115			
>C12-C28	518	25.0	"	500		104	85-115			
Surrogate: 1-Chlorooctane	115		"	100		115	70-130			
Surrogate: o-Terphenyl	60.2		"	50.0		120	70-130			

**Duplicate (P9H1611-DUP1)**

Source: 9H15003-01

Prepared: 08/16/19 Analyzed: 08/18/19

C6-C12	ND	29.4	mg/kg dry		14.4				20	
>C12-C28	18.2	29.4	"		23.5			25.6	20	
Surrogate: 1-Chlorooctane	134		"	118		114	70-130			
Surrogate: o-Terphenyl	81.0		"	58.8		138	70-130			S-GC

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

ROI Received on Ice

R2 The RPD exceeded the acceptance limit.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:  Date: 8/28/2019

Brent Barron, Laboratory Director/Technical Director

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: TNM Monument 18  
Project Number: TNM Monument 18  
Location: Lea County, NM  
Lab Order Number: 9H14022



**NELAP/TCEQ # T104704516-18-9**

Report Date: 08/28/19

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: TNM Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2019-SP-58	9H14022-01	Soil	08/14/19 09:30	08-14-2019 16:28

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: TNM Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**2019-SP-58**  
**9H14022-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.0244	mg/kg dry	20	P9H1602	08/16/19	08/16/19	EPA 8021B	
<b>Toluene</b>	<b>0.698</b>	0.0244	mg/kg dry	20	P9H1602	08/16/19	08/16/19	EPA 8021B	
<b>Ethylbenzene</b>	<b>1.49</b>	0.0244	mg/kg dry	20	P9H1602	08/16/19	08/16/19	EPA 8021B	
<b>Xylene (p/m)</b>	<b>5.04</b>	0.0488	mg/kg dry	20	P9H1602	08/16/19	08/16/19	EPA 8021B	
<b>Xylene (o)</b>	<b>0.969</b>	0.0244	mg/kg dry	20	P9H1602	08/16/19	08/16/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		118 %	75-125		P9H1602	08/16/19	08/16/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		107 %	75-125		P9H1602	08/16/19	08/16/19	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

<b>% Moisture</b>	<b>18.0</b>	0.1	%	1	P9H1505	08/15/19	08/15/19	ASTM D2216	
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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

<b>C6-C12</b>	<b>1880</b>	305	mg/kg dry	10	P9H1502	08/15/19	08/15/19	TPH 8015M	
<b>&gt;C12-C28</b>	<b>7690</b>	305	mg/kg dry	10	P9H1502	08/15/19	08/15/19	TPH 8015M	
<b>&gt;C28-C35</b>	<b>1490</b>	305	mg/kg dry	10	P9H1502	08/15/19	08/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		109 %	70-130		P9H1502	08/15/19	08/15/19	TPH 8015M	
Surrogate: o-Terphenyl		107 %	70-130		P9H1502	08/15/19	08/15/19	TPH 8015M	
<b>Total Petroleum Hydrocarbon C6-C35</b>	<b>11100</b>	305	mg/kg dry	10	[CALC]	08/15/19	08/15/19	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: TNM Monument 18  
Project Number: TNM Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1602 - General Preparation (GC)**

**Blank (P9H1602-BLK1)**

Prepared & Analyzed: 08/16/19

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.100		"	0.120		83.5	75-125			
Surrogate: 4-Bromofluorobenzene	0.121		"	0.120		101	75-125			

**LCS (P9H1602-BS1)**

Prepared & Analyzed: 08/16/19

Benzene	0.0863	0.00100	mg/kg wet	0.100		86.3	70-130			
Toluene	0.104	0.00100	"	0.100		104	70-130			
Ethylbenzene	0.105	0.00100	"	0.100		105	70-130			
Xylene (p/m)	0.208	0.00200	"	0.200		104	70-130			
Xylene (o)	0.110	0.00100	"	0.100		110	70-130			
Surrogate: 1,4-Difluorobenzene	0.127		"	0.120		106	75-125			
Surrogate: 4-Bromofluorobenzene	0.130		"	0.120		108	75-125			

**LCS Dup (P9H1602-BSD1)**

Prepared & Analyzed: 08/16/19

Benzene	0.106	0.00100	mg/kg wet	0.100		106	70-130	20.4	20	R2
Toluene	0.120	0.00100	"	0.100		120	70-130	13.8	20	
Ethylbenzene	0.113	0.00100	"	0.100		113	70-130	7.68	20	
Xylene (p/m)	0.229	0.00200	"	0.200		114	70-130	9.32	20	
Xylene (o)	0.119	0.00100	"	0.100		119	70-130	8.04	20	
Surrogate: 1,4-Difluorobenzene	0.135		"	0.120		113	75-125			
Surrogate: 4-Bromofluorobenzene	0.126		"	0.120		105	75-125			

**Calibration Blank (P9H1602-CCB1)**

Prepared & Analyzed: 08/16/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.0989		"	0.120		82.4	75-125			
Surrogate: 4-Bromofluorobenzene	0.122		"	0.120		102	75-125			

Permian Basin Environmental Lab, L.P.

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10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: TNM Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1602 - General Preparation (GC)**

**Calibration Blank (P9H1602-CCB2)**

Prepared & Analyzed: 08/16/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	0.132		"	0.120		110	75-125			
Surrogate: 1,4-Difluorobenzene	0.102		"	0.120		85.0	75-125			

**Calibration Blank (P9H1602-CCB3)**

Prepared: 08/16/19 Analyzed: 08/17/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.112		"	0.120		93.2	75-125			
Surrogate: 4-Bromofluorobenzene	0.126		"	0.120		105	75-125			

**Calibration Check (P9H1602-CCV1)**

Prepared & Analyzed: 08/16/19

Benzene	0.0910	0.00100	mg/kg wet	0.100		91.0	80-120			
Toluene	0.112	0.00100	"	0.100		112	80-120			
Ethylbenzene	0.118	0.00100	"	0.100		118	80-120			
Xylene (p/m)	0.223	0.00200	"	0.200		112	80-120			
Xylene (o)	0.115	0.00100	"	0.100		115	80-120			
Surrogate: 4-Bromofluorobenzene	0.140		"	0.120		116	75-125			
Surrogate: 1,4-Difluorobenzene	0.128		"	0.120		107	75-125			

**Calibration Check (P9H1602-CCV2)**

Prepared & Analyzed: 08/16/19

Benzene	0.0947	0.00100	mg/kg wet	0.100		94.7	80-120			
Toluene	0.103	0.00100	"	0.100		103	80-120			
Ethylbenzene	0.0934	0.00100	"	0.100		93.4	80-120			
Xylene (p/m)	0.205	0.00200	"	0.200		103	80-120			
Xylene (o)	0.114	0.00100	"	0.100		114	80-120			
Surrogate: 4-Bromofluorobenzene	0.126		"	0.120		105	75-125			
Surrogate: 1,4-Difluorobenzene	0.130		"	0.120		109	75-125			

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

Project: TNM Monument 18  
Project Number: TNM Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1602 - General Preparation (GC)**

Calibration Check (P9H1602-CCV3)				Prepared: 08/16/19		Analyzed: 08/17/19				
Benzene	0.103	0.00100	mg/kg wet	0.100		103	80-120			
Toluene	0.102	0.00100	"	0.100		102	80-120			
Ethylbenzene	0.0992	0.00100	"	0.100		99.2	80-120			
Xylene (p/m)	0.208	0.00200	"	0.200		104	80-120			
Xylene (o)	0.118	0.00100	"	0.100		118	80-120			
Surrogate: 1,4-Difluorobenzene	0.127		"	0.120		106	75-125			
Surrogate: 4-Bromofluorobenzene	0.125		"	0.120		104	75-125			

Matrix Spike (P9H1602-MS1)				Source: 9H16002-01		Prepared: 08/16/19		Analyzed: 08/17/19			
Benzene	0.0674	0.00103	mg/kg dry	0.103	ND	65.4	80-120			QM-07	
Toluene	0.0674	0.00103	"	0.103	ND	65.4	80-120			QM-07	
Ethylbenzene	0.0767	0.00103	"	0.103	ND	74.4	80-120			QM-07	
Xylene (p/m)	0.134	0.00206	"	0.206	ND	65.0	80-120			QM-07	
Xylene (o)	0.0742	0.00103	"	0.103	ND	72.0	80-120			QM-07	
Surrogate: 1,4-Difluorobenzene	0.125		"	0.124		101	75-125				
Surrogate: 4-Bromofluorobenzene	0.111		"	0.124		89.3	75-125				

Matrix Spike Dup (P9H1602-MSD1)				Source: 9H16002-01		Prepared: 08/16/19		Analyzed: 08/17/19			
Benzene	0.0773	0.00103	mg/kg dry	0.103	ND	75.0	80-120	13.6	20	QM-07	
Toluene	0.0788	0.00103	"	0.103	ND	76.4	80-120	15.5	20	QM-07	
Ethylbenzene	0.0899	0.00103	"	0.103	ND	87.2	80-120	15.9	20		
Xylene (p/m)	0.154	0.00206	"	0.206	ND	74.7	80-120	13.9	20	QM-07	
Xylene (o)	0.0844	0.00103	"	0.103	ND	81.9	80-120	12.8	20		
Surrogate: 4-Bromofluorobenzene	0.118		"	0.124		95.5	75-125				
Surrogate: 1,4-Difluorobenzene	0.130		"	0.124		105	75-125				

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: TNM Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1505 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P9H1505-BLK1)**

Prepared & Analyzed: 08/15/19

% Moisture	ND	0.1	%
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**Duplicate (P9H1505-DUP1)**

**Source: 9H14023-05**

Prepared & Analyzed: 08/15/19

% Moisture	17.0	0.1	%	17.0	0.00	20
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Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: TNM Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1502 - TX 1005**

**Blank (P9H1502-BLK1)**

Prepared & Analyzed: 08/15/19

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	110		"	100		110	70-130			
Surrogate: o-Terphenyl	54.8		"	50.0		110	70-130			

**LCS (P9H1502-BS1)**

Prepared & Analyzed: 08/15/19

C6-C12	984	25.0	mg/kg wet	1000		98.4	75-125			
>C12-C28	1000	25.0	"	1000		100	75-125			
Surrogate: 1-Chlorooctane	111		"	100		111	70-130			
Surrogate: o-Terphenyl	50.0		"	50.0		99.9	70-130			

**LCS Dup (P9H1502-BSD1)**

Prepared & Analyzed: 08/15/19

C6-C12	999	25.0	mg/kg wet	1000		99.9	75-125	1.52	20	
>C12-C28	1030	25.0	"	1000		103	75-125	2.60	20	
Surrogate: 1-Chlorooctane	111		"	100		111	70-130			
Surrogate: o-Terphenyl	53.6		"	50.0		107	70-130			

**Calibration Blank (P9H1502-CCB1)**

Prepared & Analyzed: 08/15/19

C6-C12	4.75		mg/kg wet							
>C12-C28	16.6		"							
Surrogate: 1-Chlorooctane	110		"	100		110	70-130			
Surrogate: o-Terphenyl	54.4		"	50.0		109	70-130			

**Calibration Check (P9H1502-CCV1)**

Prepared & Analyzed: 08/15/19

C6-C12	540	25.0	mg/kg wet	500		108	85-115			
>C12-C28	549	25.0	"	500		110	85-115			
Surrogate: 1-Chlorooctane	118		"	100		118	70-130			
Surrogate: o-Terphenyl	54.6		"	50.0		109	70-130			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: TNM Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P9H1502 - TX 1005**

**Duplicate (P9H1502-DUP1)**

**Source: 9H13006-10**

Prepared & Analyzed: 08/15/19

C6-C12	49.0	28.4	mg/kg dry		53.4			8.59	20	
>C12-C28	725	28.4	"		693			4.48	20	
Surrogate: 1-Chlorooctane	127		"	114		112	70-130			
Surrogate: o-Terphenyl	62.6		"	56.8		110	70-130			

Permian Basin Environmental Lab, L.P.

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TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: TNM Monument 18  
Project Number: TNM Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### Notes and Definitions

ROI Received on Ice

R2 The RPD exceeded the acceptance limit.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

8/28/2019

Brent Barron, Laboratory Director/Technical Director

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Permian Basin Environmental Lab, L.P.

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Project: TNM Monument 18  
Project Number: TNM Monument 18  
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Permian Basin Environmental Lab, L.P.

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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Curt Stanley  
TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland, TX 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Location: Lea County, NM  
Lab Order Number: 0A16010



NELAP/TCEQ # T104704516-17-8

Report Date: 01/24/20

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2020-WSW-1 @ 18'	0A16010-01	Soil	01/14/20 10:00	01-16-2020 10:39
2020-WSW-2 @ 18'	0A16010-02	Soil	01/14/20 10:15	01-16-2020 10:39

TRC Solutions- Midland, Texas  
10 Desta Dr STE 150E  
Midland TX, 79705

Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

### 2020-WSW-1 @ 18'

#### 0A16010-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00111	mg/kg dry	1	P0A1702	01/17/20	01/17/20	EPA 8021B	
Toluene	ND	0.00111	mg/kg dry	1	P0A1702	01/17/20	01/17/20	EPA 8021B	
Ethylbenzene	ND	0.00111	mg/kg dry	1	P0A1702	01/17/20	01/17/20	EPA 8021B	
Xylene (p/m)	ND	0.00222	mg/kg dry	1	P0A1702	01/17/20	01/17/20	EPA 8021B	
Xylene (o)	ND	0.00111	mg/kg dry	1	P0A1702	01/17/20	01/17/20	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		106 %	75-125		P0A1702	01/17/20	01/17/20	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		102 %	75-125		P0A1702	01/17/20	01/17/20	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	10.0	0.1	%	1	P0A1709	01/17/20	01/17/20	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	27.8	mg/kg dry	1	P0A1711	01/17/20	01/19/20	TPH 8015M	
>C12-C28	ND	27.8	mg/kg dry	1	P0A1711	01/17/20	01/19/20	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P0A1711	01/17/20	01/19/20	TPH 8015M	
Surrogate: 1-Chlorooctane		124 %	70-130		P0A1711	01/17/20	01/19/20	TPH 8015M	
Surrogate: o-Terphenyl		137 %	70-130		P0A1711	01/17/20	01/19/20	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	01/17/20	01/19/20	calc	

Permian Basin Environmental Lab, L.P.

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Midland TX, 79705

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Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

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### 2020-WSW-2 @ 18'

#### 0A16010-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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#### Permian Basin Environmental Lab, L.P.

#### Organics by GC

Benzene	ND	0.00109	mg/kg dry	1	P0A1702	01/17/20	01/17/20	EPA 8021B	
Toluene	ND	0.00109	mg/kg dry	1	P0A1702	01/17/20	01/17/20	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P0A1702	01/17/20	01/17/20	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P0A1702	01/17/20	01/17/20	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P0A1702	01/17/20	01/17/20	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		105 %	75-125		P0A1702	01/17/20	01/17/20	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		102 %	75-125		P0A1702	01/17/20	01/17/20	EPA 8021B	

#### General Chemistry Parameters by EPA / Standard Methods

% Moisture	8.0	0.1	%	1	P0A1709	01/17/20	01/17/20	ASTM D2216	
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#### Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	27.2	mg/kg dry	1	P0A1711	01/17/20	01/19/20	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	P0A1711	01/17/20	01/19/20	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	P0A1711	01/17/20	01/19/20	TPH 8015M	
Surrogate: 1-Chlorooctane		120 %	70-130		P0A1711	01/17/20	01/19/20	TPH 8015M	
Surrogate: o-Terphenyl		130 %	70-130		P0A1711	01/17/20	01/19/20	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	01/17/20	01/19/20	calc	

Permian Basin Environmental Lab, L.P.

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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P0A1702 - General Preparation (GC)**

**Blank (P0A1702-BLK1)**

Prepared & Analyzed: 01/17/20

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	0.122		"	0.120		101	75-125			
Surrogate: 1,4-Difluorobenzene	0.119		"	0.120		98.9	75-125			

**LCS (P0A1702-BS1)**

Prepared & Analyzed: 01/17/20

Benzene	0.114	0.00100	mg/kg wet	0.100		114	70-130			
Toluene	0.118	0.00100	"	0.100		118	70-130			
Ethylbenzene	0.115	0.00100	"	0.100		115	70-130			
Xylene (p/m)	0.231	0.00200	"	0.200		116	70-130			
Xylene (o)	0.105	0.00100	"	0.100		105	70-130			
Surrogate: 1,4-Difluorobenzene	0.123		"	0.120		103	75-125			
Surrogate: 4-Bromofluorobenzene	0.126		"	0.120		105	75-125			

**LCS Dup (P0A1702-BSD1)**

Prepared & Analyzed: 01/17/20

Benzene	0.116	0.00100	mg/kg wet	0.100		116	70-130	1.73	20	
Toluene	0.116	0.00100	"	0.100		116	70-130	1.07	20	
Ethylbenzene	0.113	0.00100	"	0.100		113	70-130	1.26	20	
Xylene (p/m)	0.229	0.00200	"	0.200		115	70-130	0.846	20	
Xylene (o)	0.106	0.00100	"	0.100		106	70-130	0.598	20	
Surrogate: 1,4-Difluorobenzene	0.124		"	0.120		103	75-125			
Surrogate: 4-Bromofluorobenzene	0.124		"	0.120		103	75-125			

**Calibration Blank (P0A1702-CCB1)**

Prepared & Analyzed: 01/17/20

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.118		"	0.120		98.5	75-125			
Surrogate: 4-Bromofluorobenzene	0.122		"	0.120		102	75-125			

Permian Basin Environmental Lab, L.P.

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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P0A1702 - General Preparation (GC)**

**Calibration Blank (P0A1702-CCB2)**

Prepared & Analyzed: 01/17/20

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.120		"	0.120		100	75-125			
Surrogate: 4-Bromofluorobenzene	0.123		"	0.120		103	75-125			

**Calibration Blank (P0A1702-CCB3)**

Prepared & Analyzed: 01/17/20

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.118		"	0.120		98.6	75-125			
Surrogate: 4-Bromofluorobenzene	0.119		"	0.120		98.9	75-125			

**Calibration Check (P0A1702-CCV1)**

Prepared & Analyzed: 01/17/20

Benzene	0.109	0.00100	mg/kg wet	0.100		109	80-120			
Toluene	0.104	0.00100	"	0.100		104	80-120			
Ethylbenzene	0.104	0.00100	"	0.100		104	80-120			
Xylene (p/m)	0.221	0.00200	"	0.200		110	80-120			
Xylene (o)	0.112	0.00100	"	0.100		112	80-120			
Surrogate: 1,4-Difluorobenzene	0.121		"	0.120		101	75-125			
Surrogate: 4-Bromofluorobenzene	0.120		"	0.120		100	75-125			

**Calibration Check (P0A1702-CCV2)**

Prepared & Analyzed: 01/17/20

Benzene	0.101	0.00100	mg/kg wet	0.100		101	80-120			
Toluene	0.104	0.00100	"	0.100		104	80-120			
Ethylbenzene	0.106	0.00100	"	0.100		106	80-120			
Xylene (p/m)	0.209	0.00200	"	0.200		105	80-120			
Xylene (o)	0.109	0.00100	"	0.100		109	80-120			
Surrogate: 1,4-Difluorobenzene	0.124		"	0.120		103	75-125			
Surrogate: 4-Bromofluorobenzene	0.127		"	0.120		106	75-125			

Permian Basin Environmental Lab, L.P.

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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P0A1702 - General Preparation (GC)**

Calibration Check (P0A1702-CCV3)			Prepared & Analyzed: 01/17/20							
Benzene	0.100	0.00100	mg/kg wet	0.100		100	80-120			
Toluene	0.102	0.00100	"	0.100		102	80-120			
Ethylbenzene	0.102	0.00100	"	0.100		102	80-120			
Xylene (p/m)	0.204	0.00200	"	0.200		102	80-120			
Xylene (o)	0.108	0.00100	"	0.100		108	80-120			
Surrogate: 1,4-Difluorobenzene	0.124		"	0.120		103	75-125			
Surrogate: 4-Bromofluorobenzene	0.123		"	0.120		102	75-125			

Matrix Spike (P0A1702-MS1)			Source: 0A17001-01		Prepared & Analyzed: 01/17/20					
Benzene	0.0897	0.00106	mg/kg dry	0.106	0.00589	78.8	80-120			QM-07
Toluene	0.0911	0.00106	"	0.106	0.0118	74.6	80-120			QM-07
Ethylbenzene	0.105	0.00106	"	0.106	ND	98.7	80-120			
Xylene (p/m)	0.182	0.00213	"	0.213	0.0196	76.3	80-120			QM-07
Xylene (o)	0.0859	0.00106	"	0.106	0.00357	77.4	80-120			QM-07
Surrogate: 1,4-Difluorobenzene	0.127		"	0.128		99.4	75-125			
Surrogate: 4-Bromofluorobenzene	0.135		"	0.128		105	75-125			

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**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P0A1709 - *** DEFAULT PREP ***</b>										
<b>Blank (P0A1709-BLK1)</b>										Prepared & Analyzed: 01/17/20
% Moisture	ND	0.1	%							
<b>Duplicate (P0A1709-DUP1)</b>		<b>Source: 0A15004-73</b>								Prepared & Analyzed: 01/17/20
% Moisture	4.0	0.1	%		4.0			0.00	20	
<b>Duplicate (P0A1709-DUP2)</b>		<b>Source: 0A15004-46</b>								Prepared & Analyzed: 01/17/20
% Moisture	7.0	0.1	%		7.0			0.00	20	
<b>Duplicate (P0A1709-DUP3)</b>		<b>Source: 0A15005-19</b>								Prepared & Analyzed: 01/17/20
% Moisture	4.0	0.1	%		4.0			0.00	20	
<b>Duplicate (P0A1709-DUP4)</b>		<b>Source: 0A15007-08</b>								Prepared & Analyzed: 01/17/20
% Moisture	10.0	0.1	%		10.0			0.00	20	
<b>Duplicate (P0A1709-DUP5)</b>		<b>Source: 0A15010-06</b>								Prepared & Analyzed: 01/17/20
% Moisture	7.0	0.1	%		7.0			0.00	20	
<b>Duplicate (P0A1709-DUP6)</b>		<b>Source: 0A16004-39</b>								Prepared & Analyzed: 01/17/20
% Moisture	8.0	0.1	%		8.0			0.00	20	
<b>Duplicate (P0A1709-DUP7)</b>		<b>Source: 0A16011-01</b>								Prepared & Analyzed: 01/17/20
% Moisture	3.0	0.1	%		4.0			28.6	20	

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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P0A1711 - TX 1005**

**Blank (P0A1711-BLK1)**

Prepared: 01/17/20 Analyzed: 01/19/20

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	108		"	100		108	70-130			
Surrogate: o-Terphenyl	57.6		"	50.0		115	70-130			

**LCS (P0A1711-BS1)**

Prepared: 01/17/20 Analyzed: 01/19/20

C6-C12	904	25.0	mg/kg wet	1000		90.4	75-125			
>C12-C28	1120	25.0	"	1000		112	75-125			
Surrogate: 1-Chlorooctane	111		"	100		111	70-130			
Surrogate: o-Terphenyl	49.5		"	50.0		98.9	70-130			

**LCS Dup (P0A1711-BSD1)**

Prepared: 01/17/20 Analyzed: 01/19/20

C6-C12	928	25.0	mg/kg wet	1000		92.8	75-125	2.53	20	
>C12-C28	1120	25.0	"	1000		112	75-125	0.384	20	
Surrogate: 1-Chlorooctane	115		"	100		115	70-130			
Surrogate: o-Terphenyl	51.8		"	50.0		104	70-130			

**Calibration Blank (P0A1711-CCB1)**

Prepared: 01/17/20 Analyzed: 01/19/20

C6-C12	18.2		mg/kg wet							
>C12-C28	5.78		"							
Surrogate: 1-Chlorooctane	106		"	100		106	70-130			
Surrogate: o-Terphenyl	57.2		"	50.0		114	70-130			

**Calibration Check (P0A1711-CCV1)**

Prepared: 01/17/20 Analyzed: 01/19/20

C6-C12	494	25.0	mg/kg wet	500		98.9	85-115			
>C12-C28	569	25.0	"	500		114	85-115			
Surrogate: 1-Chlorooctane	108		"	100		108	70-130			
Surrogate: o-Terphenyl	53.6		"	50.0		107	70-130			

Permian Basin Environmental Lab, L.P.

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**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P0A1711 - TX 1005**

**Calibration Check (P0A1711-CCV2)**

Prepared: 01/17/20 Analyzed: 01/19/20

C6-C12	490	25.0	mg/kg wet	500		98.1	85-115			
>C12-C28	567	25.0	"	500		113	85-115			
Surrogate: 1-Chlorooctane	105		"	100		105	70-130			
Surrogate: o-Terphenyl	56.7		"	50.0		113	70-130			

**Calibration Check (P0A1711-CCV3)**

Prepared: 01/17/20 Analyzed: 01/19/20

C6-C12	486	25.0	mg/kg wet	500		97.1	85-115			
>C12-C28	574	25.0	"	500		115	85-115			
Surrogate: 1-Chlorooctane	105		"	100		105	70-130			
Surrogate: o-Terphenyl	52.1		"	50.0		104	70-130			

**Matrix Spike (P0A1711-MS1)**

Source: 0A16016-01

Prepared: 01/17/20 Analyzed: 01/19/20

C6-C12	867	26.6	mg/kg dry	1060	17.1	79.9	75-125			
>C12-C28	1040	26.6	"	1060	16.0	96.2	75-125			
Surrogate: 1-Chlorooctane	99.6		"	106		93.6	70-130			
Surrogate: o-Terphenyl	53.5		"	53.2		101	70-130			

**Matrix Spike Dup (P0A1711-MSD1)**

Source: 0A16016-01

Prepared: 01/17/20 Analyzed: 01/19/20

C6-C12	827	26.6	mg/kg dry	1060	17.1	76.1	75-125	4.80	20	
>C12-C28	995	26.6	"	1060	16.0	92.0	75-125	4.47	20	
Surrogate: 1-Chlorooctane	94.1		"	106		88.5	70-130			
Surrogate: o-Terphenyl	51.1		"	53.2		96.0	70-130			

Permian Basin Environmental Lab, L.P.

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### Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

ROI Received on Ice

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

1/24/2020

Brent Barron, Laboratory Director/Technical Director

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If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

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Project: Monument 18  
Project Number: TNM-Monument 18  
Project Manager: Curt Stanley

Fax: (432) 520-7701

Permian Basin Environmental Lab, L.P.

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.*

1400 Rankin HWY Midland, TX 79701 432-686-7235



**PBBLAB**

## CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP  
10014 S. County Road 1213  
Midland, Texas 79706

Phone: 432-661-4184

Page 1 of 1

Project Manager: Curt StanleyCompany Name: TRC Environmental CorporationCompany Address: 10 Desta Drive, Ste 150ECity/State/Zip: Midland/TX 79703Telephone No: (432) 520 7720Sampler Signature: Curt Stanley

Fax No: \_\_\_\_\_

e-mail: cdstanley@trcsolutions.comcibryant@paalp.com  
algroves@paalp.comReport Format: ☒ Standard☐ TRRP☐ NPDESProject Name: Monument 18Project #: TNM Monument 18Project Loc: Lea County, New Mexico

PO #: \_\_\_\_\_

Page 13 of 13

ORDER #: 0416010

(lab use only)

LAB # (lab use only)

FIELD CODE

1

2020 - WSW-1 @ 18'

2

2020 - WSW-2 @ 18'

Beginning Depth

Ending Depth

Date Sampled

Time Sampled

Field Filtered

Total #. of Containers

Ice

HNO<sub>3</sub>

HCl

H<sub>2</sub>SO<sub>4</sub>

NaOH

Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>

None

Other (Specify)

DW=Drinking Water SL=Sludge

GW = Groundwater S=Soil/Solid

NP=Non-Potable Specify Other

TPH: 418.1 8015M 8015B

TPH: TX 1005 TX 1006

Cations (Ca, Mg, Na, K)

Anions (Cl, SO<sub>4</sub>, Alkalinity)

SAR / ESP / CEC

Metals: As Ag Ba Cd Cr Pb Hg Se

Volatiles

Semivolatiles

BTEX 8021/5030 or BTEX 8260

RCI

N.O.R.M.

Chlorides E 300

Paint Filter

TCLP Benzene

RUSH TAT (Pre-Schedule) 24, 48, 72 hrs

Standard TAT

Preservation &amp; # of Containers

Matrix

TOTAL

TCLP

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

Special Instructions:

Surrendered by:

Date

Time

Received by:

Date

Time

Surrendered by:

Date

Time

Received by:

Date

Time

Surrendered by:

Date

Time

Received by:

Date

Time

Laboratory Comments:

Sample Containers intact?

VOCs Free of HeadSpace?

Labels on container(s)?

Custody seals on container(s)?

Custody seals on cooler(s)?

Sample Hand Delivered?

by Courier?

Temperature Upon Receipt:

Adjusted:

°C

°F

N

N

N

N

N

## Appendix D

# NMOCD Release Notification and Corrective Action (Form C-141)

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised October 10, 2003

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

## Release Notification and Corrective Action

### OPERATOR

x Initial Report ☐ Final Report

Name of Company	Plains Pipeline, LP	Contact:	Camille Reynolds
Address:	3705 E. Hwy 158, Midland, TX 79706	Telephone No.	505-441-0965
Facility Name	Monument # 18	Facility Type:	Pipeline

Surface Owner: Jim B Cooper	Mineral Owner	Lease No.
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### LOCATION OF RELEASE

Unit Letter D	Section 7	Township 20S	Range 37E	Feet from the	North/South Line	Feet from the	East/West Line	County Lea
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Latitude 32 degrees 35' 30.0" Longitude 103 degrees 17' 55.9"

### NATURE OF RELEASE

Type of Release:	Volume of Release:	Volume Recovered
Source of Release:	Date and Hour of Occurrence Unknown	Date and Hour of Discovery
Was Immediate Notice Given? Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

Describe Area Affected and Cleanup Action Taken.\*

**NOTE: Texas-New Mexico Pipeline was the owner/operator of the pipeline system at the time of the release, initial response information is unavailable.**

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.

Signature:		<u>OIL CONSERVATION DIVISION</u>	
Printed Name: Camille Reynolds		Approved by District Supervisor:	
Title: Remediation Coordinator		Approval Date:	Expiration Date:
E-mail Address: cjreynolds@paalp.com		Conditions of Approval:	
Date: 3/21/2005 Phone: (505)441-0965		Attached <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary

**District I**

1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720

**District II**

811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720

**District III**

1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**

1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS

Action 30997

**CONDITIONS**

Operator: PLAINS MARKETING L.P. 333 Clay St, Ste 1600 Houston, TX 77002	OGRID: 34053
	Action Number: 30997
	Action Type: [C-141] Release Corrective Action (C-141)

**CONDITIONS**

Created By	Condition	Condition Date
bbillings	OCD requests that Plains check with the SLO (NM) to evaluate their desire or not to maintain any of the current monitor wells Please then inform OCD of those remaining and or plugging of monitor wells.	6/8/2021