

# Annual Report of Groundwater Monitoring and Remediation in 2019

Darr Angell #2 SRS LF 1999-62 SW1/4, SE1/4, Section 11, T15S, R37E and NW1/4, NE1/4, Section, 14 T15S, R37E, Lea County, New Mexico NMOCD AP-007

Plains All American Pipeline LP

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### 1. Introduction

This Annual Report of Groundwater Monitoring and Remediation in 2019 presents data collected at the Darr Angell No. 2 site (hereafter referred to as the "Site") by GHD Services, Inc. (GHD) on behalf of Plains All American Pipeline, L.P. (Plains) in compliance with the New Mexico Oil Conservation Division (NMOCD) correspondence dated May 1998, requiring submittal of an Annual Monitoring Report by April 1 of each year. This Site is part of NMOCD Abatement Plan number AP-007. This report presents results of quarterly gauging and sampling of monitor and recovery wells in February, May, July, and October. Remedial activities included recovery of LNAPL and impacted groundwater by total fluid pumps, soil vapor extraction, hand bailing, and enhanced fluid recovery (EFR).

The location of the Site is SW1/4, SE1/4, Section 11, Township 15 South, Range 37 East and NW1/4, NE1/4, Section 14, Township 15 South, Range 37 East. Latitude and longitude of the Site are 33.0242° North and 103.1667° West. Location of the Site is shown on a topographic map in Figure 1.

#### 1.1 Site History

The Site was formerly the responsibility of Enron Oil Trading and Transportation (EOTT); however, the Site is currently the responsibility of Plains. A pipeline release was discovered by EOTT employees and details were submitted on a Release Notification and Corrective Action Form (C-141) to the NMOCD on July 29, 1999. The C-141 reported the release 60 barrels (bbl.) of crude oil with no recovery. The release occurred from an 8 inch EOTT pipeline and was attributed to external pipeline corrosion.

Initial remediation activities began in August 1999 and consisted of 40 soil borings installed within and around the area of surface staining. In April and May 2000, a contractor for EOTT excavated the impacted area to approximately 4.5 feet below ground surface (bgs). Impacted soils were stockpiled on site. Excavation resumed in April and May 2001 with the additional removal of approximately 3,000 cubic yards of impacted soil. This material was added to soil previously stockpiled on site. Monitor wells MW-1 through MW-10 and recovery wells RW-1 through RW-7 were installed between April 2000 and December 2002. Partial backfilling of the open excavation was conducted subsequent to NMOCD approval of a backfill request, submitted on March 11, 2002. Backfill materials consisted of previously excavated caliche which had been separated from other excavated material by mechanical screening.

Approximately 3100 cubic yards of excavated soils were placed into a treatment area, which was 2-3 feet deep, in October 2003. Quarterly mechanical tilling of this stockpile occurred throughout 2004. Analytical results detailed in the Site Restoration Work Plan and Proposed Soil Closure Strategy of January 2006 indicated concentrations of total petroleum hydrocarbons (TPH) within the soil treatment cell were below NMOCD regulatory standards. In a letter from the NMOCD of April 5, 2006 Plains received approval to backfill the excavation at the Site. The excavation was backfilled with remediated soils contained in the soil treatment cell and contoured to grade in June 2006. A Soil Closure Request was submitted to the NMOCD. Plains received an email approving the soil closure request for the Darr No. 2 location on February 19, 2010.



Nova began managing activities at the Site on May 29, 2004. GHD began monitoring, operation, maintenance, and reporting at the Site on May 2, 2011.

There are 11 groundwater monitor wells (MW-1, MW-2, MW-3, MW-4R, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, and MW-12) and 12 recovery wells (RW-1, RW-2, RW-3, RW-4, RW-5, RW-6, RW-7R, RW-8, RW-9, RW-10, RW-11, and RW-12) that were installed with NMOCD approval at the Site. Monitor well MW-5 was plugged and abandoned on September 14, 2005. Wells MW-4 and RW-7 were plugged and abandoned on October 7 and October 8, 2014, respectively. Monitor well MW-4R and recovery well RW-9 were installed on October 7, 2014. Recovery wells RW-7R, RW-8 and RW-10 were installed on October 8, 2014. Monitor well MW-12 and recovery wells RW-11 and RW-12 were installed on February 8, 2017. New wells were professionally surveyed on November 11, 2014 and June 28, 2017. A Site Details Map is presented as Figure 2.

### 2. Regulatory Framework

NMOCD guidelines require groundwater to be analyzed for potential contaminants as defined by the New Mexico Administrative Code 20.6.2.3103 Section A, which provides the New Mexico Water Quality Control Commission (NMWQCC) Human Health Standards and Toxic Pollutant Standards for groundwater. The constituents of concern (COCs) in impacted groundwater at the Site are LNAPL, and benzene, toluene, ethylbenzene, total xylenes (BTEX), and polycyclic aromatic hydrocarbons (PAH). NMWQCC Human Health and Toxic Pollutant Standards shown in the Table 2.1 are used to guide assessment and remediation at the Site.

Analyte	NMWQCC Human Health or Toxic Pollutant Standard
Benzene	0.01 mg/L
Toluene	0.75 mg/L
Ethylbenzene	0.75 mg/L
Total Xylenes	0.62 mg/L
Benzo(a)pyrene	0.0002 mg/L
Combined Naphthalene and Monomethylnaphthalenes	0.03

#### Table 2.1 NMWQCC Human Health and Toxic Pollutant Standards

Table 2.2 shows the site sampling schedule approved by the NMOCD in a correspondence dated April 28, 2004 and amended in NMOCD correspondence dated June 20, 2005.

Location	Schedule	Location	Schedule	Location	Schedule
MW-1	Annually	MW-7	Annually	RW-2	Quarterly
MW-2	Quarterly	MW-8	Annually	RW-3	Quarterly
MW-3	Semi-Annually	MW-9	Annually	RW-4	Quarterly
MW-4	P&A	MW-10	Annually	RW-5	Quarterly
MW-5	P&A	MW-11	Quarterly	RW-6	Quarterly
MW-6	Annually	RW-1	Quarterly	RW-7	P&A

#### Table 2.2 Sampling Schedule Approved by NMOCD



Monitor and recovery wells MW-4R, MW-12, RW-7R, RW-8, RW-9, RW-10, RW-11, and RW-12 are monitored on a quarterly basis to establish consistent historical data regarding dissolved-phase COCs and LNAPL thicknesses. These wells will be added to the site sampling schedule subsequent to approval by the NMOCD. A letter to the NMOCD requesting modification of the monitoring schedule was submitted along with the 2016 Annual Groundwater Monitoring Report in April 2017.

### 3. Groundwater Monitoring

Quarterly groundwater monitoring was conducted by GHD on February 25-27, May 20-21, July 23, and October 22, 2019. Wells were sampled in accordance with the sampling schedule described in Table 2.2. Wells containing measureable thicknesses of LNAPL (>0.01 feet) were not sampled. All wells were gauged during each quarterly event.

### 3.1 Groundwater Monitoring Methodology

All well caps were removed to allow groundwater levels to stabilize prior to gauging. Static fluid levels were measured with an oil-water interface probe to the nearest hundredth of a foot. After recording fluid levels, wells not containing LNAPL were purged of three casing volumes of groundwater. Samples of groundwater were collected using clean, disposable polyvinyl chloride (PVC) bailers. Laboratory-supplied sample containers were filled directly from the bailers. Duplicate samples of groundwater were collected from the last well to be sampled. Samples were placed on ice immediately after collection and chilled to a temperature of approximately 4°C (39°F). Proper chain-of-custody documentation accompanied samples to Pace Analytical in Mt. Juliet, Tennessee. Samples were analyzed for BTEX according to method EPA 8021B. Selected samples collected in October were analyzed for PAH compounds according to method EPA 8270C-SIM. Volumes of groundwater purged from wells monitored during the first, second, third, and fourth quarters of 2019 were 51 gallons, 54.5 gallons, 68 gallons, and 67 gallons, respectively. The total volume of groundwater purged from wells during quarterly monitoring events in 2019 was 240.5 gallons.

### 3.2 The Potentiometric Surface and Gradient

All fluid level measurements were recorded from professionally surveyed tops of casings. Elevations on the potentiometric surface were calculated using a specific gravity of 0.81 for LNAPL where it was present. Fluid levels and calculated elevations on the potentiometric surface are presented in Table 1. Maps of the potentiometric surface during quarterly monitoring events in February, May, July, and October are provided as Figures 3, 4, 5, and 6, respectively.

Monitor wells MW-1, MW-2, MW-3, MW-6, MW-10, MW-11, and RW-4 were gauged dry at least once during 2019. All were dry during the fourth quarterly monitoring event of the year. The bottoms of LNAPL columns were below the bottoms of casings in recovery wells RW-1, RW-2, and RW-6 during some quarterly monitoring events; therefore, elevations of the potentiometric surface in those wells could not be accurately calculated in those instances.

The groundwater flow direction is toward the southeast and is consistent with previous quarterly monitoring results. Gradients on the potentiometric surface were 0.0016 ft./ft., 0.0016 ft./ft., 0.0015



ft./ft., and 0.0014 ft./ft. during the first, second, third, and fourth quarterly monitoring events, respectively.

Elevations of the potentiometric surface fell in all wells in which elevations of the potentiometric surface could be determined on November 26, 2018 and October 22, 2019. Amounts of decline were between 0.60 foot and 0.79 foot. The average decline was 0.64 foot.

#### 3.3 Presence of Light Non-aqueous Phase Liquids (LNAPL)

LNAPL was observed in recovery wells RW-1, RW-2, RW-3, RW-4, RW-5, RW-6, RW-7R, RW-8, RW-9, RW-10, RW-11, and RW-12 during 2019. Well RW-4 was dry by the end of 2019. Recovery wells RW-8 and RW-10 had greater thicknesses of LNAPL than other wells during 2019. LNAPL was observed in recovery well RW-12 for the first time during the second quarter of 2019; however, LNAPL was not observed in RW-12 at any other time during the year.

Charts of thicknesses of LNAPL versus time in monitor well MW-2 and recovery wells RW-1, RW-2, RW-3, RW-4, RW-5, RW-6, RW-7R, RW-8, RW-9, and RW-10, are in Appendix A. Of these wells, RW-3, RW-5, RW-7R, RW-8, RW-9, and RW-10 consistently had full thicknesses of LNAPL in the casings.

#### 3.4 Dissolved-phase Hydrocarbons in Groundwater

Analytical results for monitoring conducted during 2018 and 2019 are included in Table 2. Results of analyses of BTEX during the first, second, third, and fourth quarterly monitoring events are shown on Figure 7, Figure 8, Figure 9, and Figure 10, respectively. Concentrations of PAH compounds that exceed NMWQCC Human Health or Toxic Pollutant Standards are also included on Figure 10.

Recovery well RW-11 was impacted by LNAPL during the first quarterly monitoring event and was impacted by dissolved benzene at levels exceeding the NMWQCC Human Health Standard of 0.01 mg/L during the second, third, and fourth quarterly events of 2019. Recovery well RW-12 contained dissolved benzene at levels above the NMWQCC Human Health Standard during the first, third, and fourth quarterly monitoring events. RW-12 was not sampled during the second quarterly event, because it was impacted by LNAPL. All other detections of dissolved benzene, toluene, ethylbenzene, and total xylenes were below the respective NMWQCC Human Health Standards. Charts showing dissolved benzene versus time in monitor well MW-3 and recovery wells RW-11 and RW-12 are in Appendix B. Certified laboratory reports are in Appendix C.

During the October groundwater monitoring event, samples for analyses of polycyclic aromatic hydrocarbons (PAHs) were collected from MW-12, RW-11, and RW-12. These wells were sampled in accordance with the NMOCD's email correspondence to Plains dated December 12, 2012, regarding PAHs which provided the following directive:

Annual sampling of wells that have BTEX concentrations above the respective NMWQCC standard; wells where LNAPL has been removed and is no longer present; and continued sampling of each well for at least two consecutive years until each of the PAHs are at a concentration of 0.001 mg/L or less (for PAHs that do not have a NMWQCC standard) and at or below NMWQCC standard for PAHs that have a standard (if applicable).



Results indicated that concentrations of anthracene, dibenzofuran, fluorene, and phenanthrene in RW-11 and dibenzofuran in RW-12 exceeded the standard of 0.001 mg/L required by correspondence from NMOCD in 2012 referenced above. A cumulative summary of analytical results of PAH is in Table 3. Certified laboratory reports including results for PAH compounds are in Appendix C.

### 4. Corrective Action

Remediation at the Site consists recovery of LNAPL and impacted groundwater by hand-bailing and recovery of soil-vapor, LNAPL, and impacted groundwater by a trailer-mounted, automated system which operates total-fluid pumps in a number of wells. Fluids recovered by both methods are transferred to an above-ground storage tank (AST) from which fluids are periodically removed for disposal at a licensed facility per directives of Plains. Fluid levels in the AST are gauged periodically to calculate total volumes fluids recovered at the site. Total volumes recovered less amounts removed for disposal indicate that approximately 690 gallons of LNAPL were recovered during 2019 by operation of the remediation system and by hand-bailing. Approximately 17,014 gallons of groundwater were recovered by the remediation system and hand-bailing. The total volume of liquids recovered by the remediation system and hand-bailing at the Site during 2019 was approximately 17,704 gallons.

Wells MW-6, RW-1, RW-2, RW-3, RW-5, RW-6, RW-7R, RW-8, RW-9, and RW-10 were targeted for periodic abatement of LNAPL by hand. The total volume of LNAPL recovered in this manner during the year was 99.4 gallons.

Semi-monthly hand bailing of MW-3, RW-5, RW-7R, RW-11 and RW12 continued throughout 2019 to reduce concentrations of dissolved-phase contaminants. The total volume of groundwater recovered during BTEX abatement during the year was 110.2 gallons.

A trailer mounted automated groundwater remediation system was operated at the Site for a total of 159 days during 2019. Four total-fluids pumps are deployed at the Site and are moved to different wells periodically. Pumps remain in the locations shown on Figures 3-10 until the following quarterly monitoring event. Pumps were deployed at various times in recovery wells RW-3, RW-5, RW-6, RW-7R, RW-8, RW-9, and RW-10. GHD personnel conducted operation and maintenance (O&M) activities each week to maintain efficient soil vapor and fluid recovery. O&M activities included inspections of well-heads and flow lines, servicing total fluid pumps, adjustments of depths of totalfluids pumps, and gauging of recovered fluids in the storage tank, and general housekeeping tasks. Approximately 590.6 gallons of LNAPL (690 gallons total recovery by system and hand, less 99.4 gallons recovered by hand-bailing) and 16,663 gallons of groundwater (17,014 total recovery by system and hand, less 240.5 gallons recovered by quarterly purging, less 110.2 gallons recovered during BTEX abatement) were recovered by the automated trailer mounted remediation system during 2019. Samples of emissions from the remediation system were collected on June 19, August 30, and November 12, 2019 and used to calculate emission rates and total emissions from the remediation system. Using the designed effluent flow rate of 40 cubic feet per minute, the maximum rate of emissions during 2019 was 3.1289 lb. TPH/hour. Total mass of emissions during 2019 was 3.6374 tons TPH.



Enhanced Fluid Recovery (EFR) events were conducted in MW-6 (7/3), RW-3 (2/6), RW-5 (11/13), RW-6 (5/8, 8/7), and RW-9 (2/6) in 2019. A vacuum truck and drop hose capable of sealing the wellhead and reaching beyond the static water table were used to remove LNAPL and impacted groundwater to reduce concentrations of dissolved BTEX. These events recovered 5.8 gallons of LNAPL and 1848 gallons of impacted groundwater during 2019.

An approximate total of 695.8 gallons of LNAPL were recovered from the Site during 2019 by the remediation system, hand-bailing, and EFR events. Approximately 18,862 gallons of groundwater were recovered from the Site during the year by the remediation system, hand-bailing, and EFR events. Approximately 28,514 gallons of LNAPL have been recovered from the start of the LNAPL abatement program in December 2005.

All fluids recovered from purging, remediation system operation, EFR events, and BTEX and LNAPL abatement via hand bailing were transferred to the AST and later disposed at a licensed disposal facility as directed by Plains.

### 5. Summary of Findings

Based on groundwater assessment, monitoring and remedial activities performed by GHD at the Site in 2019, the following summary of findings is presented:

- Wells MW-1, MW-2, MW-3, MW-6, MW-10, MW-11, and RW-4 were gauged dry at least once during 2019.
- Bottoms of the LNAPL columns were below the bottoms of the casings in recovery wells RW-1, RW-2, and RW-6; therefore, thicknesses of LNAPL in those wells could not be accurately measured.
- Flow of groundwater is toward the southeast and is consistent with previous quarterly monitoring events. Gradients of the potentiometric surface were between 0.0014 ft./ft. and 0.0016 ft./ft. during all four quarterly monitoring events of the year.
- The average decline in the elevation of the potentiometric surface was 0.64 foot between November 26, 2018 and October 22, 2019.
- Dissolved benzene was detected at concentrations exceeding the NMWQCC Human Health Standard of 0.01 mg/L only in recovery wells RW-11 and RW-12 during 2019. All other detections of BTEX constituents were below their respective NMWQCC Human Health Standards.
- Concentrations of anthracene, dibenzofuran, fluorene, and phenanthrene in RW-11 and dibenzofuran in RW-12 exceeded the standard of 0.001 mg/L required by correspondence from NMOCD in 2012. All other detections of PAH compounds in groundwater were below applicable regulatory standards.
- Semi-monthly hand bailing from MW-3, RW-5, RW-7R, RW-11 and RW-12 to reduce BTEX concentrations recovered 110.2 gallons of groundwater during 2019.



- Hand-bailing from MW-6, RW-1, RW-2, RW-3, RW-5, RW-6, RW-7R, RW-8, RW-9, and RW-10 recovered 99.4 gallons of LNAPL.
- The trailer mounted automated remediation system operated for 159 days during 2019 and recovered 590.6 gallons of LNAPL and 16,663 gallons of groundwater. The maximum emission rate during 2019 was 3.1289 lb. TPH/hour. Total gaseous hydrocarbon emissions for 2019 were 3.6374 tons.
- EFR events conducted on February 6, May 8, July 3, August 7, and November 13 recovered 5.8 gallons of LNAPL and 1848 gallons of impacted groundwater.
- Approximately 695.8 gallons of LNAPL were recovered by the trailer-mounted remediation system and by hand-bailing during 2019. Total volume of LNAPL recovered by all methods since the start of the LNAPL abatement program in December 2005 is 28,514 gallons.

### 6. Recommendations

Based upon the data and conclusions presented in this report, the following are recommended for 2020:

- Continue quarterly groundwater monitoring events with annual reporting to the NMOCD.
- Continue annual sampling for PAHs during the fourth quarterly event according to directives of NMOCD. This will include all wells installed during 2020 which are not impacted by LNAPL.
- Continue remediation of the soil profile and groundwater by operating the trailer mounted soil vapor extraction system. Gaseous hydrocarbon emissions will be sampled quarterly to calculate emission rates and total emissions.
- Continue conducting EFR events on select wells with considerable LNAPL thickness as a more aggressive LNAPL abatement, as well as to reduce BTEX constituent concentrations.
- Continue hand bailing of LNAPL-impacted wells in which a pump has not been installed.
- Continue hand bailing from selected wells to reduce concentrations of dissolved-phase contaminants.
- A work plan proposing plugging and abandoning MW-1, MW-2, MW-3, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, and RW-4 was submitted to NMOCD on July 10, 2019. Those wells are dry or had insufficient fluid columns from which to collect samples of groundwater or recover LNAPL. The same work plan proposed installing MW-3R, MW-6R, MW-7R, MW-8R, MW-9R, MW-10R, MW-13, RW-4R, RW-13, and RW-14. The work plan will be implemented during 2020 out of necessity to maintain delineation of the contaminant plume and enhance the ability to recover LNAPL. Details regarding plugging and installation of these wells will be included in the annual report for 2020.



All of Which is Respectfully Submitted,

GHD

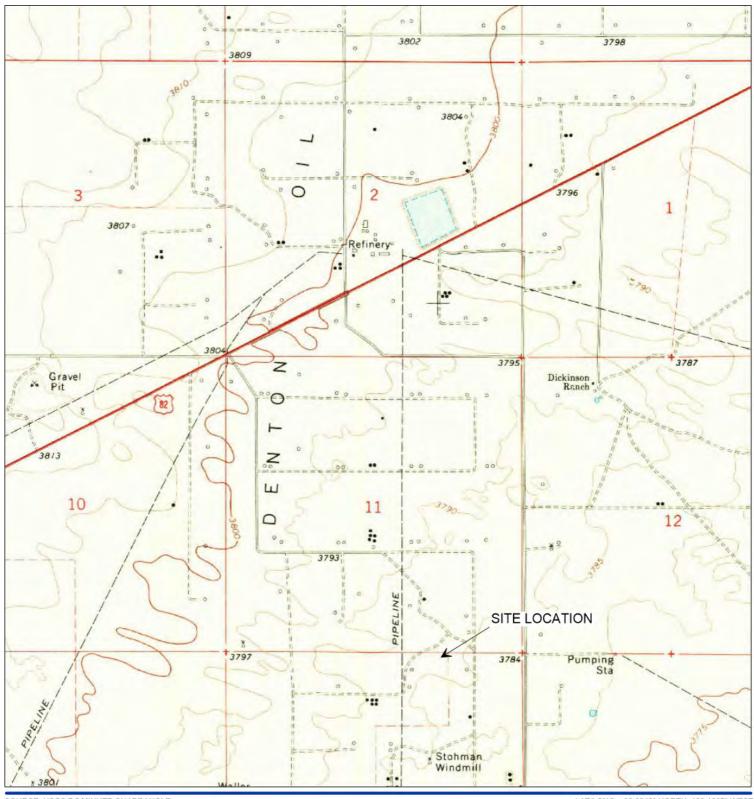
John P. Schmable

John Schnable Senior Project Manager

Rebena Haskell

Rebecca Haskell Senior Project Manager

# **Figures**



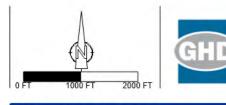
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LAT/LONG: 33.0242° NORTH, 103.1667° WEST COORDINATE: NAD83 DATUM U.S. FOOT STATE PLANE ZONE - NEW MEXICO EAST

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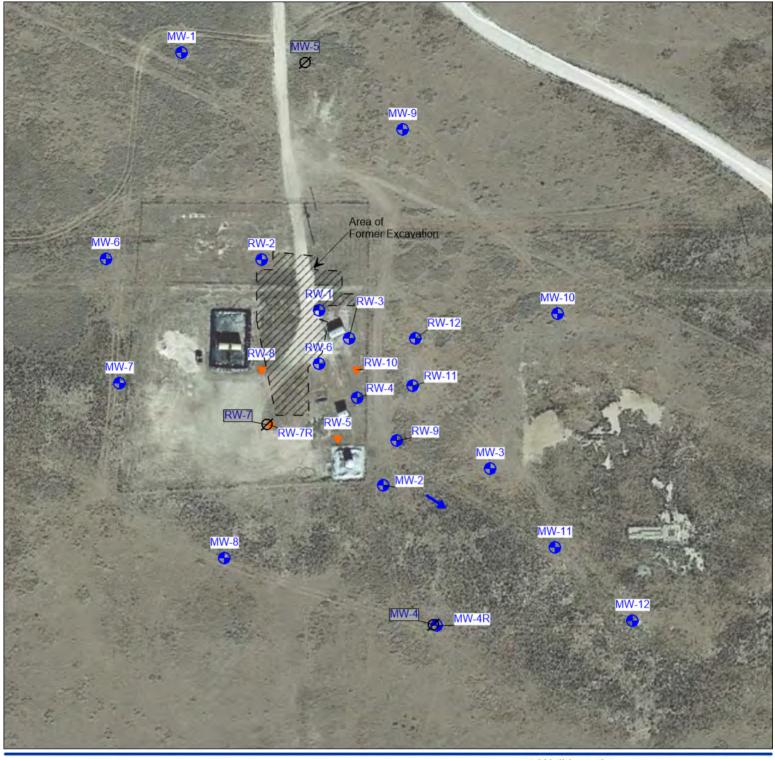
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**FIGURE 1** 

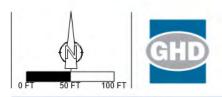


PLAINS ALL AMERICAN PIPELINE COMPANY DARR ANGELL #2 SRS LF 1999-62, NMOCD REMEDIATION PERMIT AP-007 ANNUAL REPORT OF GROUNDWATER MONITORING AND REMEDIATION IN 2019 SITE LOCATION MAP

11209891-02 GN-MAF-SVR-001 MAR 5 2020



- Well Location
- Ø Plugged Well Location Well Equipped with Remediation Pump (Locations of Pumps May Change)



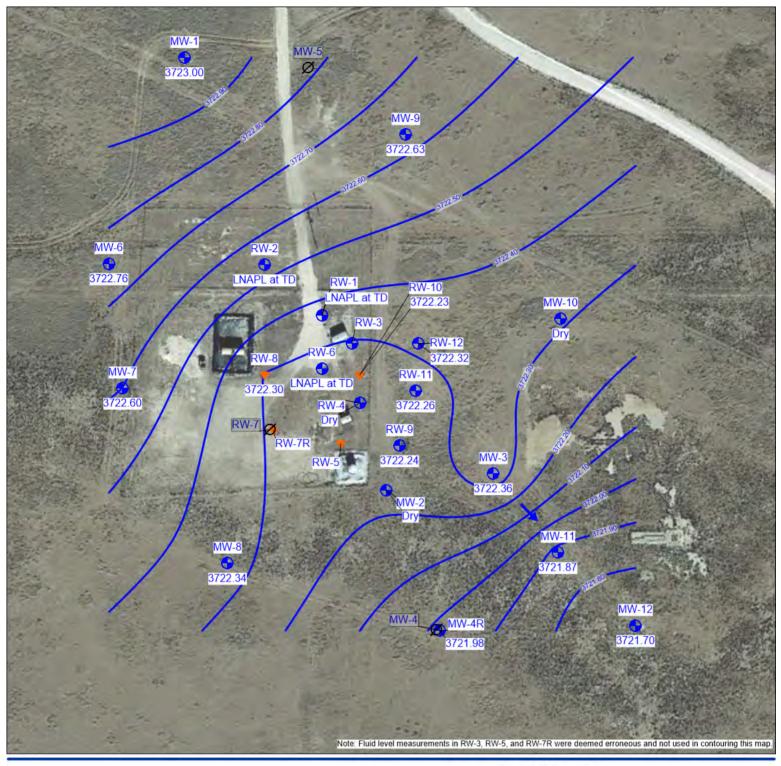
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PROJECT 11209891

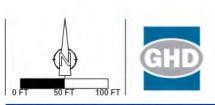
**FIGURE 2** 

March 5, 2020

11209891-02 GN-MAF-SVR-001 MAR 5 2020



- Well Location
- Ø Plugged Well Location
- Well Equipped with Remediation Pump
- 2589.91 Elevation of Potentiometric Surface (famsl)
  - Direction of Groundwater Flow



PLAINS ALL AMERICAN PIPELINE COMPANY DARR ANGELL #2 SRS LF 1999-62 NMOCD AP-007 ANNUAL REPORT OF GROUNDWATER MONITORING AND REMEDIATION IN 2018 MAP OF THE POTENTIOMETRIC SURFACE FEBRUARY 25, 2019

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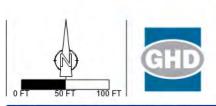
FEBRUARY 25, 2019

FIGURE 3

11209891-02 (11) GN-MAF-SVR-001 FEB 25 2019



- Well Location
- Ø Plugged Well Location
- Well Equipped with Remediation Pump
- 2589.91 Elevation of Potentiometric Surface (famsl)
  - Direction of Groundwater Flow

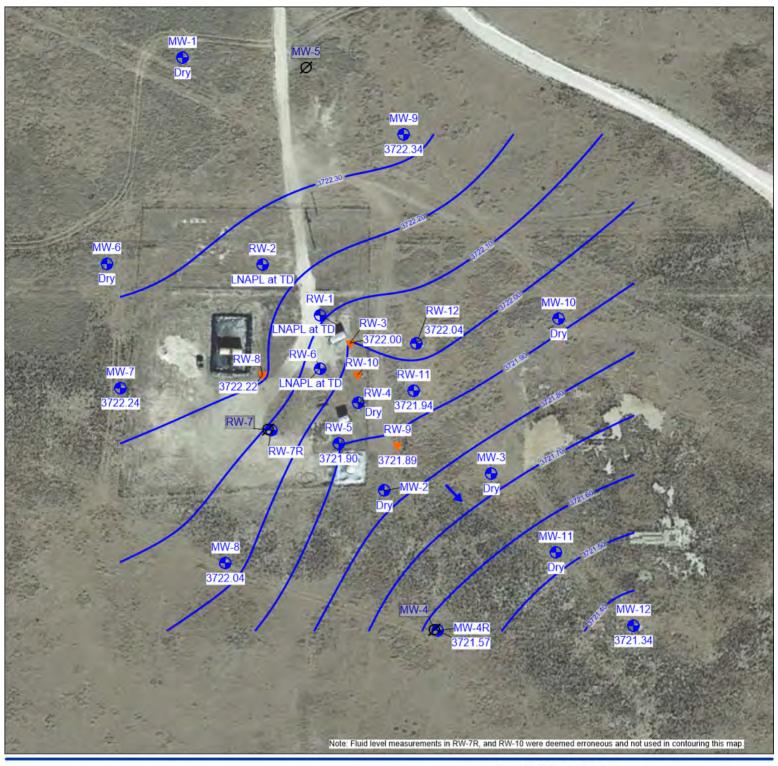


PLAINS ALL AMERICAN PIPELINE COMPANY DARR ANGELL #2 SRS LF 1999-62 NMOCD AP-007 ANNUAL REPORT OF GROUNDWATER MONITORING AND REMEDIATION IN 2019 MAP OF THE POTENTIOMETRIC SURFACE MAY 20, 2019

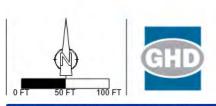
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FIGURE 4

MAY 20, 2019



- Well Location
- Ø Plugged Well Location
- Well Equipped with Remediation Pump
- 2589.91 Elevation of Potentiometric Surface (famsl)
  - Direction of Groundwater Flow

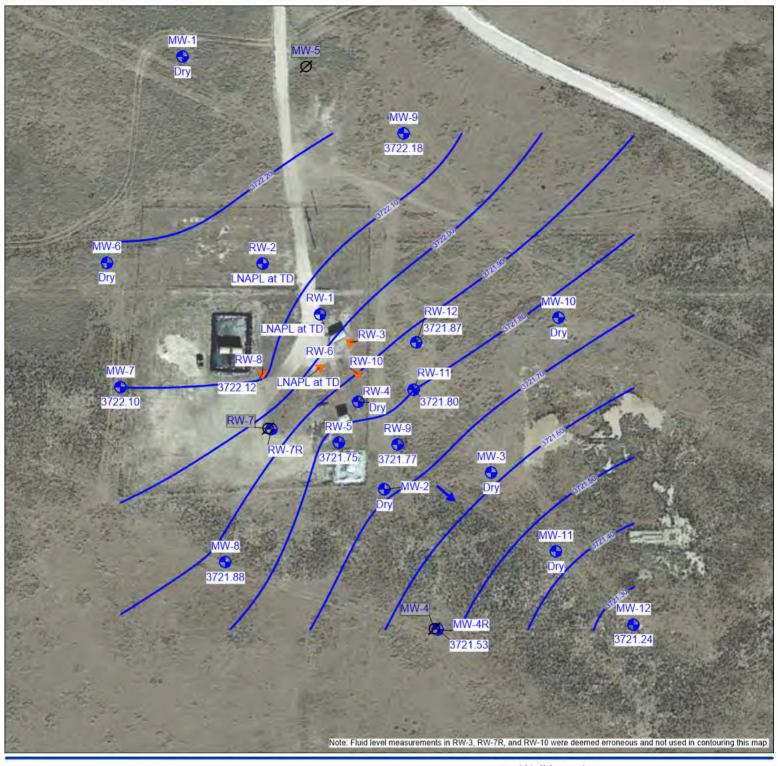


PLAINS ALL AMERICAN PIPELINE COMPANY DARR ANGELL #2 SRS LF 1999-62 NMOCD AP-007 ANNUAL REPORT OF GROUNDWATER MONITORING AND REMEDIATION IN 2019 MAP OF THE POTENTIOMETRIC SURFACE JULY 23, 2019

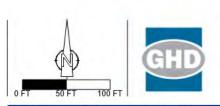
PROJECT 11209891

FIGURE 5

JULY 23, 2019



- Well Location
- Ø Plugged Well Location
- Well Equipped with Remediation Pump
- 2589.91 Elevation of Potentiometric Surface (famsl)
  - Direction of Groundwater Flow



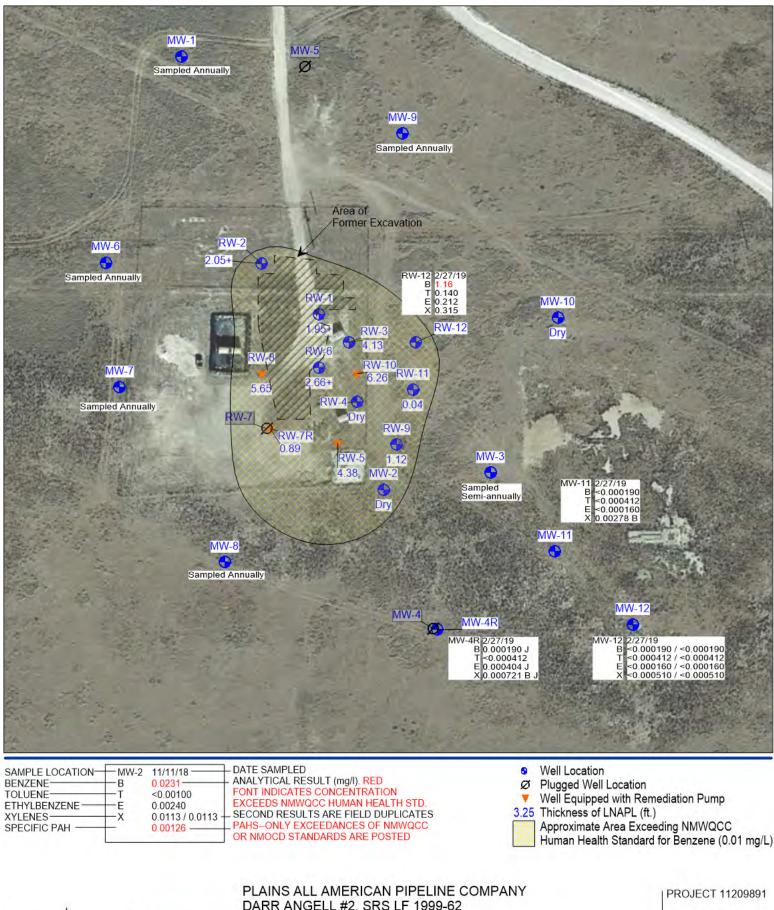
PLAINS ALL AMERICAN PIPELINE COMPANY DARR ANGELL #2 SRS LF 1999-62 NMOCD AP-007 ANNUAL REPORT OF GROUNDWATER MONITORING AND REMEDIATION IN 2019 MAP OF THE POTENTIOMETRIC SURFACE OCTOBER 22, 2019

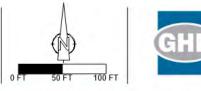
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OCTOBER 22, 2019

FIGURE 6

11209891-02 (11) GN-MAF-SVR-001 OCT 22 2019

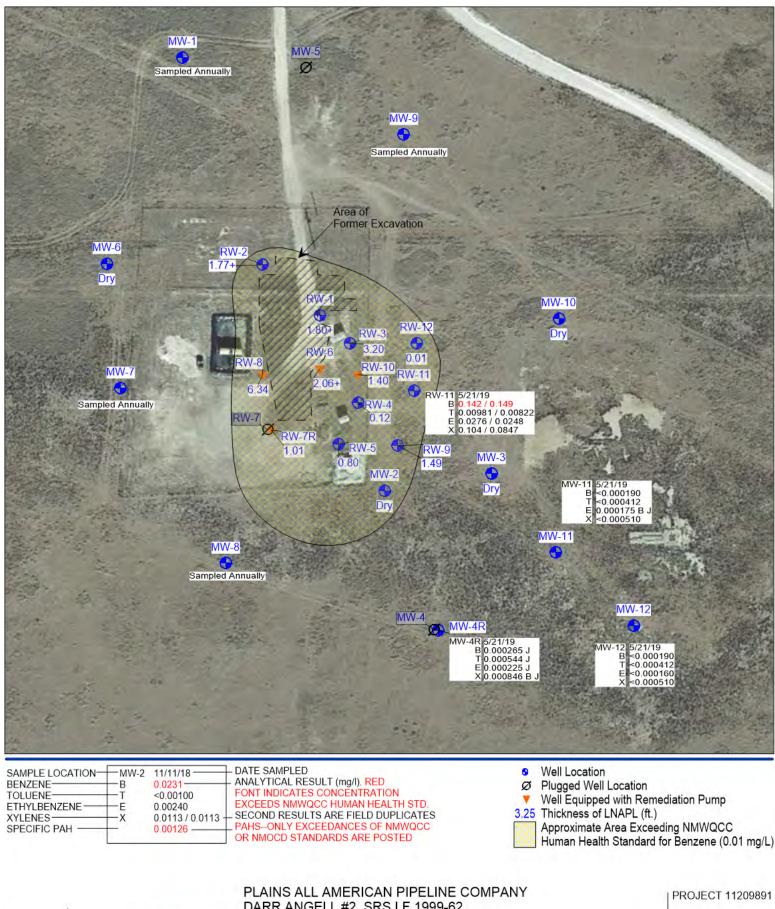




DARR ANGELL #2, SRS LF 1999-62 NMOCD AP-007 ANNUAL REPORT OF GROUNDWATER MONITORING AND REMEDIATION IN 2019 DISSOLVED BTEX IN GROUNDWATER **FEBRUARY 27, 2019** 

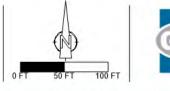
FEBRUARY 27, 2019

FIGURE 7



MAY 21, 2019

FIGURE 8



DARR ANGELL #2, SRS LF 1999-62 NMOCD AP-007 ANNUAL REPORT OF GROUNDWATER MONITORING AND REMEDIATION IN 2019 DISSOLVED BTEX IN GROUNDWATER MAY 21, 2019

11209891-02 (11) GN-MAF-SVR-001 MAY 21 2019

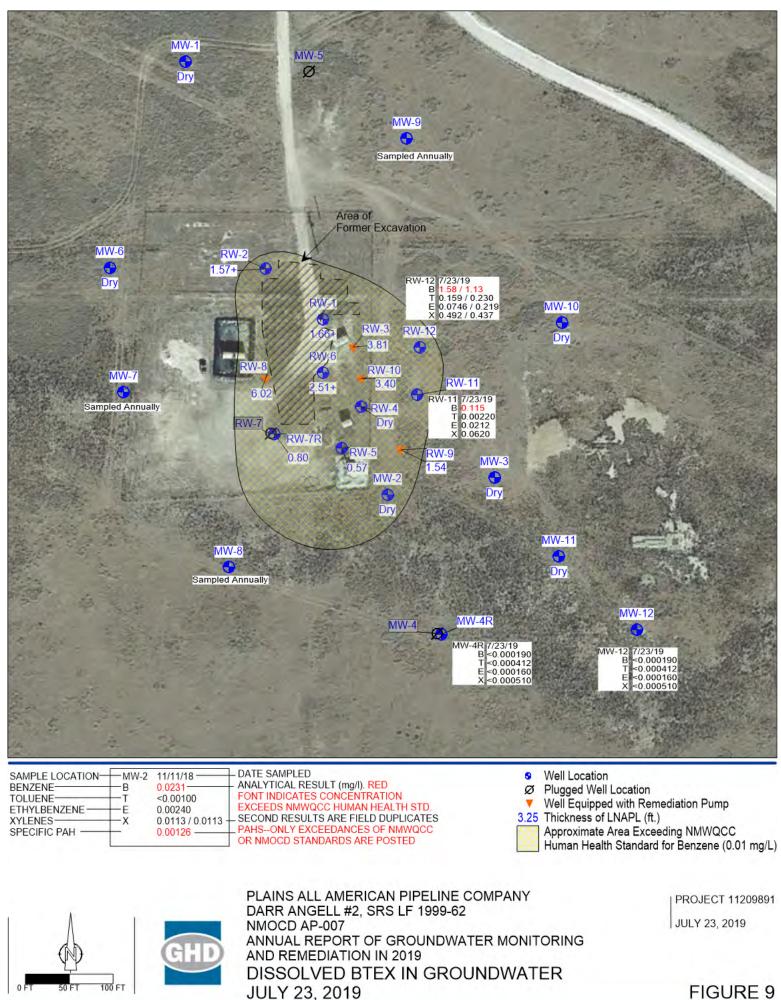
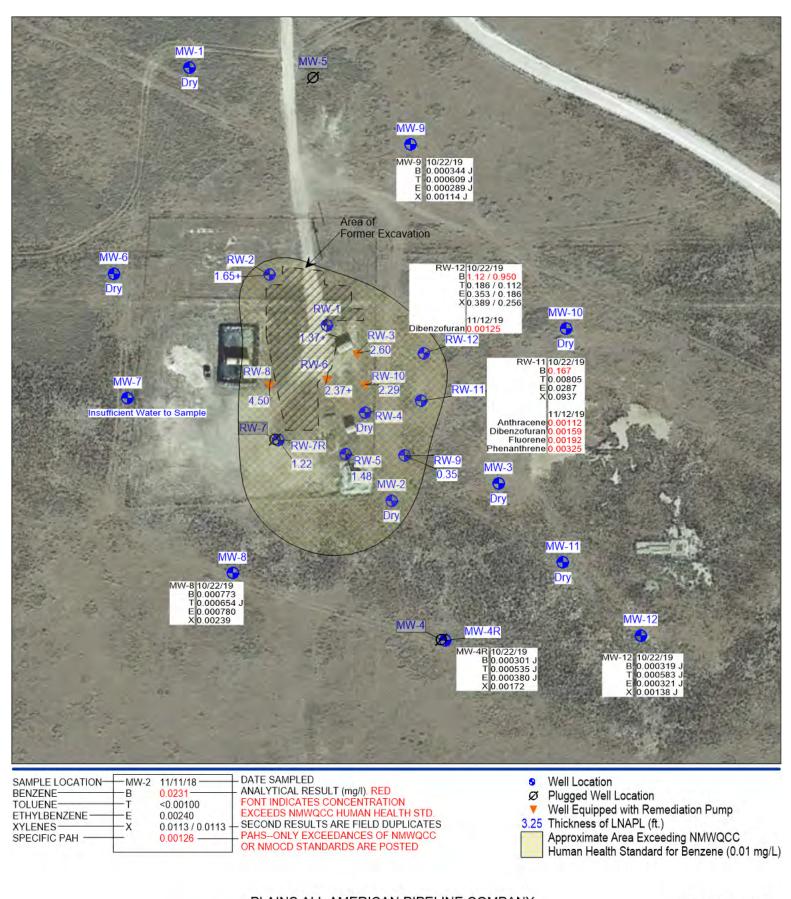


FIGURE 9



0 FT 50 FT 100 FT

PLAINS ALL AMERICAN PIPELINE COMPANY DARR ANGELL #2, SRS LF 1999-62 NMOCD AP-007 ANNUAL REPORT OF GROUNDWATER MONITORING AND REMEDIATION IN 2019 DISSOLVED BTEX IN GROUNDWATER OCTOBER 22 and NOVEMBER 12, 2019

PROJECT 11209891 OCTOBER 22, 2019

FIGURE 10

11209891-02 (11) GN-MAF-SVR-001 OCT 22 2019

Well ID	Elevation of Top of Casing (famsl)	Date	Depth to Groundwater (fbtoc)	Depth to LNAPL (fbtoc)	LNAPL Thickness (ft.)	Elevation of Potentiometric Surface (famsl)	Measured Depth of Well (fbtoc)	Well Screen Interval (ft bgs) Well Diameter (in)	Volume Product Removed (gal.)	Volume Groundwater Bailed (gal.)	( Rei
MW-01	3790.48	2/27/18	66.78	(10100)	0.00	3723.70	68.07	40-65 (2 in.)	Rellioved (gal.)	Balled (gal.)	
MW-01	3790.48	5/29/18	67.00		0.00	3723.48	68.11	40-05 (2 111.)			
MW-01	3790.48	8/29/18	67.10		0.00	3723.38	68.07				
MW-01	3790.48	11/26/18	67.31		0.00	3723.17	68.10				
MW-01	3790.48	2/25/19	67.48		0.00	3723.00	68.10				
MW-01	3790.48	5/20/19	67.67		0.00	3722.81	68.10				
MW-01	3790.48	7/23/19	07.07		0.00	Dry	68.01				
MW-01	3790.48	10/22/19				Dry	00.01				
	07 00.40	10/22/15				Diy					
MW-02	3790.80	2/27/18		67.38	0.83+	LNAPL at TD	68.21	40-65 (2 in.)			
MW-02	3790.80	5/29/18	68.22	67.51	0.71	3723.16	00.21	10 00 (2 111)			
MW-02	3790.80	8/29/18			••••	Dry	68.47				
MW-02	3790.80	11/26/18				Dry	68.25				
MW-02	3790.80	2/25/19				Dry					
MW-02	3790.80	5/20/19				Dry					
MW-02	3790.80	7/23/19				Dry					
MW-02	3790.80	10/22/19				Dry					
MW-03	3790.29	2/27/18	67.57		0.00	3722.72	68.14	40-65 (2 in.)			
MW-03	3790.29	5/29/18	67.75		0.00	3722.54	68.10				
MW-03	3790.29	8/29/18				Dry	68.11				
MW-03	3790.29	11/26/18				Dry	68.10				
MW-03	3790.29	2/25/19	67.93		0.00	3722.36					
MW-03	3790.29	5/18/19								3.0	
MW-03	3790.29	5/20/19				Dry					
MW-03	3790.29	7/23/19				Dry	68.10				
MW-03	3790.29	10/22/19				Dry					
MW-04R	3789.17	2/27/18	66.52		0.00	3722.65	86.48	59.5-89.5 (2 in.)			
MW-04R	3789.17	5/29/18	66.67		0.00	3722.50	86.11				
MW-04R	3789.17	8/29/18	66.81		0.00	3722.36	86.24				
MW-04R	3789.17	11/26/18	67.03		0.00	3722.14	86.24				
MW-04R	3789.17	2/25/19	67.19		0.00	3721.98					
MW-04R	3789.17	2/27/19				0704.00			0.0	8.5	
MW-04R	3789.17	5/20/19	67.37		0.00	3721.80					
MW-04R	3789.17	5/21/19	07.00			0704 57			0.0	9.5	
MW-04R	3789.17	7/23/19	67.60		0.00	3721.57			0.0	7.0	
MW-04R	3789.17	10/22/19	67.64		0.00	3721.53	05.07			8.0	
MW-04R	3789.17	2/10/20	67.90		0.00	3721.27	85.97	59.5-89.5 (2 in.)		9.0	
MW-06	3790.75	2/27/18	67.24		0.00	3723.51	60.00	10 60 (0 :~ )			
MW-06	3790.75	5/29/18	67.41		0.00	3723.51	68.22 68.18	42-62 (2 in.)			
MW-06	3790.75	8/29/18	67.54		0.00	3723.21	68.22				
1010-00	5130.15	0/23/10	07.04		0.00	5123.21	00.22				

Volume Groundwater Removed by EFR (gal.)	Comments
	Tip trace
	Tip trace

	Well ID	Elevation of Top of Casing (famsl)	Date	Depth to Groundwater (fbtoc)	Depth to LNAPL (fbtoc)	LNAPL Thickness (ft.)	Elevation of Potentiometric Surface (famsl)	Measured Depth of Well (fbtoc)	Well Screen Interval (ft bgs) Well Diameter (in)	Volume Product Removed (gal.)	Volume Groundwater Bailed (gal.)	( Rei
_	MW-06	3790.75	11/26/18	67.77	(10:00)	0.00	3722.98	68.15	(111)	Kellioveu (gal.)	Daneu (gai.)	
-	MW-06	3790.75	2/25/19	67.99		0.00	3722.76	00.10				
-	MW-06	3790.75	5/20/19	01.00		0.00	Dry					
-	MW-06	3790.75	7/3/19				Biy			2.89		
-	MW-06	3790.75	7/23/19				Dry	68.01		2.00		
-	MW-06	3790.75	10/22/19				Dry					
-							,					
-	MW-07	3791.09	2/27/18	67.86		0.00	3723.23	69.19	42-62 (2 in.)			
-	MW-07	3791.09	5/29/18	67.88		0.00	3723.21	69.19				
-	MW-07	3791.09	8/29/18	68.13		0.00	3722.96	69.19				
-	MW-07	3791.09	11/26/18	68.35		0.00	3722.74	69.19				
	MW-07	3791.09	2/25/19	68.49		0.00	3722.60					
_	MW-07	3791.09	5/20/19	68.70		0.00	3722.39					
_	MW-07	3791.09	7/23/19	68.85		0.00	3722.24					
_	MW-07	3791.09	10/22/19	68.99		0.00	3722.10					
-												
-	MW-08	3790.04	2/27/18	67.03		0.00	3723.01	69.34	42-62 (2 in.)			
_	MW-08	3790.04	5/29/18	67.20		0.00	3722.84	69.25				
-	MW-08	3790.04	8/29/18	67.33		0.00	3722.71	69.34				
-	MW-08	3790.04	11/26/18	67.56		0.00	3722.48	69.34				
-	MW-08	3790.04	2/25/19	67.70		0.00	3722.34					
-	MW-08	3790.04	5/20/19	67.90		0.00	3722.14					
-	MW-08	3790.04	7/23/19	68.00		0.00	3722.04				~-	
-	MW-08	3790.04	10/22/19	68.16		0.00	3721.88				.25	
-	MW-09	3789.79	2/27/18	66.44		0.00	3723.35	68.91	47.67(0 in)			
-	MW-09	3789.79	5/29/18	66.61		0.00	3723.18	68.88	47-67 (2 in.)			
-	MW-09	3789.79	8/29/18	66.75		0.00	3723.04	68.91				
-	MW-09	3789.79	11/26/18	66.97		0.00	3722.82	68.91				
-	MW-09	3789.79	2/25/19	67.16		0.00	3722.63	00.91				
-	MW-09	3789.79	5/20/19	67.32		0.00	3722.47					
-	MW-09	3789.79	7/23/19	67.45		0.00	3722.34					
-	MW-09	3789.79	10/22/19	67.61		0.00	3722.18				0	
-		0100110	10,22,10	01101		0.00	0122110				Ŭ	
-	MW-10	3789.88	2/27/18	67.02		0.00	3722.86	67.71	47-67 (2 in.)			
-	MW-10	3789.88	5/29/18	67.20		0.00	3722.68	67.70				
-	MW-10	3789.88	8/29/18	67.33		0.00	3722.55	67.71				
-	MW-10	3789.88	11/26/18				Dry	67.70				
-	MW-10	3789.88	2/25/19				Dry					
-	MW-10	3789.88	5/20/19				Dry					
-	MW-10	3789.88	7/23/19				Dry					
_	MW-10	3789.88	10/22/19				Dry					
_	MW-11	3790.65	2/27/18	68.03		0.00	3722.62	69.18	45-65 (2 in.)			
_	MW-11	3790.65	5/29/18	68.29		0.00	3722.36	69.30				

Volume Groundwater Removed by EFR	
(gal.)	Comments
336	
330	

Well ID	Elevation of Top of Casing (famsl)	Date	Depth to Groundwater (fbtoc)	Depth to LNAPL (fbtoc)	LNAPL Thickness (ft.)	Elevation of Potentiometric Surface (famsl)	Measured Depth of Well (fbtoc)	Well Screen Interval (ft bgs) Well Diameter (in)	Volume Product Removed (gal.)	Volume Groundwater Bailed (gal.)	Re
MW-11	3790.65	8/29/18	68.42	(15100)	0.00	3722.23	69.16	("")	Kelloved (gal.)	Ballea (gal.)	
 MW-11	3790.65	11/26/18	68.64		0.00	3722.01	69.16				
 MW-11	3790.65	2/25/19	68.78		0.00	3721.87	00.10				
 MW-11	3790.65	2/27/19	00.10		0.00	0121.01			0.0	0.0	
 MW-11	3790.65	5/20/19	68.97		0.00	3721.68			010	010	
 MW-11	3790.65	7/23/19	00101		0.00	Dry	69.11				
 MW-11	3790.65	10/22/19				Dry					
 						,					
 MW-12	3789.64	2/27/18	67.27		0.00	3722.37	85.96	(2 in.)			
 MW-12	3789.64	5/29/18	67.47		0.00	3722.17	86.04				
 MW-12	3789.64	8/29/18	67.57		0.00	3722.07	86.14				
 MW-12	3789.64	11/26/18	67.77		0.00	3721.87	86.14				
 MW-12	3789.64	2/25/19	67.94		0.00	3721.70					
MW-12	3789.64	2/27/19							0.0	9.5	
MW-12	3789.64	5/20/19	68.12		0.00	3721.52					
MW-12	3789.64	5/21/19							0.0	9.0	
MW-12	3789.64	7/23/19	68.30		0.00	3721.34					
MW-12	3789.64	7/23/19							0.0	7.0	
MW-12	3789.64	10/22/19	68.40		0.00	3721.24				7.0	
 MW-12	3789.64	2/10/20	68.64		0.00	3721.00	85.76	45-65 (2 in.)		9.0	
 RW-01	3789.85	2/27/18	67.30	65.40	1.90	3724.09	67.87	40-65 (4 in.)			
 RW-01	3789.85	5/29/18		65.50	2.47+	LNAPL at TD	67.97				
 RW-01	3789.85	8/29/18		65.68	2.24+	LNAPL at TD	67.92				
 RW-01	3789.85	11/26/18		65.91	2.17+	LNAPL at TD	68.08				
 RW-01	3789.85	1/29/19							1.0	0.0	
 RW-01	3789.85	2/25/19	68.04	66.09	1.95	3723.39					
 RW-01	3789.85	4/24/19	68.11	66.17	1.94	3723.31			1.0	1.0	
 RW-01	3789.85	5/20/19	68.04	66.24	1.80	3723.27					
 RW-01	3789.85	6/11/19							2.0	0.0	
 RW-01	3789.85	6/18/19							1.0	0.0	
 RW-01	3789.85	6/25/19							1.3	0.0	
 RW-01 RW-01	3789.85 3789.85	7/3/19 7/8/19							<u>3.0</u> 1.2	0.0	
 RW-01	3789.85	7/23/19		66.42	1.66+	LNAPL at TD	68.01		1.2	0.0	
 RW-01	3789.85	8/7/19		00.42	1.00+	LINAFLALID	00.01		1.0	0.0	
 RW-01	3789.85	8/13/19							1.0	0.0	
 RW-01	3789.85	8/20/19							1.0	0.0	
 RW-01	3789.85	8/28/19							0.5	0.0	
 RW-01	3789.85	9/3/19							1.5	0.0	
 RW-01	3789.85	9/10/19							1.0	0.0	
 RW-01	3789.85	10/2/19							1.5	0.0	
 RW-01	3789.85	10/22/19		66.55	1.37+	LNAPL at TD					
 RW-01	3789.85	11/20/19		00.00					0.8		
 RW-01	3789.85	12/10/19							1.0		

Volume Groundwater Removed by EFR	Commonto
(gal.)	Comments

#### Summary of Fluid Level Measurements and Fluids Removed Plains Pipeline LP Darr Angell No. 2 Lea County, Mexico NMOCD AP-007

Elevation       Well Screen         of Top of       Depth to       Depth to       LNAPL       Elevation of       Measured       Interval (ft bgs)         Casing       Groundwater       LNAPL       Thickness       Potentiometric       Depth of       Well Diameter	Volume Product	Volume Groundwater	Re
Well ID         (famsl)         Date         (fbtoc)         (ft.)         Surface (famsl)         Well (fbtoc)         (in)           DW 04         2700.05         42/04/40         (fbtoc)         (fbtoc)	Removed (gal.)	Bailed (gal.)	
RW-01 3789.85 12/24/19	0.5	0.5	
RW-01 3789.85 1/8/20	1.0	0.0	
RW-01         3789.85         1/14/20           RW-01         3789.85         2/10/20         68.14         66.76         1.38         3722.83         68.18         40-65 (4 in.)	1.5	0.2	
RW-01 3789.85 2/10/20 68.14 66.76 1.38 3722.83 68.18 40-65 (4 in.)			
RW-02 3790.24 2/27/18 67.95 65.90 2.05 3723.95 68.29 40-65 (4 in.)			
RW-02         3790.24         2/27/18         67.95         65.90         2.05         3723.95         68.29         40-65 (4 in.)           RW-02         3790.24         5/29/18         67.97         65.86         2.11         3723.98			
RW-02         3790.24         5/29/16         67.97         65.06         2.11         3723.96           RW-02         3790.24         8/29/18         66.03         2.25+         LNAPL at TD         68.28			
RW-02         3790.24         6/29/16         66.05         2.25+         LNAPL at TD         66.20           RW-02         3790.24         11/26/18         66.20         2.34+         LNAPL at TD         68.54			
RW-02 3790.24 1/20/18 00.20 2.34+ LINAFL at TD 00.34 RW-02 3790.24 1/29/19	1.4	0.0	
RW-02 3790.24 1/29/19 RW-02 3790.24 2/25/19 68.51 66.46 2.05 3723.39 68.30	1.4	0.0	
RW-02         3790.24         2/20/19         08.51         00.40         2.05         3723.39         08.50           RW-02         3790.24         4/24/19         68.54         66.48         2.06         3723.37			
RW-02         3790.24         4/24/19         00.54         00.46         2.00         3723.37           RW-02         3790.24         5/20/19         66.53         1.77+         LNAPL at TD         68.30			
RW-02 3790.24 6/11/19	2.0	0.0	
RW-02 3790.24 6/18/19	1.0	0.0	
RW-02 3790.24 6/25/19	1.2	0.0	
RW-02 3790.24 7/3/19	2.0	0.0	
RW-02 3790.24 7/8/19	0.7	0.0	
RW-02 3790.24 7/23/19 66.73 1.57+ LNAPL at TD 68.40	011	0.0	
RW-02 3790.24 8/7/19	0.5	0.0	
RW-02 3790.24 8/20/19	1.0	0.0	
RW-02 3790.24 8/13/19	1.0	0.0	
RW-02 3790.24 8/28/19	1.1	0.0	
RW-02 3790.24 9/3/19	1.0	0.0	
RW-02 3790.24 9/10/19	0.5	0.0	
RW-02 3790.24 10/2/19	0.9	0.1	
RW-02 3790.24 10/22/19 66.89 1.65+ LNAPL at TD			
RW-02 3790.24 11/20/19	1.0		
RW-02 3790.24 12/10/19	1.5		
RW-02 3790.24 12/23/19	0.5	0.5	
RW-02 3790.24 1/8/20	1.0	0.0	
RW-02 3790.24 1/14/20	0.0	1.0	
RW-02 3790.24 10/22/19 67.09 1.43+ LNAPL at TD 68.52			
RW-03 3790.24 2/27/18 70.02 66.44 3.58 3723.12 71.27 48-68 (4 in.)			
RW-03 3790.24 5/29/18 70.76 66.13 4.63 3723.23			
RW-03 3790.24 8/29/18 70.72 66.25 4.47 3723.14 71.27			
RW-03 3790.24 11/26/18 70.50 66.73 3.77 3722.79			
RW-03 3790.24 1/29/19	6.0	0.0	
RW-03 3790.24 2/6/19	0.5		
RW-03 3790.24 2/25/19 70.76 66.63 4.13 3722.83			
RW-03 3790.24 5/20/19 70.49 67.29 3.20 3722.34			
RW-03 3790.24 7/16/19 71.34 67.77 3.57 3721.79			
RW-03         3790.24         7/16/19         71.34         67.77         3.57         3721.79           RW-03         3790.24         7/23/19         71.33         67.52         3.81         3722.00           RW-03         3790.24         10/22/19         69.80         67.20         2.60         3722.55			

Volume Groundwater emoved by EFR (gal.)	Comments
315.0	

Elev of pot surf incorrect

		Elevation							Well Screen			
		of Top of		Depth to	Depth to		Elevation of	Measured	Interval (ft bgs)		Volume	6
	Well ID	Casing (famsl)	Date	Groundwater (fbtoc)	LNAPL (fbtoc)	Thickness (ft.)	Potentiometric Surface (famsl)	Depth of Well (fbtoc)	Well Diameter (in)	Volume Product Removed (gal.)	Groundwater Bailed (gal.)	Rei
	RW-03	3790.24	2/10/19	70.75	67.32	3.43	3722.27	71.30	48-68 (4 in.)	Kellioveu (gal.)	Dalleu (gal.)	
-	1100-05	5750.24	2/10/19	10.15	07.52	5.45	5122.21	71.50	40-00 (4 111.)			
-	RW-04	3790.20	2/27/18					66.81	49-69 (4 in.)			
-	RW-04	3790.20	5/29/18					66.08				
-	RW-04	3790.20	8/29/18	66.97	66.46	0.51	3723.64	66.81				
-	RW-04	3790.20	11/26/18				Dry	67.06				
-	RW-04	3790.20	2/25/19				Dry	Dry				
-	RW-04	3790.20	5/20/19	67.10	66.98	0.12	3723.20	<u> </u>				
-	RW-04	3790.20	7/23/19				Dry	66.95				
	RW-04	3790.20	10/22/19				Dry					
	RW-04	3790.20	1/8/20									
_	RW-05	3789.81	2/27/18	71.06	66.00	5.06	3722.85	71.73	48-68 (4 in.)			
-	RW-05	3789.81	5/29/18	71.85	66.08	5.77	3722.63					
_	RW-05	3789.81	8/29/18	69.43	66.71	2.72	3722.58	71.84				
-	RW-05	3789.81	11/26/18	70.75	66.46	4.29	3722.53					
-	RW-05	3789.81	2/25/19	71.22	66.84	4.38	3722.14					
_	RW-05	3789.81	5/20/19	68.38	67.58	0.80	3722.08					
-	RW-05	3789.81	6/10/19	68.85	67.50	1.35	3722.05					
-	RW-05	3789.81	7/16/19	68.17	67.79	0.38	3721.95					
-	RW-05	3789.81	7/23/19	68.37	67.80	0.57	3721.90				4.0	
-	RW-05	3789.81	8/20/19							2.0	1.0	
-	RW-05 RW-05	3789.81	8/13/19 8/28/19							0.5	0.5	
-	RW-05	3789.81 3789.81	9/3/19							0.4	2.3	
-	RW-05	3789.81	9/10/19							0.4	0.8	
-	RW-05	3789.81	10/2/19							0.8	0.8	
-	RW-05	3789.81	10/22/19	69.26	67.78	1.48	3721.75			0.0	0.0	
-	RW-05	3789.81	11/13/19	70.14	67.68	2.46	3721.66					
-	RW-05	3789.81	11/20/19		01100		0.200			0.2	0.8	
-	RW-05	3789.81	12/10/19							0.4	2.6	
-	RW-05	3789.81	12/23/19							0.6	0.6	
-	RW-05	3789.81	1/8/20							1.5	0.5	
-	RW-05	3789.81	1/14/20							0.0	1.0	
-	RW-05	3789.81	2/10/20	69.87	67.90	1.97	3721.54	71.70	48-68 (4 in.)			
-												
-	RW-06	3789.56	2/27/18									
-	RW-06	3789.56	5/29/18	70.48	65.83	4.65	3722.85		49-69 (4 in.)			
-	RW-06	3789.56	8/29/18	69.05	66.26	2.79	3722.77	68.86				
-	RW-06	3789.56	11/26/18	68.56	66.40	2.16	3722.75					
-	RW-06	3789.56	1/29/19							3.5	0.0	
-	RW-06	3789.56	2/25/19		66.20	2.66+	LNAPL at TD	68.86				
-	RW-06	3789.56	5/8/19		00.00	0.00				1.9		
-	RW-06	3789.56	5/20/19		66.80	2.06+	LNAPL at TD	68.86		4.0		
-	RW-06	3789.56	6/11/19							4.0	0.0	

Volume Groundwater emoved by EFR (gal.)	Comments
	Casing Collpased?
	Casing Collpased?
	Sheen
504	
	Not Gauged
546.0	

Well ID	Elevation of Top of Casing (famsl)	Date	Depth to Groundwater (fbtoc)	Depth to LNAPL (fbtoc)	LNAPL Thickness (ft.)	Elevation of Potentiometric Surface (famsl)	Measured Depth of Well (fbtoc)	Well Screen Interval (ft bgs) Well Diameter (in)	Volume Product Removed (gal.)	Volume Groundwater Bailed (gal.)	G Ren
RW-06	3789.56	6/18/19		(1800)	(10)			()	2.0	0.0	
RW-06	3789.56	6/25/19							2.2	0.0	
RW-06	3789.56	7/8/19							1.0	0.0	
RW-06	3789.56	7/16/19		66.77	1.95+	LNAPL at TD	68.86				
RW-06	3789.56	7/23/19		66.35	2.51+	LNAPL at TD	68.70				
RW-06	3789.56	8/7/19			-						
RW-06	3789.56	8/13/19							1.2	0.0	
RW-06	3789.56	8/20/19							2.5	0.0	
RW-06	3789.56	8/28/19							2.5	0.0	
RW-06	3789.56	9/3/19							4.0	0.0	
RW-06	3789.56	9/10/19							3.0	0.0	
RW-06	3789.56	10/2/19							1.3	0.0	
RW-06	3789.56	10/22/19		66.49	2.37+	LNAPL at TD					
RW-06	3789.56	12/10/19							0.7	2.3	
RW-06	3789.56	1/14/20									
RW-06	3789.56	2/10/20		66.63	4.16+	LNAPL at TD	70.79	49-69 (4 in.)			
RW-07R	3790.58	2/27/18	68.24	66.68	1.56	3723.60	81.34	59.5-79.5 (4 in.)			
RW-07R	3790.58	5/29/18	68.73	66.95	1.78	3723.29					
RW-07R	3790.58	8/29/18	68.16	67.08	1.08	3723.29	81.34				
RW-07R	3790.58	11/26/18	68.21	67.28	0.93	3723.12					
RW-07R	3790.58	12/4/18	68.50	67.24	1.26	3723.10					
RW-07R	3790.58	2/25/19	68.39	67.50	0.89	3722.91					
RW-07R RW-07R	3790.58 3790.58	4/24/19 5/20/19	68.05 68.62	67.68 67.61	0.37	3722.83 3722.78					
RW-07R	3790.58	6/11/19	00.02	07.01	1.01	3122.10			1.0	1.0	
RW-07R	3790.58	6/18/19							0.5	1.5	
RW-07R	3790.58	6/25/19							0.3	1.0	
RW-07R	3790.58	7/3/19							0.6	0.7	
RW-07R	3790.58	7/8/19							0.5	2.0	
RW-07R	3790.58	7/16/19	68.44	67.80	0.64	3722.66			0.0	2.0	
RW-07R	3790.58	7/23/19	68.60	67.80	0.80	3722.63					
RW-07R	3790.58	8/7/19		01100	0.00	0.22.00			0.5	0.5	
RW-07R	3790.58	8/20/19							0.4	0.9	
RW-07R	3790.58	8/28/19							0.3	1.2	
RW-07R	3790.58	9/3/19							0.1	1.4	
RW-07R	3790.58	9/10/19							0.3	0.2	
RW-07R	3790.58	10/2/19							0.5	0.4	
RW-07R	3790.58	10/22/19	69.12	67.90	1.22	3722.45					
RW-07R	3790.58	11/20/19							1.3	1.7	
RW-07R	3790.58	12/24/19							0.4	0.6	
RW-07R	3790.58	1/14/20							1.0	0.2	
RW-07R	3790.58	1/29/20	69.10	68.15	0.95						
RW-07R	3790.58	2/10/20	68.48	68.26	0.22		81.23	59.5-79.5 (4 in.)			

Volume Groundwater emoved by EFR (gal.)	Comments
336.0	
330.0	
	anna hairean an an an t
	pump being repaired
	Elev of pot surf incorrect
	Elev of pot sun incorrect
462	

	Well ID	Elevation of Top of Casing (famsl)	Date	Depth to Groundwater (fbtoc)	Depth to LNAPL (fbtoc)	LNAPL Thickness (ft.)	Elevation of Potentiometric Surface (famsl)	Measured Depth of Well (fbtoc)	Well Screen Interval (ft bgs) Well Diameter (in)	Volume Product Removed (gal.)	Volume Groundwater Bailed (gal.)	G Ren
_		2700.04	0/07/40	74 55	05.04	5.04	0700.07	02.04	E0 E Z0 E (4 in )			
	RW-08 RW-08	3790.01	2/27/18	71.55	65.61	5.94	3723.27	82.94	59.5-79.5 (4 in.)			
	RW-08	3790.01 3790.01	5/29/18 8/29/18	70.44 69.25	66.08 66.50	4.36 2.75	3723.10 3722.99	82.94				
	RW-08	3790.01	11/26/18	69.88	66.65	3.23	3722.99	02.94				
	RW-08	3790.01	2/25/19	72.29	66.64	5.65	3722.30					
	RW-08	3790.01	5/20/19	72.75	66.41	6.34	3722.40					
_	RW-08	3790.01	7/16/19	72.31	66.68	5.63	3722.26					
	RW-08	3790.01	7/23/19	72.67	66.65	6.02	3722.22					
	RW-08	3790.01	8/13/19	12.01	00.05	0.02	5122.22			0.7	0.4	
	RW-08	3790.01	10/22/19	71.54	67.04	4.50	3722.12			0.7	0.4	
	RW-08	3790.01	2/10/20	73.08	67.00	6.08	3721.85	82.82	59.5-79.5 (4 in.)			
	100	0700.01	2/10/20	10.00	07.00	0.00	0721.00	02.02	00.0 70.0 (4 11.)			
	RW-09	3790.00	2/27/18	67.77	66.95	0.82	3722.89	82.49	59.5-79.5 (4 in.)			
	RW-09	3790.00	5/29/18	68.20	67.05	1.15	3722.73	02.10				
	RW-09	3790.00	8/29/18	67.49	67.36	0.13	3722.62	82.49				
	RW-09	3790.00	11/26/18	68.05	67.50	0.55	3722.40					
	RW-09	3790.00	2/6/19							0.5		
	RW-09	3790.00	2/25/19	68.67	67.55	1.12	3722.24					
	RW-09	3790.00	4/24/19	70.79	66.04	4.75	3723.06					
	RW-09	3790.00	5/20/19	69.18	67.69	1.49	3722.03					
	RW-09	3790.00	7/23/19	69.36	67.82	1.54	3721.89					
	RW-09	3790.00	10/22/19	68.51	68.16	0.35	3721.77					
	RW-09	3790.00	1/8/20							1.5	0	
	RW-09	3790.00	2/10/20	68.90	68.38	0.52	3721.52	82.85	59.5-79.5 (4 in.)			
	RW-10	3789.69	2/27/18	71.83	65.53	6.30	3722.96	82.56	59.5-79.5 (4 in.)			
	RW-10	3789.69	5/29/18	72.95	65.70	7.25	3722.61					
_	RW-10	3789.69	8/29/18	72.83	65.78	7.05	3722.57	82.56				
	RW-10	3789.69	11/26/18	72.95	66.08	6.87	3722.30					
	RW-10	3789.69	12/4/18	73.41	66.02	7.39	3722.27					
	RW-10	3789.69	1/29/19							8.0	1.0	
	RW-10	3789.69	2/25/19	72.53	66.27	6.26	3722.23					
	RW-10	3789.69	5/20/19	70.30	68.90	1.40	3720.52					
_	RW-10	3789.69	7/16/19	69.55	67.43	2.12	3721.86					
	RW-10	3789.69	7/23/19	70.63	67.23	3.40	3721.81					
	RW-10	3789.69	10/22/19	69.89	67.60	2.29	3721.65	00.00				
	RW-10	3789.69	2/10/20	73.06	66.96	6.10	3721.57	82.60	59.5-79.5 (4 in.)			
	D\// 44	2700 77	0/07/40	66.94		0.00	2722.02	0E 11	(1:~)			
	RW-11 RW-11	3789.77 3789.77	2/27/18 5/29/18	<u>66.84</u> 67.01		0.00	3722.93 3722.76	85.44 85.40	(4 in.)			
_	RW-11 RW-11	3789.77	8/29/18	67.01	67.14	0.00	3722.62	00.40				
_	RW-11	3789.77	11/26/18	67.38	67.14	0.03	3722.42					
	RW-11	3789.77	2/25/19	67.54	67.50	0.04	3722.26					
_	RW-11	3789.77	4/30/19	67.63	67.61	0.04	3722.16			0.1	2.9	
	1111	0100.11	-1,00,10	01.00	07.01	0.02	0122.10			0.1	2.3	

Volume Groundwater emoved by EFR (gal.)	Comments
315.0	
	Elev of pot surf incorrect
	· · · · · · · · · · · · · · · · · · ·

We	of 1 Ca	vation Top of asing amsl)	Date	Depth to Groundwater (fbtoc)	Depth to LNAPL (fbtoc)	LNAPL Thickness (ft.)	Elevation of Potentiometric Surface (famsl)	Measured Depth of Well (fbtoc)	Well Screen Interval (ft bgs) Well Diameter (in)	Volume Product Removed (gal.)	Volume Groundwater Bailed (gal.)	Re
RW		89.77	5/20/19	67.62		0.00	3722.15					
RW	/-11 37	89.77	5/21/19							0.0	36.0	
RW	/-11 37	89.77	6/11/19							0.0	3.0	
RW	/-11 37	89.77	6/25/19							0.0	3.0	
RW	/-11 37	89.77	7/23/19	67.83		0.00	3721.94					
RW	/-11 37	89.77	7/23/19							0.0	28.0	
		89.77	8/13/19							0.0	3.0	
-		89.77	8/20/19							0.0	3.0	
		89.77	8/28/19							0.0	3.0	
		89.77	9/3/19							0.0	3.0	
		89.77	9/10/19							0.0	3.0	
		89.77	9/24/19							0.0	3.0	
-		89.77	10/2/19								3.0	
		89.77	10/22/19	67.97		0.00	3721.80				28.0	
		89.77	11/20/19								3.0	
		89.77	12/10/19								3.0	
		89.77	12/24/19							0.0	3.0	
-		89.77	1/14/20	60.00		0.00	2724 54	95.40	(1 in )	0.0	3.0	
KV	7-11 37	89.77	2/10/20	68.23		0.00	3721.54	85.40	(4 in.)	0.0	34.0	
D\/	/-12 37	89.78	2/27/18	66.76		0.00	3723.02	84.28	(4 in.)			
		89.78	5/29/18	66.92		0.00	3722.86	84.24	(4 111.)			
		89.78	8/29/18	67.06		0.00	3722.72	85.31				
		89.78	11/26/18	67.27		0.00	3722.51	85.31				
		89.78	2/25/19	67.46		0.00	3722.32	00101				
		89.78	2/27/19	00		0.00	0.22.02			0.0	33.0	
-		89.78	4/30/19	67.54	67.53	0.01	3722.25					
RW		89.78	4/30/19							0.0	3.0	
RW		89.78	5/20/19	67.69	67.68	0.01	3722.10					
RW	/-12 37	89.78	6/11/19							0.0	3.0	
RW	/-12 37	89.78	6/25/19							0.0	3.0	
RW	/-12 37	89.78	7/23/19	67.74			3722.04			0.0	26.0	
RW	/-12 37	89.78	8/13/19							0.0	3.0	
RW	/-12 37	89.78	8/20/19							0.0	3.0	
		89.78	8/28/19							0.0	3.0	
		89.78	9/3/19							0.0	3.0	
-		89.78	9/10/19							0.0	3.0	
		89.78	9/24/19							0.0	3.0	
		89.78	10/2/19								3.0	
		89.78	10/22/19	67.91		0.00	3721.87				24.0	
		89.78	11/20/19								3.0	
-		89.78	12/10/19								3.0	
		89.78	12/24/19							0.0	3.0	
		89.78	1/14/20	60.00		0.00	2724 55	02.02	(1:0)	0.0	3.0	
KW	/-12 37	89.78	2/10/20	68.23		0.00	3721.55	82.82	(4 in.)		29.0	

Volume Groundwater Removed by EFR	
(gal.)	Comments

#### Summary of Fluid Level Measurements and Fluids Removed **Plains Pipeline LP** Darr Angell No. 2 Lea County, Mexico NMOCD AP-007

	Elevation							Well Screen			
	of Top of		Depth to	Depth to	LNAPL	Elevation of	Measured	Interval (ft bgs)		Volume	G
	Casing		Groundwater	LNAPL	Thickness	Potentiometric	Depth of	Well Diameter	Volume Product	Groundwater	Ren
Well ID	(famsl)	Date	(fbtoc)	(fbtoc)	(ft.)	Surface (famsl)	Well (fbtoc)	(in)	Removed (gal.)	Bailed (gal.)	

Notes:

1. famsl - feet above mean sea level

2. fbtoc - feet below top of casing
 3. LNAPL - Light non-aqueous phase liquid.
 4. fbgs - feet below ground surface.

5. MW-12, RW-11, and RW-12 were installed in February 20170.00 3722.55

6. Monitor well MW-11 was not surveyed until 06/28/17. The surveyed elevation has been entered for prior monitoring events only for the purpose of determining the relative trend in elevations of the potentiometric surface at that location.

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Volume Groundwater emoved by EFR (gal.)

Comments

#### Summary of Analytical Results of BTEX in Ground Water Plains Pipeline LP Darr Angell No. 2 Lea County, Mexico NMOCD AP-007

Sample	Sample	Benzene	Toluene	Ethylbenzene	Total Xylenes
ID	Date	(mg/L)	(mg/L)	(mg/L) man Health Standa	(mg/L)
		0.04	•		
NA\A/ 4	11/27/18	0.01	0.75	0.75	0.62
MW-1	11/27/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-3	8/30/18		Dry		
MW-3	11/27/18		Dry		
			2		
MW-4R	2/28/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-4R	5/30/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-4R	8/30/18	<0.000190	<0.000412	0.000215 J	<0.000510
MW-4R	11/27/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-4R	2/27/19	0.000190 J	<0.000412	0.000404 J	0.000721 B J
MW-4R	5/21/19	0.000265 J	0.000544 J	0.000225 J	0.000846 B J
MW-4R	7/23/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-4R	10/22/19	0.000301 J	0.000535 J	0.000380 J	0.00172
MW-4R	2/14/20	<0.000190	<0.000412	<0.000160	<0.000510
MW-7	11/27/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-7	10/22/19				
MW-8	11/27/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-8	10/22/19	0.000773	0.000654 J	0.000780	0.00239
MW-9	11/27/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-9 (DUP-1)	11/27/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-9	10/22/19	0.000344 J	0.000609 J	0.000289 J	0.00114 J
10100-5	10/22/19	0.000344 3	0.000009.3	0.0002893	0.00114 5
MW-11	2/28/18	0.00223	<0.00200	0.0031	<0.00200
MW-11	5/30/18	<0.00200	<0.00200	0.00277	0.0123
MW-11 (DUP-1)	5/30/18	<0.00200	<0.00200	0.0115	0.0538
MW-11	8/30/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-11	11/27/18	<0.000190	<0.000412	0.000446 J	<0.000510
MW-11	2/27/19	<0.000190	<0.000412	<0.000160	0.00278 B
MW-11	5/21/19	<0.000190	<0.000412	0.000175 B J	<0.000510
MW-12	2/28/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-12	5/30/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-12	8/30/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-12 (DUP-1)	8/30/18	0.000197 J	<0.000412	<0.000160	0.00105 J
MW-12	11/27/18	<0.000190	<0.000412	0.000365 J	0.000844 J
MW-12	2/27/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-12 DUP-1	2/27/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-12	5/21/19	<0.000190	<0.000412	<0.000160	<0.000510

#### Summary of Analytical Results of BTEX in Ground Water Plains Pipeline LP Darr Angell No. 2 Lea County, Mexico NMOCD AP-007

Sample	Sample	Benzene	Toluene	Ethylbenzene	Total Xylenes
ID	Date	( <i>mg/L</i> )	( <i>mg/L</i> )	(mg/L)	(mg/L)
			NMWQCC Hu	man Health Stand	lards
		0.01	0.75	0.75	0.62
MW-12	7/23/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-12	10/22/19	0.000319 J	0.000583 J	0.000321 J	0.00138 J
MW-12	2/14/20	0.00285	<0.000412	<0.000160	<0.000510
RW-11	2/28/18	0.0722	0.0208	0.0386	0.138
RW-11 (DUP-1)	2/28/18	0.0793	0.0230	0.0425	0.150
RW-11	5/30/18	0.0156	0.00297	0.00539	0.0243
RW-11	8/30/18		LNAPL Present		
RW-11	11/27/18		<mark>LNAPL Presen</mark> t		
RW-11	2/25/19		LNAPL Present		
RW-11	5/21/19	0.142	0.00981	0.0276	0.104
RW-11 (DUP-1)	5/21/19	0.149	0.00822	0.0248	0.0847
RW-11	7/23/19	0.115	0.00220	0.0212	0.0620
RW-11	10/22/19	0.167	0.00805	0.0287	0.0937
RW-11	2/14/20	0.207	0.00300	0.0728	0.291
RW-12	2/28/18	0.623	0.259	0.281	1.060
RW-12	5/30/18	<0.00200	0.00548	0.0176	0.0465
RW-12	8/30/18	1.39	0.105	0.0968	0.307
RW-12	11/27/18	1.37	0.144	0.216	0.254
RW-12	2/27/19	1.16	0.140	0.212	0.315
RW-12	5/20/19		LNAPL Present		
RW-12	7/23/19	1.58	0.159	0.0746	0.492
RW-12(DUP-1)	7/23/19	1.13	0.230	0.219	0.437
RW-12	10/22/19	1.12	0.186	0.353	0.389
RW-12 (Dup1)	10/22/19	0.950	0.112	0.186	0.256
RW-12	2/14/20	0.859	0.064	0.160	0.183
Trip Blank	8/30/18	<0.000190	<0.000412	<0.000160	<0.000510
Trip Blank	2/27/19	<0.000190	<0.000412	<0.000160	<0.000510
Trip Blank	2/14/20	<0.000190	<0.000412	<0.000160	<0.000510

#### Notes:

1. Shaded cells indicate exceedance of LNAPL New Mexico Oil Conservation Division Regulatory Limit.

- 2. Bold indicates detection.
- 3. BTEX analyses by EPA Method 8021B.
- 4. Samples collected during March 2011 were collected by Nova Training and Environmental.

Summary of Analytical Results for PAH Compounds in Groundwater Plains Pipeline LP Darr Angell No. 2 Lea County, Mexico NMOCD AP-007

Sample ID	Sample Date	Anthracene (mg/l)	Acenaphthene (mg/l)	Acenaphthylene (mg/l)	Benzo(a)anthracene (mg/l)	Benzo(a)pyrene (mg/l)	Benzo(b)fluoranthene (mg/l)	Benzo(g,h,i)perylene (mg/l)	Benzo(k)fluoranthene (mg/l)	Chrysene (mg/l)	Dibenzo(a,h)anthracene (mg/l)	Dibenzofuran (mg/l)	Fluoranthene (mg/l)	Fluorene (mg/l)	Indeno(1,2,3-cd)pyrene (mg/l)	Naphthalene (mg/l)	Phenanthrene (mg/l)	Pyrene (mg/l)	1-Methylnaphthalene (mg/l)	2-Methylnaphthalene (mg/l)
										l.	NMWQCC Huma	an Health Standard	ls							
		0.001	0.001	0.001	0.001	0.0002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.03	0.001	0.001	0.03	0.03
MW-1	12/1/08	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183
MW-1	11/30/09	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183
	40/4/00	0.000400	0.0004.00	0.0004.00	0.0004.00	0.000400	0.000400	0.0004.00	0.0004.00	0.0004.00	0.0004.00	0.400	0.000400	0.470	0.000400	0.704	0.020	0.0004.00	4.00	0.04
MW-2	12/1/08 11/30/09	<0.000183 <0.0229	<0.000183	<0.000183 <0.0229	<0.000183 <0.0229	<0.000183 <0.0229	<0.000183 <0.0229	<0.000183 <0.0229	<0.000183 <0.0229	<0.000183 <0.0229	<0.000183 <0.0229	0.130	<0.000183	0.178	<0.000183	0.704	0.230	<0.000183	1.68	2.31
MW-2	11/30/09	<0.0229	<0.0229	<0.0229	<0.0229	<0.0229	<0.0229	<0.0229	<0.0229	<0.0229	<0.0229	0.524	<0.0229	0.755	<0.0229	2.89	1.04	<0.0229	7.25	9.78
MW-3	12/1/08	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	0.0014	<0.000183	0.00126	<0.000183	0.0426	0.00103	<0.000183	0.0260	< 0.000183
MW-3	11/30/09	<0.000184	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	0.00145	< 0.000184	0.00155	<0.000183	0.0420	0.00134	<0.000183	0.0306	<0.000184
 MW-3	11/24/10	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	0.00133	<0.000184	0.00132	<0.000184	< 0.000184	0.00134	<0.000184	0.0234	< 0.000184
MW-3	12/1/11	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	0.00163	<0.000183	0.00140	<0.000183	0.00893	0.00135	<0.000183	0.0191	<0.000183
MW-3	12/6/12	<0.000191	<0.000191	<0.000191	<0.000191	<0.000191	<0.000191	<0.000191	<0.000191	<0.000191	<0.000191	0.00080	<0.000191	0.00066	<0.000191	<0.000191	0.00063	<0.000191	0.0016	<0.000191
MW-3	12/3/15	< 0.000199	< 0.000199	<0.000199	< 0.000199	<0.000199	<0.000199	< 0.000199	<0.000199	< 0.000199	< 0.000199	<0.000199	<0.000199	< 0.000199	<0.000199	<0.000199	<0.000199	< 0.000199	<0.000199	<0.000199
MW-3	11/3/16	< 0.000229	< 0.000229	<0.000229	<0.000229	<0.000229	<0.000229	< 0.000229	< 0.000229	< 0.000229	< 0.000229	0.000321	< 0.000229	<0.000229	< 0.000229	0.00184	<0.000229	0.000370	0.00230	<0.000229
MW-4	11/30/09	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	< 0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	0.00118	<0.000184	<0.000184	<0.000184	<0.000184
																				· · · · · · · · · · · · · · · · · · ·
MW-4R	11/19/14	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198	<0.000198
MW-4R	12/3/15	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
MW-6	12/1/08	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185
MW-6	11/30/09	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184
MW-7	12/1/08	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183
MW-7	11/30/09	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183
MW-8	12/1/08	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183		<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183
MW-8	11/30/09	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184
	10/1/00										0.000400									
MW-9	12/1/08	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183
MW-9	11/30/09	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183
	10/1/00	-0.000400	-0.0004.00	-0.000400	-0.0004.00	-0.0004.00	-0.000400	-0.000400	-0.0004.00	-0.000400	-0.0004.00	-0.0004.00	-0.0004.00	-0.0004.00	-0.0004.00	-0.0004.00	-0.000400	-0.000400	-0.0004.00	-0.000100
MW-10 MW-10	12/1/08 11/30/09	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183		<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183	<0.000183 <0.000183
10100-10	11/30/09	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	<0.000103	<0.000103	<0.000103	<0.000103	<0.000103	<0.000103	<u><u><u></u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	<0.000103	<0.000103	<0.000103	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	<0.000103	<0.000103	<u><u></u> &lt;0.000103 </u>	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>
MW-11	12/1/08	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183
MW-11	11/30/09	<0.000183	<0.000183	<0.000183	< 0.000183	<0.000183	<0.000183	<0.000183	<0.000183		<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000184
MW-11	12/3/15	<0.000104	<0.000104	<0.000104	<0.000104	<0.000104	<0.000104	<0.000104	<0.000104		<0.000184	<0.000199	<0.000199	<0.000199	<0.000199	<0.000184	<0.000199	<0.000199	0.000336	<0.000199
MW-11	11/3/16	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	0.000303	<0.000185	<0.000185
MW-11	12/1/17	< 0.000184	< 0.000184	<0.000184	< 0.000184	<0.000184	<0.000184	<0.000184	<0.000184		<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000368	<0.000184	< 0.000184		
												· · · · · ·								
MW-12	12/1/17	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000369	<0.000185	<0.000185		
MW-12	11/27/18	<0.0000140	<0.0000100	<0.0000120	<0.0000410	<0.0000116	<0.0000212	<0.0000227	< 0.0000136	< 0.0000108	<0.0000396	0.00000254 J	<0.0000157	<0.0000850	<0.0000148	0.0000280 J	<0.0000820	<0.0000117	<0.0000821	<0.0000902
GHD 074																				

Summary of Analytical Results for PAH Compounds in Groundwater Plains Pipeline LP Darr Angell No. 2 Lea County, Mexico NMOCD AP-007

Sample ID	Sample Date	Anthracene (mg/l)	Acenaphthene (mg/l)	Acenaphthylene (mg/l)	Benzo(a)anthracene (mg/l)	Benzo(a)pyrene (mg/l)	Benzo(b)fluoranthene (mg/l)	Benzo(g,h,i)perylene (mg/l)	Benzo(k)fluoranthene (mg/l)	Chrysene (mg/l)	Dibenzo(a,h)anthracene (mg/l)	Dibenzofuran (mg/l)	Fluoranthene (mg/l)	Fluorene (mg/l)	Indeno(1,2,3-cd)pyrene (mg/l)	Naphthalene (mg/l)	Phenanthrene (mg/l)	Pyrene (mg/l)	1-Methylnaphthalene (mg/l)	2-Methylnaphthalene (mg/l)
												n Health Standard								
	/ /	0.001	0.001	0.001	0.001	0.0002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.03	0.001	0.001	0.03	0.03
MW-12	10/22/19	<0.000014	<0.00001	<0.000012	<0.0000041	<0.0000116	<0.0000212	<0.0000227	<0.0000136	<0.0000108	<0.0000396	0.0000235 B J	<0.0000157	0.0000217 J	<0.0000148	0.000197 J	0.0000231 J	<0.0000117	0.000123 B J	0.000101 B J
	12/1/08	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	0.000	<0.00459	0.074	<0.00459	4.04	0.240	-0.00450	2.42	2.00
<u>RW-1</u> RW-1	11/30/09	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	0.208	<0.00459	0.274	<0.00459	<u>1.01</u> 0.102	0.346	<0.00459 <0.000922	2.42 0.118	3.20 0.154
	11/30/09	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	0.00042	<0.000922	0.0117	<0.000922	0.102	0.0134	<0.000922	0.110	0.154
RW-2	12/1/08	<0.00184	<0.00184	<0.00184	<0.00184	<0.00184	<0.00184	<0.00184	<0.00184	<0.00184	<0.00184	0.0350	<0.00184	0.0507	<0.00184	0.224	0.0569	<0.00184	0.410	0.526
RW-2	11/30/09	<0.000922	<0.000922	< 0.000922	<0.000922	<0.000922	<0.000922	< 0.000922	< 0.000922	< 0.000922	<0.000922	0.0178	<0.000922	0.0254	<0.000922	0.157	0.0322	<0.000922	0.266	0.347
RW-3	12/2/08	<0.000922	<0.000922	< 0.000922	< 0.000922	< 0.000922	<0.000922	<0.000922	<0.000922	< 0.000922	<0.000922	0.0309	<0.000922	0.0447	<0.000922	0.203	0.0523	<0.000922	0.362	0.480
RW-3	11/30/09	<0.000922	<0.000922	<0.000922	<0.000922	< 0.000922	<0.000922	<0.000922	< 0.000922	< 0.000922	<0.000922	0.0101	<0.000922	0.0114	<0.000922	0.113	0.0132	<0.000922	0.128	0.164
RW-4	12/2/08	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	0.122	<0.00183	0.173	<0.00183	0.637	0.216	<0.00183	1.58	2.14
RW-4	11/30/09	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	0.0184	<0.000922	0.0263	<0.000922	0.169	0.0337	<0.000922	0.276	0.367
RW-5	12/1/08	< 0.000922	<0.000922	< 0.000922	<0.000922	<0.000922	<0.000922	< 0.000922	< 0.000922	< 0.000922	<0.000922	0.0654	<0.000922	0.0938	<0.000922	0.283	0.117	<0.000922	0.835	0.910
RW-5	11/30/09	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	0.0155	<0.000922	0.0201	<0.000922	0.147	0.0284	<0.000922	0.217	0.295
	10/0/00	-0.00192	-0.00182	-0.00192	-0.00192	-0.00192	-0.00182	-0.00192	-0.00192	-0.00102	-0.00192	0.420	-0.00192	0.400	-0.00192	0.000	0.044	-0.00192	4 77	2.44
<u>RW-6</u> RW-6	12/2/08 11/30/09	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183 <0.000922	<0.00183 <0.000922	<0.00183 <0.000922	<0.00183 <0.000922	<0.00183 <0.000922	0.138	<0.00183	0.188	<0.00183 <0.000922	0.693	0.244	<0.00183	<u>1.77</u> 0.36	2.44 0.481
	11/30/09	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	0.0255	<0.000922	0.0352	<0.000922	0.20	0.0452	<0.000922	0.30	0.401
RW-11	12/1/17	0.000374	0.00104	0.000469	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	0.000806	<0.000183	0.00281	0.000196	0.00301	<0.000183	0.0270	0.00629	0.000216		
RW-11	11/12/19	0.00112	< 0.0000100		0.000318	0.0000296	0.0000490		<0.0000255		<0.0000454	0.00159	0.000153	0.00192	<0.0000739	0.00242	0.00325	0.000402	0.00511	0.00334
RW-12	12/1/17	<0.000183	0.000248	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	< 0.000183	<0.000183	0.000857	<0.000183	0.000194	<0.000183	0.0183	0.000635	<0.000183		
RW-12	11/27/18	0.0000715	0.000281	<0.0000120	< 0.00000410	<0.0000116	< 0.0000212	< 0.0000227	< 0.0000136	< 0.0000108	< 0.0000396	0.00169	<0.0000157	0.000354	<0.0000148	0.0248	0.00118	<0.0000117	0.0185	0.0217
RW-12	11/12/19	0.0000849	<0.00001	< 0.0000700	<0.000083	<0.0000158	< 0.0000212	< 0.0000227	< 0.0000255	< 0.0000144	<0.00000454	0.00125	<0.0000165	0.000319	<0.0000739	0.0104	0.000714	<0.0000155	0.00597	0.00660

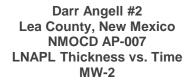
#### Notes:

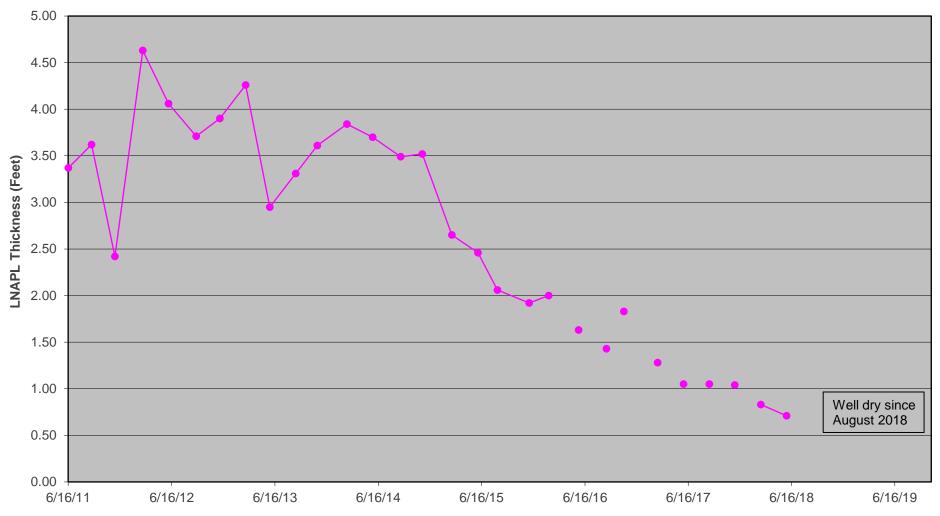
Shaded cells indicate New Mexico Water Quality Control Commission Limit (NMWQCC) exceedance.
 PAH analyses by EPA Method 8270.
 Bold indicates detection.

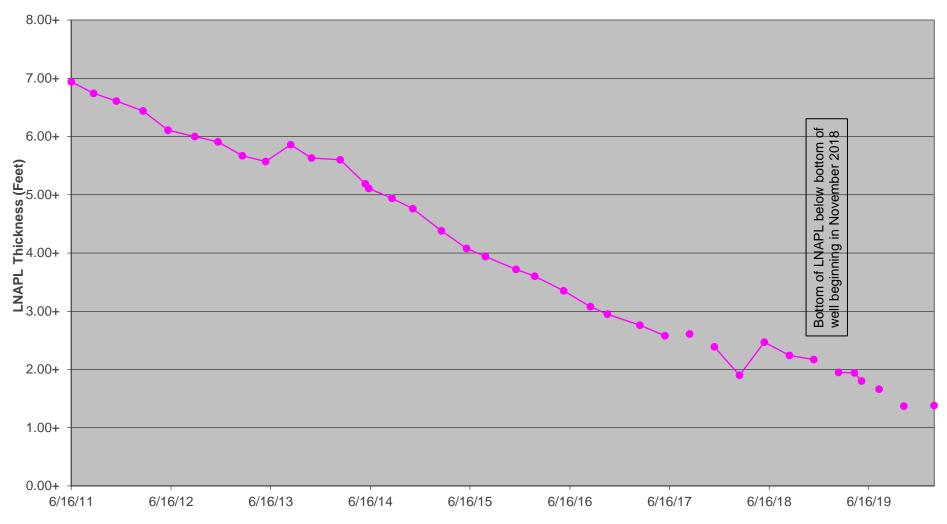
4. Nova Training and Environmental collected samples dated between 2008 and 2010.
 5. --- indicates 1- & 2-Methylnaphthalene was not originally analyzed for and not enough fluid was available to extract for re-run.

## Appendices

## Appendix A Charts of Thicknesses of LNAPL in Monitor and Recovery Wells vs. Time

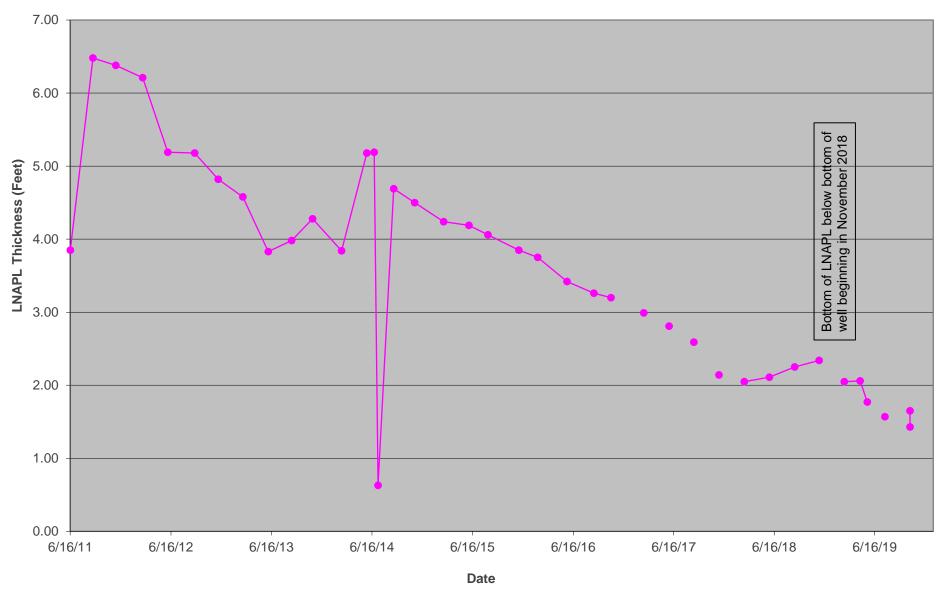


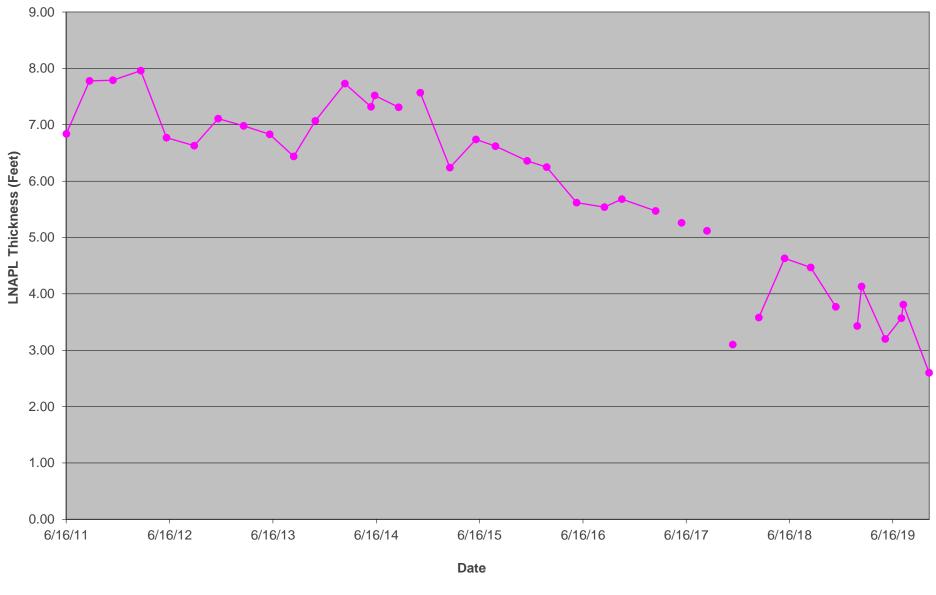


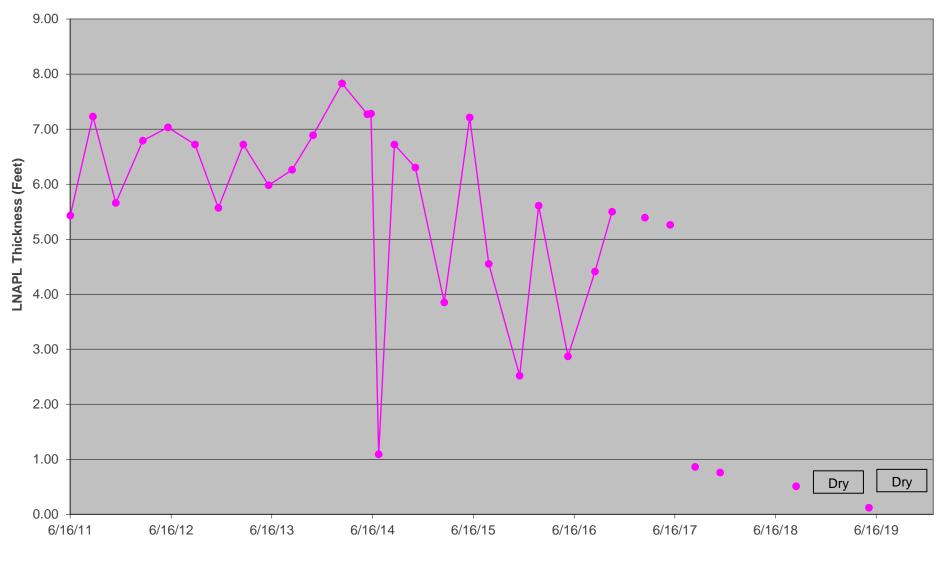


Date

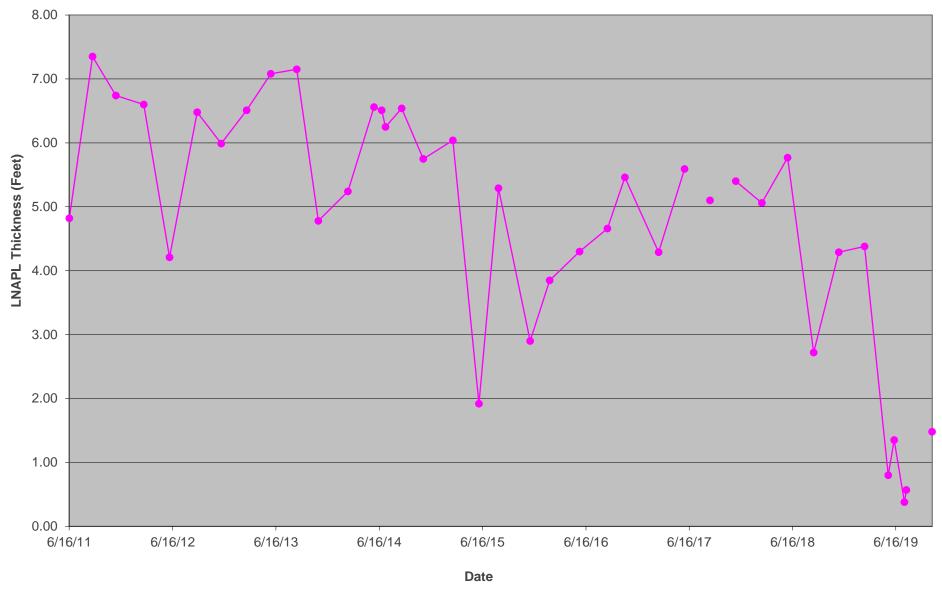
Darr Angell #2 Lea County, New Mexico NMOCD AP-007 LNAPL Thickness vs. Time RW-2

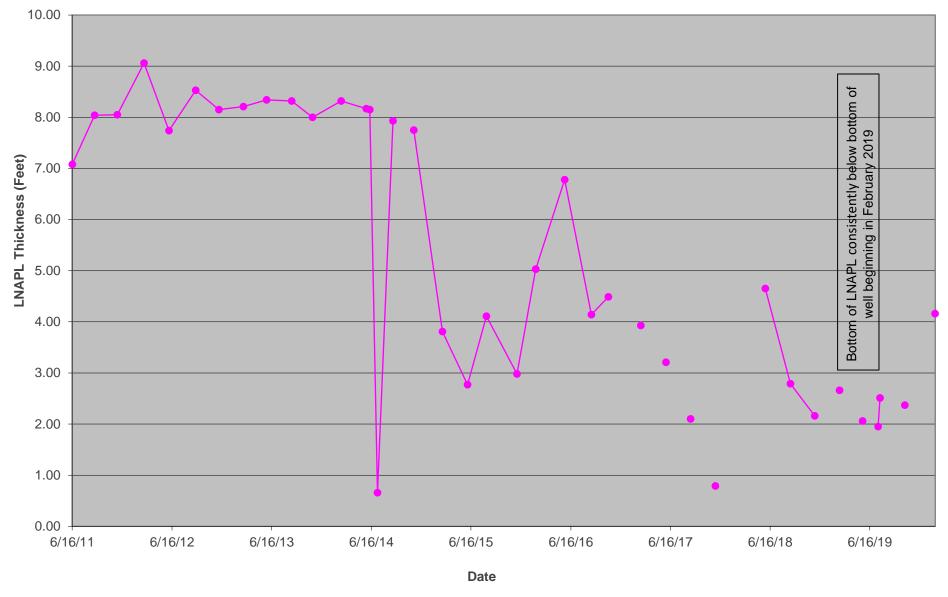




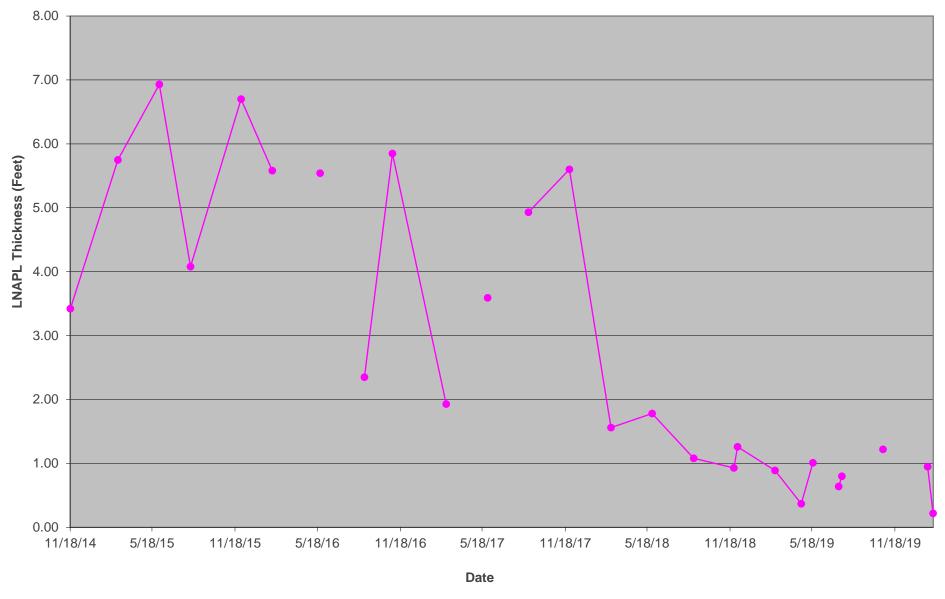


Date

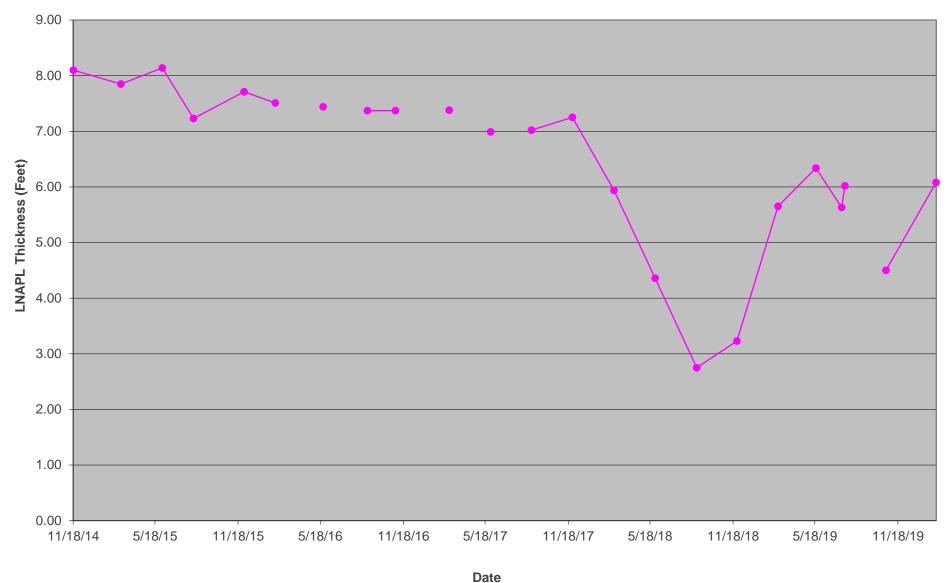


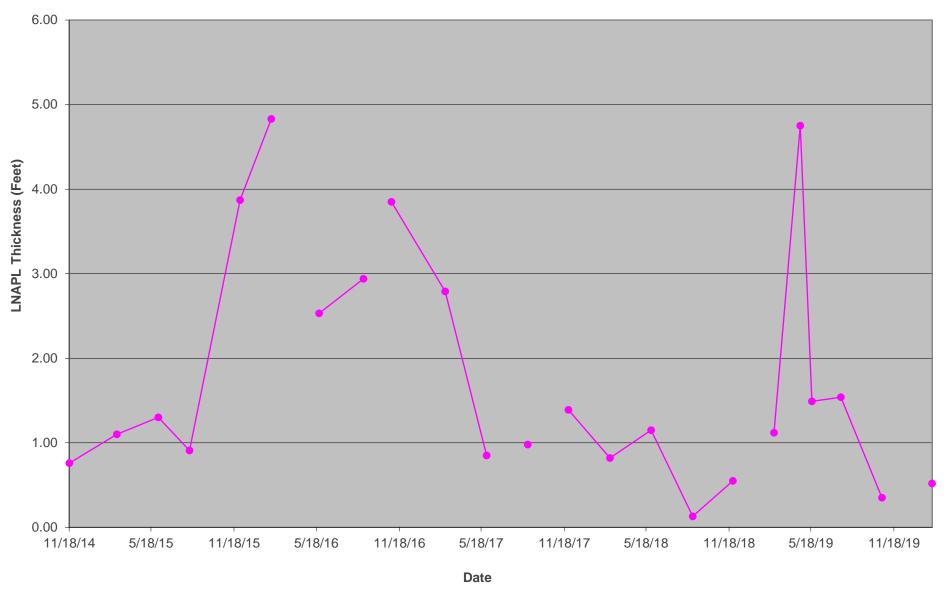


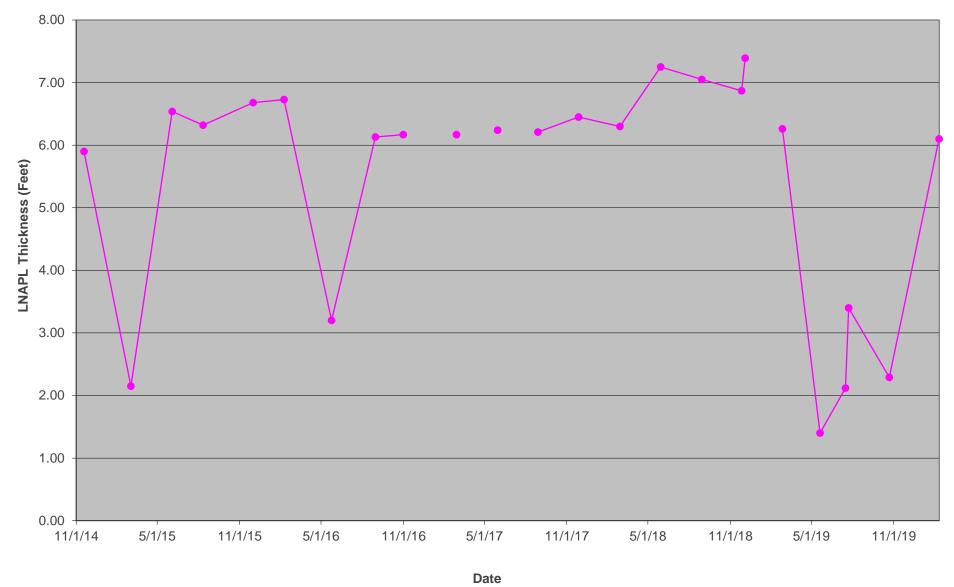
Darr Angell #2 Lea County, New Mexico NMOCD AP-007 LNAPL Thickness vs. Time RW-7R



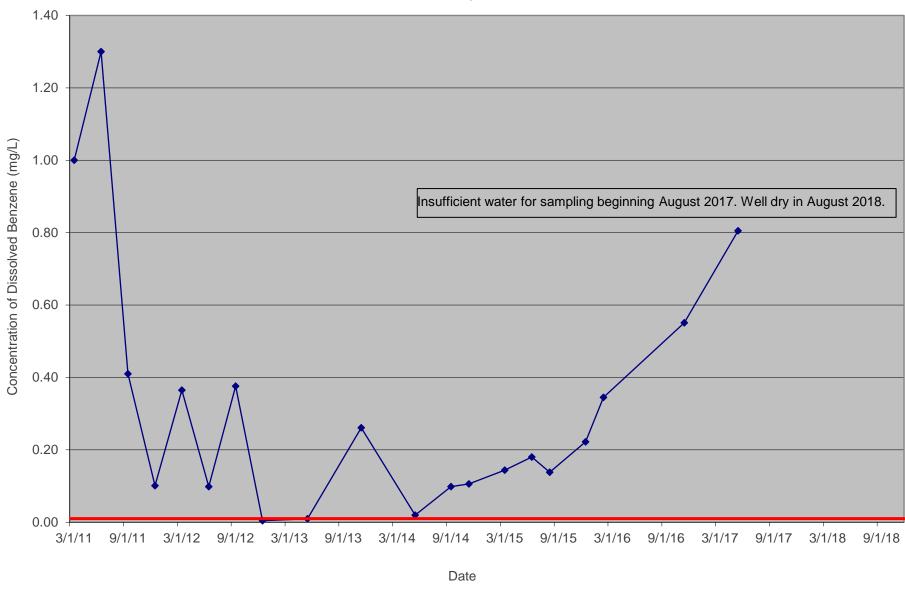
Darr Angell #2 Lea County, New Mexico NMOCD AP-007 LNAPL Thickness vs. Time RW-8







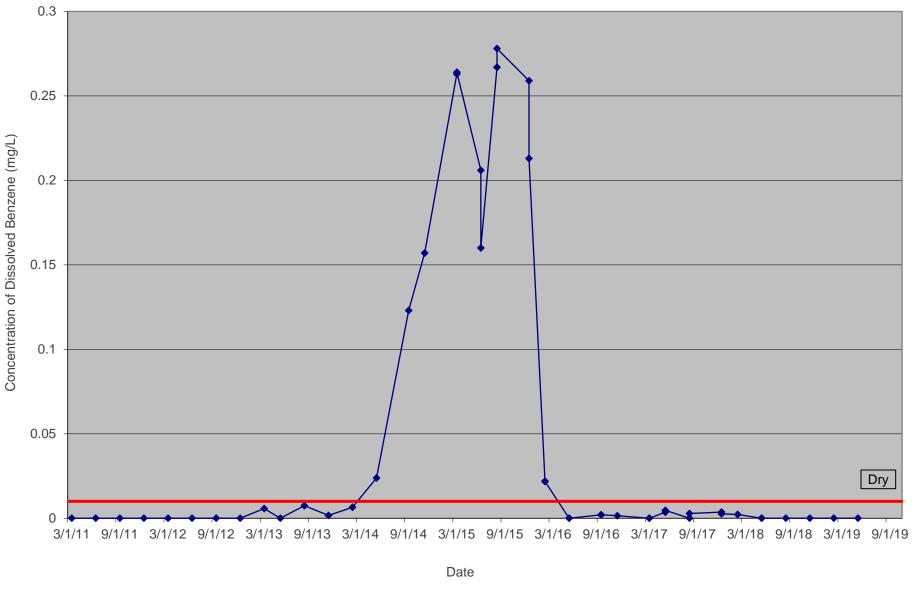
Appendix B Charts of Concentrations of Dissolved Benzene in Monitor and Recovery Wells vs. Time



#### Darr Angell #2 Lea County, New Mexico NMOCD AP-007 Concentration of Dissolved Benzene vs. Time MW-3

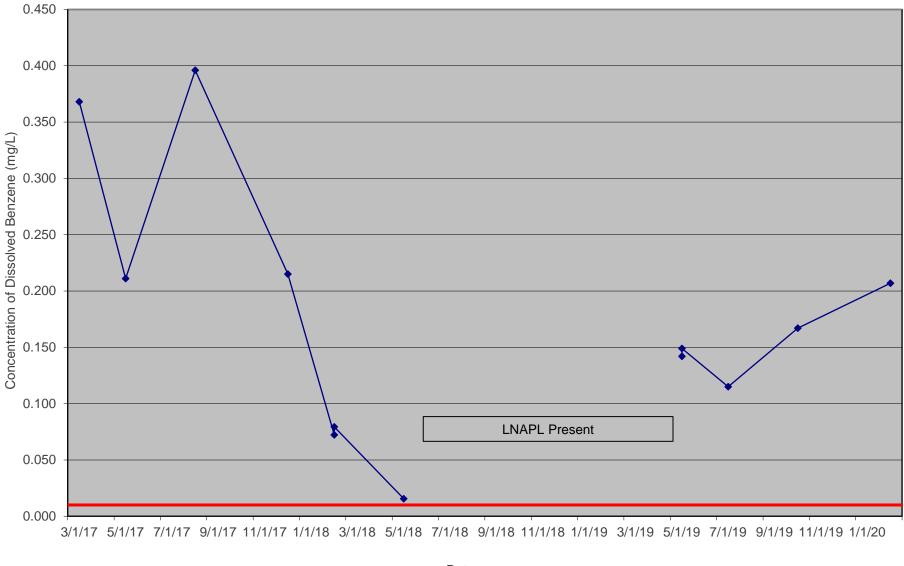
----Benzene -----NMWQCC Human Health Standard

Darr Angell #2 Lea County, New Mexico NMOCD AP-007 Concentration of Dissolved Benzene vs. Time MW-11



----Benzene -----NMWQCC Human Health Standard

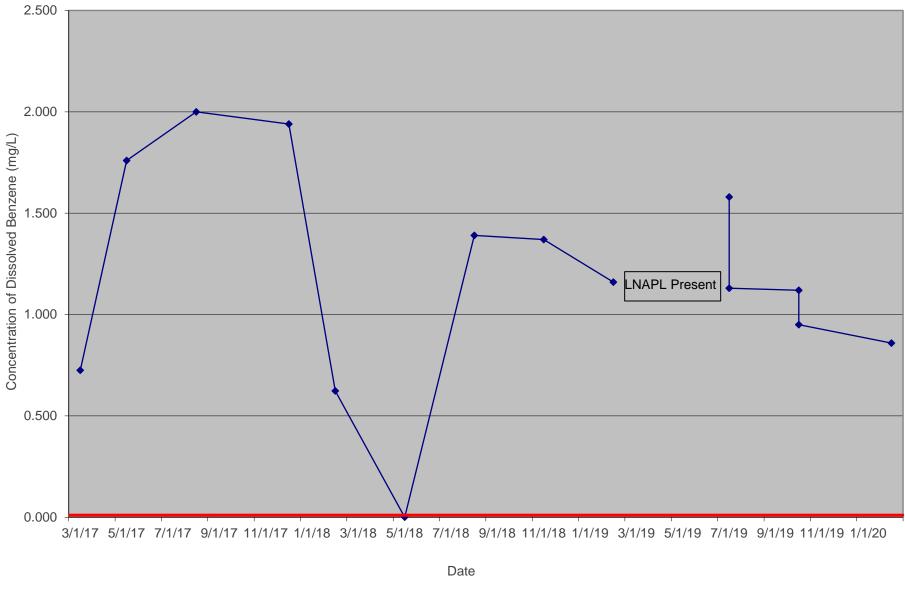
Darr Angell #2 Lea County, New Mexico NMOCD AP-007 Concentration of Dissolved Benzene vs. Time RW-11



Date

----Benzene -----NMWQCC Human Health Standard

Darr Angell #2 Lea County, New Mexico NMOCD AP-007 Concentration of Dissolved Benzene vs. Time RW-12





## Appendix C Certified Laboratory Reports (not included in draft or printed reports)



# ANALYTICAL REPORT

### Plains All American, LP - GHD

Sample Delivery Group:	L1075016
Samples Received:	03/02/2019
Project Number:	074685
Description:	Darr Angell #2- Lea County, New Mexico
Site:	SRS#: LF 1999-62
Report To:	Chris G. Knight, John Schnable
	2135 S Loop 250 W
	Midland, TX 79703

Entire Report Reviewed By:

Unio S

Olivia Studebaker Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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RW-12-022719 L1075016-01	9
MW-4R-022719 L1075016-02	10
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<sup>1</sup> Cp <sup>2</sup> Tc <sup>3</sup> Ss <sup>4</sup> Cn <sup>5</sup> Tr <sup>6</sup> Sr <sup>7</sup> Qc <sup>8</sup> GI <sup>9</sup> AI <sup>10</sup> Sc

\*

ACCOUNT: Plains All American, LP - GHD PROJECT: 074685 SDG: L1075016 DATE/TIME: 03/11/19 14:25 PAGE: 2 of 19

### SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

\*

Ср

Tc

Ss

Cn

⁵Tr

Sr

Qc

GI

A

<sup>10</sup>Sc

RW-12-022719 L1075016-01 GW			Collected by	Collected date/time 02/27/19 10:46	Received da 03/02/19 08	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B Volatile Organic Compounds (GC) by Method 8021B	WG1244728 WG1246510	1 25	03/04/19 17:15 03/08/19 22:56	03/04/19 17:15 03/08/19 22:56	DWR ACG	Mt. Juliet, TN Mt. Juliet, TN
MW-4R-022719 L1075016-02 GW			Collected by	Collected date/time 02/27/19 11:50	Received da 03/02/19 08	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B Volatile Organic Compounds (GC) by Method 8021B	WG1244728 WG1246510	1 1	03/04/19 17:39 03/08/19 23:18	03/04/19 17:39 03/08/19 23:18	DWR ACG	Mt. Juliet, TN Mt. Juliet, TN
MW-12-022719 L1075016-03 GW			Collected by	Collected date/time 02/27/19 12:48	Received da 03/02/19 08	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B Volatile Organic Compounds (GC) by Method 8021B	WG1244728 WG1246510	1 1	03/04/19 18:03 03/08/19 23:39	03/04/19 18:03 03/08/19 23:39	DWR ACG	Mt. Juliet, TN Mt. Juliet, TN
MW-11-022719 L1075016-04 GW			Collected by	Collected date/time 02/27/19 13:55	Received da 03/02/19 08	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B Volatile Organic Compounds (GC) by Method 8021B	WG1244728 WG1246510	1 1	03/04/19 18:27 03/09/19 00:00	03/04/19 18:27 03/09/19 00:00	DWR ACG	Mt. Juliet, TN Mt. Juliet, TN
DUPE-01-022719 L1075016-05 GW			Collected by	Collected date/time 02/27/19 00:00	Received da 03/02/19 08	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1244728	1	03/04/19 18:51	03/04/19 18:51	DWR	Mt. Juliet, TN
TRIP BLANK L1075016-06 GW			Collected by	Collected date/time 02/27/19 00:00	Received da 03/02/19 08	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1244728	1	03/04/19 12:03	03/04/19 12:03	DWR	Mt. Juliet, TN

SDG: L1075016

### CASE NARRATIVE

\*

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Olivia Studebaker Project Manager

Τс Ss Cn Tr Sr Qc Gl AI Sc

DATE/TIME: 03/11/19 14:25 PAGE:

4 of 19

### Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte
  - for each method and matrix.
- R10 Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

1 . . .

Olivia Studebaker Project Manager

### Laboratory Review Checklist: Reportable Data

ļ k

Lab	orato	ry Name: Pace Analytical National	LRC Date: 03/11/2019 14:25					
Proj Me×		lame: Darr Angell #2- Lea County, New	Laboratory Job Number: L1075016-01, 02, 03, 04, 05	and O	5			
Rev	iewe	<sup>r</sup> Name: Olivia Studebaker	Prep Batch Number(s): WG1244728 and WG1246510					
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
R1	OI	Chain-of-custody (C-O-C)						
		Did samples meet the laboratory's standard conditions	of sample acceptability upon receipt?	Х				
		Were all departures from standard conditions describe	d in an exception report?			Х		
R2	OI	Sample and quality control (QC) identification						
		Are all field sample ID numbers cross-referenced to the	e laboratory ID numbers?	Х				
		Are all laboratory ID numbers cross-referenced to the c	corresponding QC data?	Х				
R3	OI	Test reports						
		Were all samples prepared and analyzed within holding	g times?	Х				
		Other than those results < MQL, were all other raw values	es bracketed by calibration standards?	Х				
		Were calculations checked by a peer or supervisor?		Х				
		Were all analyte identifications checked by a peer or su	upervisor?	Х				
		Were sample detection limits reported for all analytes r	Х					
		Were all results for soil and sediment samples reported		X		<b> </b>	ļ	$\vdash$
		Were % moisture (or solids) reported for all soil and sec	liment samples?			Х		
		Were bulk soils/solids samples for volatile analysis extr	acted with methanol per SW846 Method 5035?			Х		
		If required for the project, are TICs reported?				Х		
२४	0	Surrogate recovery data		-		_	-	1
		Were surrogates added prior to extraction?		Х				
		Were surrogate percent recoveries in all samples within	n the laboratory QC limits?	Х				
25	OI	Test reports/summary forms for blank samples		-		_	-	1
		Were appropriate type(s) of blanks analyzed?		Х				
		Were blanks analyzed at the appropriate frequency?		X				
		Were method blanks taken through the entire analytica	al process, including preparation and, if applicable,	Х				
		cleanup procedures?			V			
		Were blank concentrations < MQL?			X			1
R6	OI	Laboratory control samples (LCS):			1	1	r –	1
		Were all COCs included in the LCS?	adure including area and cleaning stans?	X X				
		Was each LCS taken through the entire analytical proce	edure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency? Were LCS (and LCSD, if applicable) %Rs within the labo	rates (OC limits?	X				<u> </u>
			e laboratory's capability to detect the COCs at the MDL					<u> </u>
		used to calculate the SDLs?	e laboratory's capability to detect the COCs at the MDE	X				
		Was the LCSD RPD within QC limits?		Х				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data	3					
		Were the project/method specified analytes included in				X		T
		Were MS/MSD analyzed at the appropriate frequency?				Х		
		Were MS (and MSD, if applicable) %Rs within the labora	atory QC limits?			Х	1	
		Were MS/MSD RPDs within laboratory QC limits?				Х		
85	OI	Analytical duplicate data						
		Were appropriate analytical duplicates analyzed for ea	ch matrix?			Х		
		Were analytical duplicates analyzed at the appropriate	frequency?			Х		
		Were RPDs or relative standard deviations within the la	boratory QC limits?			Х		
29	OI	Method quantitation limits (MQLs):						
		Are the MQLs for each method analyte included in the	laboratory data package?	Х				
		Do the MQLs correspond to the concentration of the lo	west non-zero calibration standard?	Х				
		Are unadjusted MQLs and DCSs included in the labora	tory data package?	Х				
210	OI	Other problems/anomalies		-		_	-	
		Are all known problems/anomalies/special conditions r	noted in this LRC and ER?	Х				
		Was applicable and available technology used to lower the sample results?	r the SDL to minimize the matrix interference effects on	x				
		Is the laboratory NELAC-accredited under the Texas La and methods associated with this laboratory data pack	boratory Accreditation Program for the analytes, matrices age?	x				
shoul 2. O 3. NA 4. NF	d be r = orga \ = No <sup>-</sup> ? = Not	ntified by the letter "R" must be included in the laborator etained and made available upon request for the appropriation of the applicable; reviewed;	ry data package submitted in the TRRP-required report(s).		dentifie	ed by th	e letter	"S"

### Laboratory Review Checklist: Supporting Data

1 ķ

CCV analyzed at the method-required freque ercent differences for each analyte within the ICAL curve verified for each analyte? absolute value of the analyte concentration pectral tuning appropriate compound for the method used n abundance data within the method-required	met? nethod used for all analytes? ighest standard used to calculate the curve? n appropriate second source standard? nd CCV) and continuing calibration blank (CCB): nency? method-required QC limits? in the inorganic CCB < MDL? I for tuning? d QC limits?			NA <sup>3</sup> X	NR <sup>4</sup>	ER# <sup>5</sup>			
tion alibration (ICAL) response factors and/or relative response factors arcent RSDs or correlation coefficient criteria a number of standards recommended in the m I points generated between the lowest and hi L data available for all instruments used? initial calibration curve been verified using an and continuing calibration verification (ICCV an a CCV analyzed at the method-required frequent ercent differences for each analyte within the a ICAL curve verified for each analyte? a absolute value of the analyte concentration bectral tuning appropriate compound for the method used n abundance data within the method-required standards (IS) area counts and retention times within the method.	ors for each analyte within QC limits? met? nethod used for all analytes? ighest standard used to calculate the curve? n appropriate second source standard? nd CCV) and continuing calibration blank (CCB): tency? method-required QC limits? in the inorganic CCB < MDL? I for tuning? d QC limits?	Yes  X X X X X X X X X X X X X X X X X X			NR <sup>4</sup>				
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standards (IS) area counts and retention times within the m				X					
area counts and retention times within the m	Internal standards (IS)								
	acthod required OC limits?	X	гт		<u> </u>	T			
					I	<u> </u>			
	actual data) reviewed by an analyst?		<u>г т</u>		r –	T			
e raw data (for example, chromatograms, spe		X	$ \rightarrow $			<u> </u>			
ata associated with manual integrations flagge	ed on the raw data?	Х				<u> </u>			
lumn confirmation		-	r r		1				
I column confirmation results meet the metho	ba-required QC?			Х					
vely identified compounds (TICs)			<del>г т</del>		r —	1			
vere requested, were the mass spectra and T	IC data subject to appropriate checks?			Х					
ence Check Sample (ICS) results			<u> </u>		1				
ercent recoveries within method QC limits?				Х					
ilutions, post digestion spikes, and method of						1			
	ity within the QC limits specified in the method?			Х					
detection limit (MDL) studies					r				
IDL study performed for each reported analy		Х							
DL either adjusted or supported by the analy	sis of DCSs?	Х							
ncy test reports									
e laboratory's performance acceptable on the	applicable proficiency tests or evaluation studies?	X							
ds documentation									
standards used in the analyses NIST-traceable	e or obtained from other appropriate sources?	X							
und/analyte identification procedures			<del></del>						
procedures for compound/analyte identificati	ion documented?	Х							
stration of analyst competency (DOC)									
OC conducted consistent with NELAC Chapter	r 5?	Х							
mentation of the analyst's competency up-to-	date and on file?	Х							
tion/validation documentation for methods (N	IELAC Chapter 5)								
he methods used to deparate the data decur	nented, verified, and validated, where applicable?	Х							
ne memous used to generate the data docun									
ory standard operating procedures (SOPs)	hod performed	Х							
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X         Iaboratory's performance acceptable on the applicable proficiency tests or evaluation studies?       X         Iaboratory's performance acceptable on the applicable proficiency tests or evaluation studies?       X         Is documentation       X         tandards used in the analyses NIST-traceable or obtained from other appropriate sources?       X         und/analyte identification procedures       X         procedures for compound/analyte identification documented?       X         tration of analyst competency (DOC)       X         C conducted consistent with NELAC Chapter 5?       X         nentation of the analyst's competency up-to-date and on file?       X         ion/validation documentation for methods (NELAC Chapter 5)       X         ne methods used to generate the data documented, verified, and validated, where applicable?       X         ory standard operating procedures (SOPs)       X         trater "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items in a made available upon request for the appropriate retention period.       X	Iaboratory's performance acceptable on the applicable proficiency tests or evaluation studies?       X         Iaboratory's performance acceptable on the applicable proficiency tests or evaluation studies?       X         Is documentation       Implicable or obtained from other appropriate sources?       X         Ind/analyte identification procedures       X       Implicable or obtained from other appropriate sources?       X         Ind/analyte identification procedures       X       Implicable or obtained from other appropriate sources?       X         Ind/analyte identification procedures       X       Implicable or obtained from other appropriate sources?       X         Ind/analyte identification procedures       X       Implicable or obtained from other appropriate sources?       X         Ind/analyte identification procedures       X       Implicable or obtained from other appropriate sources?       X         Ind/analyte identification documented?       X       Implicable or obtained from other appropriate sources?       X         C conducted consistent with NELAC Chapter 5?       X       Implicable or obtained from other applicable?       X         Ion/validation documentation for methods (NELAC Chapter 5)       Implicable or obtained, verified, and validated, where applicable?       X         Interver standard operating procedures (SOPs)       Implicable or obtained for each method performed       X       Implicable or obtain	Iaboratory's performance acceptable on the applicable proficiency tests or evaluation studies?       X         Iaboratory's performance acceptable on the applicable proficiency tests or evaluation studies?       X         Is documentation       Implicable or obtained from other appropriate sources?       X         Ind/analyte identification procedures       Implicable or obtained from other appropriate sources?       X         Implicable of analyses for compound/analyte identification documented?       X       Implicable         Intration of analyst competency (DOC)       Implicable       X         C conducted consistent with NELAC Chapter 5?       X       Implicable         Intration of the analyst's competency up-to-date and on file?       X       Implicable         Ion/validation documentation for methods (NELAC Chapter 5)       Implicable       X         Intration of operating procedures (SOPs)       Implicable?       X       Implicable?         Intratory SOPs current and on file for each method performed       X       Implicable?       X         Interference       Implicable for each method performed       X       Implicable?       Implicable	Iaboratory's performance acceptable on the applicable proficiency tests or evaluation studies?       X         Iaboratory's performance acceptable on the applicable proficiency tests or evaluation studies?       X         Iaboratory's performance acceptable on the applicable proficiency tests or evaluation studies?       X         Iaboratory's performance acceptable on the applicable proficiency tests or evaluation studies?       X         Iaboratory's performance acceptable or obtained from other appropriate sources?       X         Iaboratory identification procedures       X         Ind/analyte identification procedures       X         procedures for compound/analyte identification documented?       X         Itration of analyst competency (DOC)       X         C conducted consistent with NELAC Chapter 5?       X         Inentation of the analyst's competency up-to-date and on file?       X         Ioin/validation documentation for methods (NELAC Chapter 5)       X         Ine methods used to generate the data documented, verified, and validated, where applicable?       X         Iony standard operating procedures (SOPs)       X			

4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

SDG: L1075016

Laborato	ory Name: Pace Analytical National	LRC Date: 03/11/2019 14:25					
Project N Mexico	Name: Darr Angell #2- Lea County, New	Laboratory Job Number: L1075016-01, 02, 03, 04, 05 and 06					
Reviewe	r Name: Olivia Studebaker	Prep Batch Number(s): WG1244728 and WG1246510					
ER # <sup>1</sup>	Description						
1	8021B WG1244728 Total Xylene L1075016-0	02 and 04: Concentration in the Blank >MQL.					

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; 1 = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

#### SAMPLE RESULTS - 01 L1075016



Ср

⁵Tr

Qc

GI

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Sc

### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	_
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		E E
Benzene	1.16		0.00475	0.000500	0.0125	25	03/08/2019 22:56	WG1246510	
Toluene	0.140		0.000412	0.00100	0.00100	1	03/04/2019 17:15	WG1244728	L
Ethylbenzene	0.212		0.000160	0.000500	0.000500	1	03/04/2019 17:15	WG1244728	
Total Xylene	0.315		0.000510	0.00150	0.00150	1	03/04/2019 17:15	WG1244728	
(S) a,a,a-Trifluorotoluene(PID)	91.5				79.0-125		03/04/2019 17:15	WG1244728	ſ
(S) a,a,a-Trifluorotoluene(PID)	97.2				79.0-125		03/08/2019 22:56	WG1246510	

## SAMPLE RESULTS - 02

### \*

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### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	— Cp
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	0.000190	J	0.000190	0.000500	0.000500	1	03/08/2019 23:18	WG1246510	Tc
Toluene	U		0.000412	0.00100	0.00100	1	03/04/2019 17:39	WG1244728	
Ethylbenzene	0.000404	J	0.000160	0.000500	0.000500	1	03/04/2019 17:39	WG1244728	<sup>3</sup> Ss
Total Xylene	0.000721	ВJ	0.000510	0.00150	0.00150	1	03/04/2019 17:39	WG1244728	55
(S) a,a,a-Trifluorotoluene(PID)	96.4				79.0-125		03/04/2019 17:39	WG1244728	4
(S) a,a,a-Trifluorotoluene(PID)	101				79.0-125		03/08/2019 23:18	WG1246510	Cn

## SAMPLE RESULTS - 03

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### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		
Benzene	U		0.000190	0.000500	0.000500	1	03/08/2019 23:39	WG1246510	
Toluene	U		0.000412	0.00100	0.00100	1	03/04/2019 18:03	WG1244728	
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/04/2019 18:03	WG1244728	
Total Xylene	U		0.000510	0.00150	0.00150	1	03/04/2019 18:03	WG1244728	
(S) a,a,a-Trifluorotoluene(PID)	96.4				79.0-125		03/04/2019 18:03	WG1244728	
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		03/08/2019 23:39	WG1246510	

2	Тс
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3	Ss
_	Cn
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5	Tr
5	Sr
7	
/	Qc
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8	GI
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#### SAMPLE RESULTS - 04 L1075016

### <u>پو</u>

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#### Volatile Organic Compounds (GC) by Method 8021B

	Result	<u>Qualifier</u>	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	U		0.000190	0.000500	0.000500	1	03/09/2019 00:00	WG1246510	Ťτ
Toluene	U		0.000412	0.00100	0.00100	1	03/04/2019 18:27	WG1244728	
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/04/2019 18:27	WG1244728	<sup>3</sup> Ss
Total Xylene	0.00278	В	0.000510	0.00150	0.00150	1	03/04/2019 18:27	WG1244728	5.
(S) a,a,a-Trifluorotoluene(PID)	96.2				79.0-125		03/04/2019 18:27	WG1244728	4
(S) a,a,a-Trifluorotoluene(PID)	99.3				79.0-125		03/09/2019 00:00	WG1246510	C

## SAMPLE RESULTS - 05

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### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	(
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	U		0.000190	0.000500	0.000500	1	03/04/2019 18:51	WG1244728	
Toluene	U		0.000412	0.00100	0.00100	1	03/04/2019 18:51	WG1244728	
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/04/2019 18:51	WG1244728	3
Total Xylene	U		0.000510	0.00150	0.00150	1	03/04/2019 18:51	WG1244728	
(S) a,a,a-Trifluorotoluene(PID)	96.3				79.0-125		03/04/2019 18:51	WG1244728	4

<sup>∠</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
<sup>°</sup> GI
<sup>9</sup> Al
<sup>10</sup> Sc

DATE/TIME: 03/11/19 14:25

## SAMPLE RESULTS - 06



Ср

Tc

#### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	U		0.000190	0.000500	0.000500	1	03/04/2019 12:03	WG1244728	
Toluene	U		0.000412	0.00100	0.00100	1	03/04/2019 12:03	WG1244728	L
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/04/2019 12:03	WG1244728	3
Total Xylene	U		0.000510	0.00150	0.00150	1	03/04/2019 12:03	WG1244728	
(S) a,a,a-Trifluorotoluene(PID)	96.3				79.0-125		03/04/2019 12:03	WG1244728	4

<sup>3</sup> (	SS
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<sup>6</sup> (	Sr
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Volatile Organic Compounds (GC) by Method 8021B

## QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

### Method Blank (MB)

(MB) R3389451-3 03/04/	19 11:15			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Benzene	U		0.000190	0.000500
Toluene	U		0.000412	0.00100
Ethylbenzene	U		0.000160	0.000500
Total Xylene	U		0.000510	0.00150
(S) a,a,a-Trifluorotoluene(PID)	95.6			79.0-125

### Laboratory Control Sample (LCS)

#### (LCS) R3389451-1 03/04/19 09:46

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Benzene	0.0500	0.0501	100	77.0-122	
Toluene	0.0500	0.0468	93.5	80.0-121	
Ethylbenzene	0.0500	0.0481	96.2	80.0-123	
Total Xylene	0.150	0.147	97.8	47.0-154	
(S) a,a,a-Trifluorotoluene(PID)			95.9	79.0-125	

SDG: L1075016 DATE/TIME: 03/11/19 14:25 PAGE: 15 of 19

### WG1246510

Volatile Organic Compounds (GC) by Method 8021B

## QUALITY CONTROL SUMMARY

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### Method Blank (MB)

(MB) R3390411-5 03/08/19 21:32					
	MB Result	MB Qualifier	MB MDL	MB RDL	
Analyte	mg/l		mg/l	mg/l	
Benzene	U		0.000190	0.000500	
(S) a,a,a-Trifluorotoluene(PID)	102			79.0-125	

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3390411-1 03/08/1	19 19:45 • (LCSD	) R3390411-2	03/08/19 20:07	7						
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Benzene	0.0500	0.0436	0.0438	87.1	87.5	77.0-122			0.491	20
(S) a.a.a-Trifluorotoluene(PID)				99.1	99.8	79.0-125				

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### GLOSSARY OF TERMS

### \*

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### Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

#### Abbreviations and Definitions

MDL	Method Detection Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the resu reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detec or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
В	The same analyte is found in the associated blank.

The identification of the analyte is acceptable; the reported value is an estimate.

J

# **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Nebraska
Alaska	17-026	Nevada
Arizona	AZ0612	New Hampshire
Arkansas	88-0469	New Jersey–NELAF
California	2932	New Mexico <sup>1</sup>
Colorado	TN00003	New York
Connecticut	PH-0197	North Carolina
Florida	E87487	North Carolina <sup>1</sup>
Georgia	NELAP	North Carolina <sup>3</sup>
Georgia <sup>1</sup>	923	North Dakota
Idaho	TN00003	Ohio-VAP
Illinois	200008	Oklahoma
Indiana	C-TN-01	Oregon
lowa	364	Pennsylvania
Kansas	E-10277	Rhode Island
Kentucky <sup>16</sup>	90010	South Carolina
Kentucky <sup>2</sup>	16	South Dakota
Louisiana	AI30792	Tennessee <sup>1 4</sup>
Louisiana 1	LA180010	Texas
Maine	TN0002	Texas ⁵
Maryland	324	Utah
Massachusetts	M-TN003	Vermont
Michigan	9958	Virginia
Minnesota	047-999-395	Washington
Mississippi	TN00003	West Virginia
Missouri	340	Wisconsin
Montana	CERT0086	Wyoming

lebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 5	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

#### **Our Locations**

Plains All American, LP - GHD

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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03/11/19 14:25

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Plains All American, LP - GHD 2135 S Loop 250 W			Billing Information: Accounts Payable 505 N. Big Spring, Ste. 600 Midland, TX 79701			Pres Chk									Pace And National Conter	alytical <sup>®</sup> tor Testing & Innovatio
Aidland, TX 79703 eport to: Chris G. Knight, John Schnable		3	Email To: Ch Iohn.Schnal	ristopher.Knight@ ble@ghd.com	Øghd.com;		ALL CALL							Mo Pho Pho	unt Juliet, TN 37122 one: 615-758-5858 one: 800-767-5859 c: 615-758-5859	
Project Description: Darr Angell #2- Lea C	ounty, New N	Aexico		City/State Collected:	1. 1. 24								No.	Lŧ	# 1075	016
Phone: 432-686-0086	Client Project # 074685			Lab Project # PLAINSGHD-0	74685			A. Maria							G092	
Fax: Collected by (print):	Site/Facility ID # SRS#: LF 199	99-62		P.O. #			HCI							Т	emplate:T139	790
Collected by (signature): Immediately Packed on Ice N Y	Rush? (Lal	b MUST Be M Five D 5 Day 10 Da	ay (Rad Only)	Quote # Date Resu	ults Needed	No. of Cntr	40mlAmb-							Prelogin: P695137 TSR: 134 - Mark W. Beasl PB: Shipped Via: Remarks Sample #		
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time		RTEX				-				1999 - 1999 1999 - 1999 1999 - 1999	-
TRIP BLANK		GW		1	1	3		c ·								-01
RW-12-072719	Grab	GW		161611	and the second sec											-02
MW-4R-022719	Grab	GW		212716	11150	83		Ś								-03
MW-12-022719	Grab	GW		- 2127/	9125		X	1				1.00	_	-		-04
MW-11-022719	Grab	GW		21211	9 32	C	XX	5			-			_		-06
Dupe-01-022719 Trip Blank	Grab	Gw														
								-								
* Matrix:	Remarks:									рн	Te	mp		C Seal P C Signed	ole <u>Receipt</u> resent/Intac /Accurate: rive intact	ct:
SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater	Samples returned via:							290	Flow_	01	her	Su	fficient	ttles used: volume sent <u>If Applic</u> Headspace: ion Correct/	able	
OT - Other UPSFe		edExC	ourier	Time:	Tracking # Received by:	(Signatur	re)		Cur	Trip Blank F	Received:	HCL/M	eoH	FUDS	W. Samerin	and south
Relinquished by : (Signature)	1-1-1-	3/1	119	OSO0 Time;	Received by:	: (Signatu	re)			Temp:	°C	TBR Bottles Receiv	ved: If	preservati	ion required by	Login: Date/
Relinquished by : (Signature) Relinquished by : (Signature)	e) Date: 31-7=3. (34 (4 = 4 7		lold:		Conc											



# ANALYTICAL REPORT

## Plains All American, LP - GHD

Sample Delivery Group:	L1102383
Samples Received:	05/24/2019
Project Number:	074685
Description:	Darr Angell #2- Lea County, New Mexico
Site:	SRS#: LF 1999-62
Report To:	James Ornelas
	2135 S Loop 250 W
	Midland, TX 79703

<sup>1</sup> Cp <sup>2</sup> Tc <sup>3</sup> Ss <sup>4</sup> Cn <sup>5</sup> Tr <sup>6</sup> Sr <sup>7</sup> Qc <sup>8</sup> GI <sup>9</sup> AI <sup>10</sup> Sc

Entire Report Reviewed By:

Mh

Mark W. Beasley Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

ACCOUNT: Plains All American, LP - GHD PROJECT: 074685 SDG: L1102383 DATE/TIME: 06/03/19 13:46 PAGE: 1 of 18

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SDG: L1102383 DATE/TIME: 06/03/19 13:46

\*

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

\*

Ср

Tc

Ss

Cn

⁵Tr

Sr

Qc

GI

A

<sup>10</sup>Sc

			Collected by	Collected date/time	Received da	te/time
MW-11 L1102383-01 GW			Heath Boyd	05/21/19 07:43	05/24/19 08:	30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288830	1	05/30/19 20:11	05/30/19 20:11	JAH	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	
MW-12 L1102383-02 GW			Heath Boyd	05/21/19 08:39	05/24/19 08:	30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
/olatile Organic Compounds (GC) by Method 8021B	WG1288830	1	05/30/19 20:35	05/30/19 20:35	JAH	Mt. Juliet, TN
RW-11 L1102383-03 GW			Collected by Heath Boyd	Collected date/time 05/21/19 10:12	Received da 05/24/19 08:	
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time	·	
Volatile Organic Compounds (GC) by Method 8021B	WG1288830	1	date/time 05/30/19 20:59	date/time 05/30/19 20:59	JAH	
Volatile Organic Compounds (GC) by Method 8021B MW-4R L1102383-04 GW	WG1288830	1			JAH Received da 05/24/19 08:	Mt. Juliet, TN
	WG1288830 Batch	1 Dilution	05/30/19 20:59 Collected by	05/30/19 20:59 Collected date/time	Received da	Mt. Juliet, TN
MW-4R L1102383-04 GW			05/30/19 20:59 Collected by Heath Boyd Preparation	05/30/19 20:59 Collected date/time 05/21/19 09:02 Analysis	Received da 05/24/19 08:	Mt. Juliet, TN te/time 30
MW-4R L1102383-04 GW Method	Batch	Dilution	05/30/19 20:59 Collected by Heath Boyd Preparation date/time	05/30/19 20:59 Collected date/time 05/21/19 09:02 Analysis date/time	Received da 05/24/19 08: Analyst BMB	Mt. Juliet, TN te/time 30 Location Mt. Juliet, TN te/time
MW-4R L1102383-04 GW Method /olatile Organic Compounds (GC) by Method 8021B	Batch	Dilution	05/30/19 20:59 Collected by Heath Boyd Preparation date/time 06/01/19 16:51 Collected by	05/30/19 20:59 Collected date/time 05/21/19 09:02 Analysis date/time 06/01/19 16:51 Collected date/time	Received da 05/24/19 08: Analyst BMB Received da	Mt. Juliet, TN te/time 30 Location Mt. Juliet, TN te/time

SDG: L1102383 DATE/TIME: 06/03/19 13:46

## CASE NARRATIVE

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All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

h

Mark W. Beasley Project Manager

Τс Ss Cn Tr Sr Qc GI AI Śc

SDG: L1102383

C

PAGE: 4 of 18

## Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte
  - for each method and matrix.
- R10 Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Mark W. Beasley Project Manager

# Laboratory Review Checklist: Reportable Data

Lab	orato	ry Name: Pace Analytical National	LRC Date: 06/03/2019 13:46							
Proj Me>		ame: Darr Angell #2- Lea County, New	Laboratory Job Number: L1102383-01, 02, 03, 04 and 05							
Rev	viewei	Name: Mark W. Beasley	Prep Batch Number(s): WG1288830 and WG1289067	Prep Batch Number(s): WG1288830 and WG1289067						
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>		
R1	OI	Chain-of-custody (C-O-C)								
		Did samples meet the laboratory's standard conditions	of sample acceptability upon receipt?	Х						
		Were all departures from standard conditions described	in an exception report?			Х	1			
R2	OI	Sample and quality control (QC) identification								
		Are all field sample ID numbers cross-referenced to the	laboratory ID numbers?	Х	1					
		Are all laboratory ID numbers cross-referenced to the co	orresponding QC data?	Х						
R3	0	Test reports								
-		Were all samples prepared and analyzed within holding	times?	X	Г	Г	1			
		Other than those results < MQL, were all other raw value		X						
		Were calculations checked by a peer or supervisor?		X			1			
		Were all analyte identifications checked by a peer or su	nervisor?	X	1			1		
		Were sample detection limits reported for all analytes no	•	X	<u> </u>					
		· · · · · · · · · · · · · · · · · · ·		X			<u> </u>	<u> </u>		
		Were all results for soil and sediment samples reported	· · ·			X	<u> </u>			
		Were % moisture (or solids) reported for all soil and sed	•			_	<u> </u>	<u> </u>		
		Were bulk soils/solids samples for volatile analysis extra	acted with methanol per SW846 Method 5035?			X	<u> </u>	<u> </u>		
<b>D</b> 4		If required for the project, are TICs reported?				Х				
R4	0	Surrogate recovery data			-	1	-			
		Were surrogates added prior to extraction?		Х			ļ			
		Were surrogate percent recoveries in all samples within	the laboratory QC limits?	Х						
R5	OI	Test reports/summary forms for blank samples		-		_				
		Were appropriate type(s) of blanks analyzed?		Х						
		Were blanks analyzed at the appropriate frequency?	Х							
		Were method blanks taken through the entire analytical	process, including preparation and, if applicable,	X						
		cleanup procedures?		^						
		Were blank concentrations < MQL?			Х			1		
R6	OI	Laboratory control samples (LCS):		-						
		Were all COCs included in the LCS?		Х						
		Was each LCS taken through the entire analytical proce	dure, including prep and cleanup steps?	Х						
		Were LCSs analyzed at the required frequency?		Х						
		Were LCS (and LCSD, if applicable) %Rs within the labor	ratory QC limits?	Х						
		Does the detectability check sample data document the used to calculate the SDLs?	a laboratory's capability to detect the COCs at the MDL	x						
		Was the LCSD RPD within QC limits?		x						
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					•			
		Were the project/method specified analytes included in			1	X				
		Were MS/MSD analyzed at the appropriate frequency?				Х	1			
		Were MS (and MSD, if applicable) %Rs within the laboration	tory QC limits?			X				
		Were MS/MSD RPDs within laboratory QC limits?	,		1	X	1	1		
R8	OI	Analytical duplicate data				<u> </u>				
	01	Were appropriate analytical duplicates analyzed for eac	h matrix?		T	X	1			
		Were analytical duplicates analyzed at the appropriate f			1	X				
		Were RPDs or relative standard deviations within the lab	· ·			X				
R9	01			I		^	1			
R9	0	Method quantitation limits (MQLs):	abaratany data paalaara?	V	r —	T	1	1		
		Are the MQLs for each method analyte included in the la		X						
		Do the MQLs correspond to the concentration of the low		X			I			
240		Are unadjusted MQLs and DCSs included in the laborate	ory data package?	X			I			
R10	OI	Other problems/anomalies			<b>r</b>	<b>.</b>	r —	T		
		Are all known problems/anomalies/special conditions no		X	<b> </b>		<u> </u>	<u> </u>		
		Was applicable and available technology used to lower the sample results?	the SDL to minimize the matrix interference effects on	X						
		Is the laboratory NELAC-accredited under the Texas Lal and methods associated with this laboratory data packa	х							
shoul 2. O 3. NA	ld be re = orga A = Not R = Not	etained and made available upon request for the appropri- nic analyses; I = inorganic analyses (and general chemist applicable; reviewed;			dentifie	ed by th	e letter	"S"		

# Laboratory Review Checklist: Supporting Data

1 ķ

Lab	orato	ory Name: Pace Analytical National	LRC Date: 06/03/2019 13:46								
	iect N kico	Name: Darr Angell #2- Lea County, New	Laboratory Job Number: L1102383-01, 02, 03, 04 and 05								
Rev	iewe	r Name: Mark W. Beasley	Prep Batch Number(s): WG1288830 and WG12890	067							
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>			
51	OI	Initial calibration (ICAL)									
		Were response factors and/or relative response facto	rs for each analyte within QC limits?			Х					
		Were percent RSDs or correlation coefficient criteria r	net?	Х							
		Was the number of standards recommended in the m	ethod used for all analytes?	Х							
		Were all points generated between the lowest and high	ghest standard used to calculate the curve?	Х							
		Are ICAL data available for all instruments used?		X							
		Has the initial calibration curve been verified using an	appropriate second source standard?	Х							
52	OI	Initial and continuing calibration verification (ICCV and	CCV) and continuing calibration blank (CCB):								
		Was the CCV analyzed at the method-required freque	ency?	Х							
		Were percent differences for each analyte within the	•	X			T				
		Was the ICAL curve verified for each analyte?		X							
		Was the absolute value of the analyte concentration in	n the inorganic CCB < MDL?			Х	1				
53	0	Mass spectral tuning									
		Was the appropriate compound for the method used	for tuning?			X	1	1			
		Were ion abundance data within the method-required	QC limits?			Х					
54	0	Internal standards (IS)									
		Were IS area counts and retention times within the me	ethod-required QC limits?	X	Т	Т	Г	1			
5	OI	Raw data (NELAC Section 5.5.10)					1				
	0.	Were the raw data (for example, chromatograms, spec	X	1	1	1	1				
		Were data associated with manual integrations flagge		X							
66	0	Dual column confirmation					1				
	Ŭ	Did dual column confirmation results meet the method	d-required QC?		1	X	1	1			
57	0	Tentatively identified compounds (TICs)		- I		~		1			
	l •	If TICs were requested, were the mass spectra and TI	C data subject to appropriate checks?		Т	X	T	T			
88	1	Interference Check Sample (ICS) results		I		~	1				
		Were percent recoveries within method QC limits?			T	X	T	1			
59	1	Serial dilutions, post digestion spikes, and method of	standard additions	I			I				
55		Were percent differences, recoveries, and the linearity			1	X	1	1			
510	OI	Method detection limit (MDL) studies	y within the QC limits specified in the method:				I	<u> </u>			
10		Was a MDL study performed for each reported analytic	2	X	1	1	T	1			
		Is the MDL either adjusted or supported by the analyst									
511	OI	Proficiency test reports		^			I	1			
211		Was the laboratory's performance acceptable on the a	applicable proficiency tests or evaluation studies?	X	1	1	T	T			
512	OI	Standards documentation	applicable proficiency tests of evaluation studies:				1				
		Are all standards used in the analyses NIST-traceable	or obtained from other appropriate sources?	X	T	<b>1</b>	T T	1			
513	OI		or obtained nom other appropriate sources:	^			1				
515	0	Compound/analyte identification procedures Are the procedures for compound/analyte identification	an de sumante d?	X	T	1	<u>т</u>	1			
514	OI		Sil documented :	^							
014	0	Demonstration of analyst competency (DOC)	F2		1	1	T	1			
		Was DOC conducted consistent with NELAC Chapter		X X			<u> </u>				
15		Is documentation of the analyst's competency up-to-or Verification/validation documentation for methods (NE					L	1			
515	OI				1		1	1			
210		Are all the methods used to generate the data docum	entea, verifiea, and validated, where applicable?	X	I	I	1	<u> </u>			
516	OI	Laboratory standard operating procedures (SOPs)	a di se a sfa una a d		-			-			
		Are laboratory SOPs current and on file for each meth	log performed		1	1	1	1			

4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

SDG: L1102383

Laborato	ry Name: Pace Analytical National	LRC Date: 06/03/2019 13:46				
Project Name: Darr Angell #2- Lea County, New Mexico		Laboratory Job Number: L1102383-01, 02, 03, 04 and 05				
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1288830 and WG1289067				
ER # <sup>1</sup>	Description					
1	8021B WG1289067 Total Xylene L1102383-04: Concentration in the Blank >MQL.					

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; 1 = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

# SAMPLE RESULTS - 01

# \*

#### Volatile Organic Compounds (GC) by Method 8021B

							L' Cra		
	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	Cp
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	U		0.000190	0.000500	0.000500	1	05/30/2019 20:11	WG1288830	Tc
Toluene	U		0.000412	0.00100	0.00100	1	05/30/2019 20:11	WG1288830	
Ethylbenzene	0.000175	ВJ	0.000160	0.000500	0.000500	1	05/30/2019 20:11	WG1288830	<sup>3</sup> Ss
Total Xylene	U		0.000510	0.00150	0.00150	1	05/30/2019 20:11	WG1288830	53
(S) a,a,a-Trifluorotoluene(PID)	99.8				79.0-125		05/30/2019 20:11	WG1288830	4

<sup>3</sup> Ss
4
⁴Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
<sup>°</sup> Gl
<sup>9</sup> Al
<sup>10</sup> Sc

#### SAMPLE RESULTS - 02 L1102383

# <u>پو</u>

Ср

<sup>5</sup>Tr

Qc

GI

ΆI

Sc

#### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	U		0.000190	0.000500	0.000500	1	05/30/2019 20:35	WG1288830	Tc
Toluene	U		0.000412	0.00100	0.00100	1	05/30/2019 20:35	WG1288830	
Ethylbenzene	U		0.000160	0.000500	0.000500	1	05/30/2019 20:35	WG1288830	<sup>3</sup> Ss
Total Xylene	U		0.000510	0.00150	0.00150	1	05/30/2019 20:35	WG1288830	55
(S) a,a,a-Trifluorotoluene(PID)	99.9				79.0-125		05/30/2019 20:35	WG1288830	<sup>4</sup> Cr

#### SAMPLE RESULTS - 03 L1102383

# <u>پو</u>

#### Volatile Organic Compounds (GC) by Method 8021B

Volatile Organic Comp	pounds (GC	) by Meth	od 8051B						1
	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	0.142		0.000190	0.000500	0.000500	1	05/30/2019 20:59	WG1288830	Tc
Toluene	0.00981		0.000412	0.00100	0.00100	1	05/30/2019 20:59	WG1288830	
Ethylbenzene	0.0276		0.000160	0.000500	0.000500	1	05/30/2019 20:59	WG1288830	<sup>3</sup> Ss
Total Xylene	0.104		0.000510	0.00150	0.00150	1	05/30/2019 20:59	WG1288830	55
(S) a,a,a-Trifluorotoluene(PID)	99.2				79.0-125		05/30/2019 20:59	WG1288830	4

Ss
<sup>4</sup> Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
<sup>°</sup> Gl
PAI
10

SDG: L1102383

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# SAMPLE RESULTS - 04

# \*

### Volatile Organic Compounds (GC) by Method 8021B

volatile organie oomp		by moun	00.002.10						l'Cr
	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	0.000265	J	0.000190	0.000500	0.000500	1	06/01/2019 16:51	WG1289067	Tc
Toluene	0.000544	J	0.000412	0.00100	0.00100	1	06/01/2019 16:51	WG1289067	
Ethylbenzene	0.000225	J	0.000160	0.000500	0.000500	1	06/01/2019 16:51	WG1289067	<sup>3</sup> Ss
Total Xylene	0.000846	<u>B J</u>	0.000510	0.00150	0.00150	1	06/01/2019 16:51	WG1289067	55
(S) a,a,a-Trifluorotoluene(PID)	98.0				79.0-125		06/01/2019 16:51	WG1289067	4

55
4
<sup>4</sup> Cn
-
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
<sup>°</sup> Gl
<sup>9</sup> Al
<sup>10</sup> Sc

#### SAMPLE RESULTS - 05 L1102383

# <u>پو</u>

#### Volatile Organic Compounds (GC) by Method 8021B

Volatile Organic Comp	pounds (GC	) by Meth	20 802 IB						1
	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	—   Cp
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	0.149		0.000950	0.000500	0.00250	5	06/01/2019 17:11	WG1289067	Tc
Toluene	0.00822		0.00206	0.00100	0.00500	5	06/01/2019 17:11	WG1289067	
Ethylbenzene	0.0248		0.000800	0.000500	0.00250	5	06/01/2019 17:11	WG1289067	<sup>3</sup> Ss
Total Xylene	0.0847		0.00255	0.00150	0.00750	5	06/01/2019 17:11	WG1289067	55
(S) a,a,a-Trifluorotoluene(PID)	95.5				79.0-125		06/01/2019 17:11	WG1289067	4

³Ss
<sup>4</sup> Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
°GI
<sup>9</sup> Al
10

Sc

ACCOUNT: Plains All American, LP - GHD PROJECT: 074685

SDG: L1102383

DATE/TIME: 06/03/19 13:46 PAGE: 13 of 18 Volatile Organic Compounds (GC) by Method 8021B

# QUALITY CONTROL SUMMARY

#### Method Blank (MB)

(MB) R3416511-3 05/30/19	(MB) R3416511-3 05/30/19 12:00							
	MB Result	MB Qualifier	MB MDL	MB RDL				
Analyte	mg/l		mg/l	mg/l				
Benzene	U		0.000190	0.000500				
Toluene	U		0.000412	0.00100				
Ethylbenzene	0.000169	J	0.000160	0.000500				
Total Xylene	U		0.000510	0.00150				
(S) a,a,a-Trifluorotoluene(PID)	98.8			79.0-125				

#### Laboratory Control Sample (LCS)

#### (LCS) R3416511-1 05/30/19 10:42

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Benzene	0.0500	0.0484	96.8	77.0-122	
Toluene	0.0500	0.0528	106	80.0-121	
Ethylbenzene	0.0500	0.0538	108	80.0-123	
Total Xylene	0.150	0.169	113	47.0-154	
(S) a,a,a-Trifluorotoluene(PID)			98.7	79.0-125	

SDG: L1102383 DATE/TIME: 06/03/19 13:46 PAGE: 14 of 18 Volatile Organic Compounds (GC) by Method 8021B

# QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

#### Method Blank (MB)

(MB) R3417212-4 06/01/19	9 14:52			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Benzene	U		0.000190	0.000500
Toluene	U		0.000412	0.00100
Ethylbenzene	U		0.000160	0.000500
Total Xylene	U		0.000510	0.00150
(S) a,a,a-Trifluorotoluene(PID)	96.6			79.0-125

#### Laboratory Control Sample (LCS)

#### (LCS) R3417212-1 06/01/19 13:30

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Benzene	0.0500	0.0471	94.3	77.0-122	
Toluene	0.0500	0.0465	93.0	80.0-121	
Ethylbenzene	0.0500	0.0497	99.4	80.0-123	
Total Xylene	0.150	0.154	103	47.0-154	
(S) a,a,a-Trifluorotoluene(PID)			96.2	79.0-125	

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# GLOSSARY OF TERMS

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#### Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

#### Abbreviations and Definitions

В	The same analyte is found in the associated blank.
Qualifier	Description
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Unadj. MQL	Unadjusted Method Quantitation Limit.
U	Not detected at the Sample Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
SDL	Sample Detection Limit.
SDG	Sample Delivery Group.
RPD	Relative Percent Difference.
Rec.	Recovery.
RDL	Reported Detection Limit.
MQL	Method Quantitation Limit.

J

The identification of the analyte is acceptable; the reported value is an estimate.

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# **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Nebraska
Alaska	17-026	Nevada
Arizona	AZ0612	New Hampshire
Arkansas	88-0469	New Jersey-NELA
California	2932	New Mexico <sup>1</sup>
Colorado	TN00003	New York
Connecticut	PH-0197	North Carolina
Florida	E87487	North Carolina <sup>1</sup>
Georgia	NELAP	North Carolina <sup>3</sup>
Georgia <sup>1</sup>	923	North Dakota
Idaho	TN00003	Ohio-VAP
Illinois	200008	Oklahoma
Indiana	C-TN-01	Oregon
lowa	364	Pennsylvania
Kansas	E-10277	Rhode Island
Kentucky <sup>16</sup>	90010	South Carolina
Kentucky <sup>2</sup>	16	South Dakota
Louisiana	Al30792	Tennessee <sup>14</sup>
Louisiana 1	LA180010	Texas
Maine	TN0002	Texas ⁵
Maryland	324	Utah
Massachusetts	M-TN003	Vermont
Michigan	9958	Virginia
Minnesota	047-999-395	Washington
Mississippi	TN00003	West Virginia
Missouri	340	Wisconsin
Montana	CERT0086	Wyoming

lebraska	NE-OS-15-05
Vevada	TN-03-2002-34
lew Hampshire	2975
New Jersey-NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
lorth Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Dregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee 1 4	2006
Гехаs	T104704245-18-15
「exas ⁵	LAB0152
Jtah	TN00003
/ermont	VT2006
/irginia	460132
Vashington	C847
Vest Virginia	233
Visconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

#### **Our Locations**

Plains All American, LP - GHD

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.

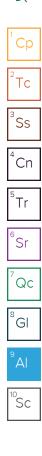


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Plaine All American	1.0.000		Billing	Information:			T	1			Anal	10						
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Report to:			Consil 7							1998		- 12					//	a contract for resulting or ininc
Chris G. Knight, John Schnab	le		John.So	o: Christopher chnable@ghd.c	.Knight@ghd com	d.com;												
Project Description: Darr Angell #2- Lea	County N	our Manier		City/State	8						1						12065 Lebanor Mount Juliet, T Phone: 615-758	N 37122
	Client Proje			Collected						1 Ala			- Internet				Phone: 800-767 Fax: 615-758-58	-5859
Phone: <b>432-686-0086</b> Fax:	074685			Lab Project	ct # GHD-07468	85		No.									L# 110	2383
Collected by (print): Heath Boys	Site/Facility SRS#: LF			P.O. #													B059	•
Collected by (signature):		(Lab MUST Be		Quote #				mb-HCI							and the second	-	Acctnum: PI	
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44.42		1	Depth	Date		Time	Cntrs	BTEX									Shipped Via:	
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MW-12		GW		1		39	3	3					- 133	-				-01
RW-11		GW				212	1	3			-	100			13.42			-02
MW-4R		GW				202				A and	-			1	14/2			-03
Dup-01	V	GW	V	V			11	3						3				-04
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					/	and the second se	Call Colored State		2	15/	21/1	9	000	0			TO BEACH	NCF / OR

Re



# ANALYTICAL REPORT

# Plains All American, LP - GHD

Sample Delivery Group:L1110887Samples Received:06/20/2019Project Number:074685Description:Darr Angell #2- Lea County, New MexicoSite:SRS#: LF 1999-62Report To:James Ornelas2135 S Loop 250 WMidland, TX 79703

<sup>1</sup> Cp <sup>2</sup> Tc <sup>3</sup> Ss <sup>4</sup> Cn <sup>5</sup> Tr <sup>6</sup> Sr <sup>7</sup> Qc <sup>8</sup> Gl <sup>9</sup> Al <sup>10</sup> Sc

Entire Report Reviewed By:

Mark W. Beasley Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

ACCOUNT: Plains All American, LP - GHD PROJECT: 074685 SDG: L1110887 DATE/TIME: 06/25/19 09:18

PAGE: 1 of 15

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\*

Ср

Ss

Cn

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Sr

Qc

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<sup>10</sup>Sc

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TRRP Exception Reports	8
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SDG: L1110887 DATE/TIME: 06/25/19 09:18

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

			Collected by	Collected date/time	Received da	te/time
DARR2-PUMP OFF-061919 L1110887-01 Air			Justin Nixon	06/19/19 09:30	06/20/19 09	:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Volatile Organic Compounds (MS) by Method M18-Mod	WG1299139	20	06/21/19 00:03	06/21/19 00:03	MBF	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method M18-Mod	WG1299904	400	06/22/19 00:41	06/22/19 00:41	AMC	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
DARR2-PUMP ON-061919 L1110887-02 Air			Justin Nixon	06/19/19 09:55	06/20/19 09	:00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Volatile Organic Compounds (MS) by Method M18-Mod	WG1299139	80	06/21/19 00:45	06/21/19 00:45	MBF	Mt. Juliet, TN

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## CASE NARRATIVE

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All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

h

Mark W. Beasley Project Manager

Τс Ss Cn Tr Sr Qc GI AI Śc

SDG: L1110887 DATE/TIME: 06/25/19 09:18 PAGE: 4 of 15

## Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte
  - for each method and matrix.
- R10 Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Mark W. Beasley Project Manager

# Laboratory Review Checklist: Reportable Data

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Lab	orato	ry Name: Pace Analytical National	LRC Date: 06/25/2019 09:18					
	ject N xico	lame: Darr Angell #2- Lea County, New	Laboratory Job Number: L1110887-01 and 02					
Rev	viewe	r Name: Mark W. Beasley	Prep Batch Number(s): WG1299139 and WG1299904					
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER#
71	OI	Chain-of-custody (C-O-C)						
		Did samples meet the laboratory's standard condition	ns of sample acceptability upon receipt?	Х				
		Were all departures from standard conditions describ	ped in an exception report?			Х		
2	OI	Sample and quality control (QC) identification						
		Are all field sample ID numbers cross-referenced to t	he laboratory ID numbers?	Х				
		Are all laboratory ID numbers cross-referenced to the	e corresponding QC data?	X				
3	OI	Test reports						
		Were all samples prepared and analyzed within holdi	ng times?	X				
		Other than those results < MQL, were all other raw va	lues bracketed by calibration standards?	Х				
		Were calculations checked by a peer or supervisor?	· · · · · · · · · · · · · · · · · · ·	Х				
		Were all analyte identifications checked by a peer or	supervisor?	X				
		Were sample detection limits reported for all analytes	s not detected?	X				
		Were all results for soil and sediment samples reported		X				
		Were % moisture (or solids) reported for all soil and so				Х		
		Were bulk soils/solids samples for volatile analysis ex		<u> </u>	1	X		1
		If required for the project, are TICs reported?	aracted with methanol per 50046 method 5055.			X		
4	0	Surrogate recovery data		<u> </u>	<u> </u>		<b>I</b>	
4		Were surrogates added prior to extraction?		X	1	1	T	T
		Were surrogate percent recoveries in all samples with	hin the laboratory OC limite?	1 x	-			
25	01							
(5	0	Test reports/summary forms for blank samples			-	1	<u> </u>	1
		Were appropriate type(s) of blanks analyzed?		X				
		Were blanks analyzed at the appropriate frequency?		X				<u> </u>
		Were method blanks taken through the entire analytic cleanup procedures?	cal process, including preparation and, if applicable,	X				
		Were blank concentrations < MQL?		X	-			
26	OI	Laboratory control samples (LCS):				1	I	I
10	0	Were all COCs included in the LCS?			T	1	r –	1
			podure including prop and cleanup stops?	X X				
		Was each LCS taken through the entire analytical pro	cedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?						
		Were LCS (and LCSD, if applicable) %Rs within the lab		X				
		used to calculate the SDLs?	the laboratory's capability to detect the COCs at the MDL	X				
		Was the LCSD RPD within QC limits?		X				
87	OI	Matrix spike (MS) and matrix spike duplicate (MSD) da	ata	<u> </u>		1		
		Were the project/method specified analytes included		T	1	X	1	1
		Were MS/MSD analyzed at the appropriate frequency		<u> </u>		X		
		Were MS (and MSD, if applicable) %Rs within the labo		1		X		
		Were MS/MSD RPDs within laboratory QC limits?		<u> </u>	1	X		
88	OI	Analytical duplicate data		<u> </u>			1	I
.0		Were appropriate analytical duplicates analyzed for e	each matrix?	1	Т	X	1	T
		Were analytical duplicates analyzed at the appropriat			1	X	<u> </u>	
		Were RPDs or relative standard deviations within the	• •			X		
89	01	Method quantitation limits (MQLs):		I			I	
.9		Are the MQLs for each method analyte included in th	a laboratony data packaga?	X	1	1	1	1
		Do the MQLs correspond to the concentration of the		X				-
		· · · · · · · · · · · · · · · · · · ·		X	-			
10		Are unadjusted MQLs and DCSs included in the labor		<u> </u>		1		
10	OI	Other problems/anomalies	a poted in this LDC and ED2		1		1	1
		Are all known problems/anomalies/special conditions		X				
		the sample results?	er the SDL to minimize the matrix interference effects on	X				
		Is the laboratory NELAC-accredited under the Texas and methods associated with this laboratory data page	Laboratory Accreditation Program for the analytes, matrices kage?	Х				
shou 2. O 3. N	ld be r = orga A = No	ntified by the letter "R" must be included in the laborat etained and made available upon request for the appro- nic analyses; I = inorganic analyses (and general chen t applicable; t reviewed;	ory data package submitted in the TRRP-required report(s). opriate retention period.		identifie	ed by th	e letter	"S"

# Laboratory Review Checklist: Supporting Data

1 ķ

Labo	orato	ory Name: Pace Analytical National	LRC Date: 06/25/2019 09:18					
Proje Mexi		Name: Darr Angell #2- Lea County, New	Laboratory Job Number: L1110887-01 and 02					
Revi	ewe	r Name: Mark W. Beasley	Prep Batch Number(s): WG1299139 and WG12999	04				
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR⁴	ER# <sup>5</sup>
51	OI	Initial calibration (ICAL)						
		Were response factors and/or relative response fact	ors for each analyte within QC limits?	Х				
		Were percent RSDs or correlation coefficient criteria	met?	Х				
		Was the number of standards recommended in the	method used for all analytes?	Х				
		Were all points generated between the lowest and h	highest standard used to calculate the curve?	Х				
		Are ICAL data available for all instruments used?		Х				
		Has the initial calibration curve been verified using a	an appropriate second source standard?	Х				
52	OI	Initial and continuing calibration verification (ICCV ar						
		Was the CCV analyzed at the method-required frequ		Х			1	1
		Were percent differences for each analyte within the	•	Х				
		Was the ICAL curve verified for each analyte?	•	X				
		Was the absolute value of the analyte concentration	in the inorganic CCB < MDL?			X		
3	0	Mass spectral tuning	3					
		Was the appropriate compound for the method used	d for tuning?	X			Г	Γ
		Were ion abundance data within the method-require		X				
54	0	Internal standards (IS)						
	-	Were IS area counts and retention times within the r	nethod-required QC limits?	X		Т	1	1
5	OI	Raw data (NELAC Section 5.5.10)						
		Were the raw data (for example, chromatograms, sp	ectral data) reviewed by an analyst?	X		1	1	T
		Were data associated with manual integrations flage		X				
66	0	Dual column confirmation						
		Did dual column confirmation results meet the meth-	od-required QC?			X	1	1
57	0	Tentatively identified compounds (TICs)						
	-	If TICs were requested, were the mass spectra and	TIC data subject to appropriate checks?			X	Γ	1
58	1	Interference Check Sample (ICS) results			1	1		
		Were percent recoveries within method QC limits?				X	T	T
59	1	Serial dilutions, post digestion spikes, and method o	f standard additions				· · · ·	
		Were percent differences, recoveries, and the linear				X	T	T
510	0	Method detection limit (MDL) studies						
		Was a MDL study performed for each reported analy	/te?	X		T	T	1
		Is the MDL either adjusted or supported by the analy		X				
511	OI	Proficiency test reports						
		Was the laboratory's performance acceptable on the	e applicable proficiency tests or evaluation studies?	X			Γ	<u> </u>
512	OI	Standards documentation	······································					
		Are all standards used in the analyses NIST-traceabl	le or obtained from other appropriate sources?	X		1	Г	Г
513	OI	Compound/analyte identification procedures					•	
		Are the procedures for compound/analyte identifica	tion documented?	X			1	1
514	OI	Demonstration of analyst competency (DOC)						
		Was DOC conducted consistent with NELAC Chapte	er 5?	Х			1	1
		Is documentation of the analyst's competency up-to-		X	1	1	1	1
615	OI	Verification/validation documentation for methods (N						
		Are all the methods used to generate the data docu	mented, verified, and validated, where applicable?	Х				
516	OI	Laboratory standard operating procedures (SOPs)						
		Are laboratory SOPs current and on file for each me	thod performed	X				
should 2. O = 3. NA	d be r = orga \ = No		tory data package submitted in the TRRP-required repor ropriate retention period.	t(s). Items i	dentifie	ed by th	e letter	"S"

4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

SDG: L1110887

DATE/TIME: 06/25/19 09:18

#### Laboratory Review Checklist: Exception Reports ONE LAB. NATIONWIDE.

Laboratory Name: Pace Analytical National	LRC Date: 06/25/2019 09:18
Project Name: Darr Angell #2- Lea County, New Mexico	Laboratory Job Number: L1110887-01 and 02
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1299139 and WG1299904
ER # <sup>1</sup> Description	

The Exception Report intentionally left blank, there are no exceptions applied to this SDG.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

a. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
NA = Not applicable;
NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

# SAMPLE RESULTS - 01

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#### Volatile Organic Compounds (MS) by Method M18-Mod

	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
Analyte			ppbv	ug/m3	ppbv	ug/m3			
Benzene	71-43-2	78.10	4.00	12.8	204	652		20	WG1299139
Toluene	108-88-3	92.10	4.00	15.1	365	1370		20	WG1299139
Ethylbenzene	100-41-4	106	4.00	17.3	79.4	344		20	WG1299139
m&p-Xylene	1330-20-7	106	8.00	34.7	399	1730		20	WG1299139
o-Xylene	95-47-6	106	4.00	17.3	128	556		20	WG1299139
Methyl tert-butyl ether	1634-04-4	88.10	4.00	14.4	ND	ND		20	WG1299139
TPH (GC/MS) Low Fraction	8006-61-9	101	20000	82600	403000	1660000		400	WG1299904
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		104				WG1299139
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.5				WG1299904

#### SAMPLE RESULTS - 02 L1110887

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#### Volatile Organic Compounds (MS) by Method M18-Mod

	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
alyte			ppbv	ug/m3	ppbv	ug/m3			
nzene	71-43-2	78.10	16.0	51.1	39.0	125		80	WG1299139
ene	108-88-3	92.10	16.0	60.3	135	510		80	WG1299139
Ibenzene	100-41-4	106	16.0	69.4	111	480		80	WG1299139
Xylene	1330-20-7	106	32.0	139	344	1490		80	WG1299139
ne	95-47-6	106	16.0	69.4	66.8	290		80	WG1299139
tert-butyl ether	1634-04-4	88.10	16.0	57.7	ND	ND		80	WG1299139
GC/MS) Low Fraction	8006-61-9	101	4000	16500	19000	78600		80	WG1299139
1,4-Bromofluorobenzene	460-00-4	175	60.0-140		98.1				WG1299139

SDG: L1110887

DATE/TIME: 06/25/19 09:18 Volatile Organic Compounds (MS) by Method M18-Mod

# QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

#### Method Blank (MB)

(MB) R3422972-3	06/20/19 11:00	
	MB Result	MB Qualifier

Analyte	ppbv	ppbv	ppbv
Benzene	U	0.0460	0.200
Ethylbenzene	U	0.0506	0.200
MTBE	U	0.0505	0.200
Toluene	U	0.0499	0.200
m&p-Xylene	U	0.0946	0.400
o-Xylene	U	0.0633	0.200
TPH (GC/MS) Low Fraction	U	6.91	50.0
(S) 1,4-Bromofluorobenzene	96.2		60.0-140

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

MB MDL

MB RDL

(LCS) R3422972-1 06/20/19 09:30 • (LCSD) R3422972-2 06/20/19 10:14										
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	ppbv	ppbv	ppbv	%	%	%			%	%
MTBE	3.75	4.28	4.24	114	113	70.0-130			1.03	25
Benzene	3.75	4.57	4.46	122	119	70.0-130			2.55	25
Toluene	3.75	4.41	4.34	118	116	70.0-130			1.54	25
Ethylbenzene	3.75	4.42	4.38	118	117	70.0-130			0.928	25
m&p-Xylene	7.50	8.63	8.56	115	114	70.0-130			0.824	25
o-Xylene	3.75	4.32	4.33	115	115	70.0-130			0.0960	25
TPH (GC/MS) Low Fraction	203	235	234	116	116	70.0-130			0.386	25
(S) 1,4-Bromofluorobenzene				99.0	99.5	60.0-140				

<sup>7</sup>Qc <sup>8</sup>Gl <sup>9</sup>Al <sup>10</sup>Sc

SDG: L1110887 DATE/TIME: 06/25/19 09:18 PAGE: 11 of 15

### WG1299904

Volatile Organic Compounds (MS) by Method M18-Mod

# QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

#### Method Blank (MB)

(MB) R3423605-3 06/21/19 10:24										
	MB Result	MB Qualifier	MB MDL	MB RDL						
Analyte	ppbv		ppbv	ppbv						
TPH (GC/MS) Low Fraction	U		6.91	50.0						
(S) 1,4-Bromofluorobenzene	95.2			60.0-140						

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3423605-1 06/21/19 08:53 • (LCSD) R3423605-2 06/21/19 09:37										
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	ppbv	ppbv	ppbv	%	%	%			%	%
TPH (GC/MS) Low Fraction	203	238	239	118	118	70.0-130			0.192	25
(S) 1,4-Bromofluorobenzene				98.5	99.2	60.0-140				

Sc

SDG: L1110887 DATE/TIME: 06/25/19 09:18 PAGE: 12 of 15

# GLOSSARY OF TERMS

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#### Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

#### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

SDG: L1110887

# **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama 40660	Ne
Alaska 17-026	Ne
Arizona AZ0612	Ne
Arkansas 88-0469	Ne
California 2932	Ne
Colorado TN00003	Ne
Connecticut PH-0197	No
Florida E87487	No
Georgia NELAP	No
Georgia <sup>1</sup> 923	No
Idaho TN00003	Oł
Illinois 200008	O
Indiana C-TN-01	Or
lowa 364	Pe
Kansas E-10277	Rł
Kentucky <sup>16</sup> 90010	Sc
Kentucky <sup>2</sup> 16	Sc
Louisiana Al30792	Te
Louisiana <sup>1</sup> LA180010	Te
Maine TN0002	Te
Maryland 324	Ut
Massachusetts M-TN003	Ve
Michigan 9958	Vi
Minnesota 047-999-395	W
Mississippi TN00003	W
Missouri 340	W
Montana CERT0086	W

lebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 5	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

#### **Our Locations**

Plains All American, LP - GHD

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



074685

L1110887

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06/25/19 09:18

		Billing Information:					Analysis / Container / Preservative							Chain of Custody Page of							
505 N.			505 N. B	nts Payable Big Spring, Ste. 600 nd, TX 79701			Contra la					1				Pac	e Analytical <sup>®</sup> Center for Testing & Inne				
Report to: Chris G. Knight, John Schnable				Christopher.Knigh able@ghd.com	t@ghd.com;				ALL PARTY							12065 Lebanon F Mount Juliet, TN Phone: 615-758-	37122				
Project Description: Darr Angell #2- Lea C	County, New	Mexico		City/State Collected:												Phone: 800-767- Fax: 615-758-585	5859				
	Client Project # 074685	I		Lab Project # PLAINSGHD	-074685	Hur Ser			Water -							L# A	110887				
	Site/Facility ID SRS#: LF 19			P.O. #		R.										Acctnum: PL	AINSGHD				
Collected by (signature):	Same Day		Day	nly) Date Results Needed		Veeded No.							No. of Concession			and the second					
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	M18-MOD	-									FedEX Ground				
Par 2- Purpoff-06/9/19	G	Air	-	6-19-19	930	1	x					-					-0				
Durz-pumpon-Ublym	G	Air	-	6-19-19	955	1	X				New York			1.			- 0				
		Air				1	X									1-24					
一種		Air				1	X		1												
		Air				1	X														
									The Days			1									
						1										a filler B					
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other Samples returned via: UPSFedEx Courier Tracking # 444									pH _		Temp		COC Se COC Si Bottle	<u>Sampl</u> eal Pre igned// es arr:	<u>le Receipt (</u> esent/Intac Accurate: ive intact:	Checklist t:NPY Y					
					racking # 44	Flow Other							Sample Receipt Checklist         COC Seal Present/Intact:       NP         COC Signed/Accurate:       Y         Bottles arrive intact:       Y         Correct bottles used:       Y         Sufficient volume sent:       Y         If Applicable       VOA Zero Headspace:								
Relinquished by : (Signature) Date:								ip Blank	Receive	ed: Yes/No HCL/N TBR		Preser	rvation	n Correct/Ch	necked:Y						
Relinquished by : (Signature)	Date: T		ïme: R	eceived by: (Sign	Temp: AMB				₽°C	CONTRACTOR OF TAXABLE PARTY.				required by Lo	gin: Date/Time						
Relinquished by : (Signature) Date: Tin		ïme: R	eceived for lab b	y: (Signat	ture)		Da	ate:	19	Time: 9:00	-	Hold:		188	Condition: NCF / OK						



# ANALYTICAL REPORT

## Plains All American, LP - GHD

Sample Delivery Group:	L1122862
Samples Received:	07/26/2019
Project Number:	074685
Description:	Darr Angell #2- Lea County, New Mexico
Site:	SRS#: LF 1999-62
Report To:	James Ornelas
	2135 S Loop 250 W
	Midland, TX 79703

<sup>1</sup> Cp <sup>2</sup> Tc <sup>3</sup> Ss <sup>4</sup> Cn <sup>5</sup> Tr <sup>6</sup> Sr <sup>7</sup> Qc <sup>8</sup> GI <sup>9</sup> AI <sup>10</sup> Sc

Entire Report Reviewed By:

Mark W. Beasley Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

ACCOUNT: Plains All American, LP - GHD PROJECT: 074685 SDG: L1122862 DATE/TIME: 08/02/19 19:27 PAGE: 1 of 19

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\*

SDG: L1122862 DATE/TIME: 08/02/19 19:27

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### SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

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MW-4R-072319 L1122862-01 GW			Collected by Justin Nixon	Collected date/time 07/23/19 15:35	Received da 07/26/19 08:		
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1319205	1	07/29/19 19:10	07/29/19 19:10	BMB	Mt. Juliet, TN	
MW-12-072319 L1122862-02 GW			Collected by Justin Nixon	Collected date/time 07/23/19 10:00	Received da 07/26/19 08:		
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1319205	1	07/29/19 19:33	07/29/19 19:33	BMB	Mt. Juliet, TN	
RW12-072319 L1122862-03 GW			Collected by Justin Nixon	Collected date/time 07/23/19 10:45		Received date/time 07/26/19 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1319205	10	07/29/19 20:21	07/29/19 20:21	BMB	Mt. Juliet, TN	
RW-11-072319 L1122862-04 GW			Collected by Justin Nixon	Collected date/time 07/23/19 17:30	Received da 07/26/19 08:		
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1319205	1	07/29/19 19:57	07/29/19 19:57	BMB	Mt. Juliet, TN	
DUP-1-072319 L1122862-05 GW			Collected by Justin Nixon	Collected date/time 07/23/19 00:00	Received date/time 07/26/19 08:45		
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1319881	1	07/30/19 13:01	07/30/19 13:01	DWR	Mt. Juliet, TN	

SDG: L1122862 DATE/TIME: 08/02/19 19:27

### CASE NARRATIVE

\*

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

h

Mark W. Beasley Project Manager

Τс Ss Cn Tr Sr Qc GI AI Śc

DATE/TIME: 08/02/19 19:27

### Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte
  - for each method and matrix.
- R10 Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Mark W. Beasley Project Manager

### Laboratory Review Checklist: Reportable Data

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Labo	orato	ry Name: Pace Analytical National	LRC Date: 08/02/2019 19:27					
Proje Mex		lame: Darr Angell #2- Lea County, New	Laboratory Job Number: L1122862-01, 02, 03, 04 and	l 05				
Revi	ewe	r Name: Mark W. Beasley	Prep Batch Number(s): WG1319881, WG1319205 and V	NG1320	0778			
# <sup>1</sup>	<b>A</b> <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>
R1	OI	Chain-of-custody (C-O-C)						
		Did samples meet the laboratory's standard conditions	s of sample acceptability upon receipt?	X				
		Were all departures from standard conditions describe	ed in an exception report?			Х		
R2	OI	Sample and quality control (QC) identification						
		Are all field sample ID numbers cross-referenced to the	e laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the	corresponding QC data?	Х				
R3	OI	Test reports						
		Were all samples prepared and analyzed within holdin	g times?	Х				
		Other than those results < MQL, were all other raw values	ues bracketed by calibration standards?	Х				
		Were calculations checked by a peer or supervisor?		Х				
		Were all analyte identifications checked by a peer or s	upervisor?	Х				
		Were sample detection limits reported for all analytes	not detected?	X				
		Were all results for soil and sediment samples reported	d on a dry weight basis?	Х				
		Were % moisture (or solids) reported for all soil and see	diment samples?			Х		
		Were bulk soils/solids samples for volatile analysis ext	racted with methanol per SW846 Method 5035?			Х		
		If required for the project, are TICs reported?				Х		
R4	0	Surrogate recovery data		-	-	-		
		Were surrogates added prior to extraction?		Х				
		Were surrogate percent recoveries in all samples with	in the laboratory QC limits?	Х				
75	OI	Test reports/summary forms for blank samples		1	1		r	
		Were appropriate type(s) of blanks analyzed?		Х				
		Were blanks analyzed at the appropriate frequency?		X				
		Were method blanks taken through the entire analytica cleanup procedures?	al process, including preparation and, if applicable,	X				
		Were blank concentrations < MQL?		X				
R6	OI	Laboratory control samples (LCS):		1	-	1	r	1
		Were all COCs included in the LCS?		X				
		Was each LCS taken through the entire analytical proc	edure, including prep and cleanup steps?	X	<u> </u>			ļ
		Were LCSs analyzed at the required frequency?		X				
		Were LCS (and LCSD, if applicable) %Rs within the labo		X	<u> </u>			
		used to calculate the SDLs?	ne laboratory's capability to detect the COCs at the MDL	X				
		Was the LCSD RPD within QC limits?		X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) dat		1	1		1	
		Were the project/method specified analytes included i				X		
		Were MS/MSD analyzed at the appropriate frequency?			<u> </u>	X		-
		Were MS (and MSD, if applicable) %Rs within the labor	atory QC limits?			X		
20		Were MS/MSD RPDs within laboratory QC limits?				Х		
R8	OI	Analytical duplicate data		1	1		r	r
		Were appropriate analytical duplicates analyzed for ea				X		
		Were analytical duplicates analyzed at the appropriate	· · ·			X		<u> </u>
R9	OI	Were RPDs or relative standard deviations within the la	aboratory QC limits?	1		<u> </u>	I	L
КЭ		Method quantitation limits (MQLs): Are the MQLs for each method analyte included in the	laboratory data packago?	X	1	1	1	
		Do the MQLs correspond to the concentration of the lo		X				
		Are unadjusted MQLs and DCSs included in the labora		X				
R10	OI	Other problems/anomalies				1	I	L
		Are all known problems/anomalies/special conditions	noted in this LRC and FR?	X	1		1	
			r the SDL to minimize the matrix interference effects on	x				
			aboratory Accreditation Program for the analytes, matrices	x				<u> </u>
should 2. O = 3. NA 4. NR	d be re = orga ( = Not ! = Not	ntified by the letter "R" must be included in the laborato etained and made available upon request for the appro- nic analyses; I = inorganic analyses (and general chemi t applicable; reviewed;	ry data package submitted in the TRRP-required report(s). oriate retention period.		dentifie	d by th	e letter	"S"

### Laboratory Review Checklist: Supporting Data

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Labo	orato	ory Name: Pace Analytical National	LRC Date: 08/02/2019 19:27           Laboratory Job Number: L1122862-01, 02, 03, 04 and 05           Prep Batch Number(s): WG1319881, WG1319205 and WG1320778							
Proj Mex		Jame: Darr Angell #2- Lea County, New								
Revi	iewe	r Name: Mark W. Beasley								
# <sup>1</sup>	A <sup>2</sup>	Description	•	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER#		
51	OI	Initial calibration (ICAL)			•					
		Were response factors and/or relative response factor	ors for each analyte within QC limits?			X		1		
		Were percent RSDs or correlation coefficient criteria	met?	Х						
		Was the number of standards recommended in the n	nethod used for all analytes?	X						
		Were all points generated between the lowest and h	ighest standard used to calculate the curve?	X				1		
		Are ICAL data available for all instruments used?		Х						
		Has the initial calibration curve been verified using a	n appropriate second source standard?	X						
52	OI	Initial and continuing calibration verification (ICCV an	nd CCV) and continuing calibration blank (CCB):							
		Was the CCV analyzed at the method-required frequ	iency?	Х			Ι	1		
		Were percent differences for each analyte within the	•	X			1	1		
		Was the ICAL curve verified for each analyte?	·	X	1	1		1		
		Was the absolute value of the analyte concentration	in the inorganic CCB < MDL?			Х	1	1		
3	0	Mass spectral tuning								
		Was the appropriate compound for the method used	I for tuning?			X	1			
		Were ion abundance data within the method-require				Х				
54	0	Internal standards (IS)								
		Were IS area counts and retention times within the m	nethod-required QC limits?	X		Т	1	1		
5	OI	Raw data (NELAC Section 5.5.10)	·····				<u> </u>			
-		Were the raw data (for example, chromatograms, spe	ectral data) reviewed by an analyst?	X		T	Г	T		
		Were data associated with manual integrations flagg		X						
6	0	Dual column confirmation								
	-	Did dual column confirmation results meet the metho	od-required QC?			X	Г	1		
57	0	Tentatively identified compounds (TICs)								
		If TICs were requested, were the mass spectra and T	IC data subject to appropriate checks?			X	Ι	1		
8	1	Interference Check Sample (ICS) results			1	1	1			
		Were percent recoveries within method QC limits?				ΙX	T	1		
59	1	Serial dilutions, post digestion spikes, and method of	f standard additions							
		Were percent differences, recoveries, and the lineari				X	Г	1		
510	0	Method detection limit (MDL) studies		<b>I</b>	1	1	•			
		Was a MDL study performed for each reported analy	te?	X		Т	Г	1		
		Is the MDL either adjusted or supported by the analy		X						
511	0	Proficiency test reports			1		•			
		Was the laboratory's performance acceptable on the	applicable proficiency tests or evaluation studies?	X		Т	Г	1		
512	OI	Standards documentation			1		1			
		Are all standards used in the analyses NIST-traceable	e or obtained from other appropriate sources?	Х		Т	T	1		
513	OI	Compound/analyte identification procedures	· · · · · · · · · · · · · · · · · · ·							
		Are the procedures for compound/analyte identificat	ion documented?	X		T	Г	1		
514	0	Demonstration of analyst competency (DOC)			1		•			
		Was DOC conducted consistent with NELAC Chapte	r 5?	X			1	1		
		Is documentation of the analyst's competency up-to-		X	1		1	1		
515	OI	Verification/validation documentation for methods (N								
		Are all the methods used to generate the data docur		X			1	1		
516	OI	Laboratory standard operating procedures (SOPs)								
		Are laboratory SOPs current and on file for each met	hod performed	X			1	1		
		,	tory data package submitted in the TRRP-required report		dentifie	ed by th	e letter	"S"		

4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

SDG: L1122862

Laboratory Name: Pace Analytical National	LRC Date: 08/02/2019 19:27
Project Name: Darr Angell #2- Lea County, New Mexico	Laboratory Job Number: L1122862-01, 02, 03, 04 and 05
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1319881, WG1319205 and WG1320778
ER #1 Description	

The Exception Report intentionally left blank, there are no exceptions applied to this SDG.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

a. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
NA = Not applicable;
NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).



Тс

### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		-
Benzene	U		0.000190	0.000500	0.000500	1	07/29/2019 19:10	WG1319205	
Toluene	U		0.000412	0.00100	0.00100	1	07/29/2019 19:10	WG1319205	L
Ethylbenzene	U		0.000160	0.000500	0.000500	1	07/29/2019 19:10	WG1319205	1
Total Xylene	U		0.000510	0.00150	0.00150	1	07/29/2019 19:10	WG1319205	
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		07/29/2019 19:10	WG1319205	7

<sup>3</sup> Ss
<sup>4</sup> Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
<sup>°</sup> GI
-
PAI
40
<sup>10</sup> Sc



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#### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		E E
Benzene	U		0.000190	0.000500	0.000500	1	07/29/2019 19:33	WG1319205	
Toluene	U		0.000412	0.00100	0.00100	1	07/29/2019 19:33	WG1319205	L
Ethylbenzene	U		0.000160	0.000500	0.000500	1	07/29/2019 19:33	WG1319205	:
Total Xylene	U		0.000510	0.00150	0.00150	1	07/29/2019 19:33	WG1319205	
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		07/29/2019 19:33	WG1319205	5

<sup>3</sup> Ss
⁴Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
<sup>8</sup> Gl
<sup>9</sup> Al
<sup>10</sup> Sc

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### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	1.58		0.00190	0.000500	0.00500	10	07/29/2019 20:21	WG1319205	
Toluene	0.159		0.00412	0.00100	0.0100	10	07/29/2019 20:21	WG1319205	L
Ethylbenzene	0.0746		0.00160	0.000500	0.00500	10	07/29/2019 20:21	WG1319205	3
Total Xylene	0.492		0.00510	0.00150	0.0150	10	07/29/2019 20:21	WG1319205	
(S) a,a,a-Trifluorotoluene(PID)	101				79.0-125		07/29/2019 20:21	WG1319205	4

<sup>3</sup> Ss
<sup>4</sup> Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
<sup>°</sup> GI
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### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	\
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	0.115		0.000190	0.000500	0.000500	1	07/29/2019 19:57	WG1319205	
Toluene	0.00220		0.000412	0.00100	0.00100	1	07/29/2019 19:57	WG1319205	
Ethylbenzene	0.0212		0.000160	0.000500	0.000500	1	07/29/2019 19:57	WG1319205	3
Total Xylene	0.0620		0.000510	0.00150	0.00150	1	07/29/2019 19:57	WG1319205	
(S) a,a,a-Trifluorotoluene(PID)	100				79.0-125		07/29/2019 19:57	WG1319205	4

<sup>3</sup> Ss
<sup>4</sup> Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
<sup>°</sup> Gl
<sup>9</sup> Al
<sup>10</sup> Sc

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#### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	1.13		0.00475	0.000500	0.0125	25	08/01/2019 06:47	WG1320778	Ťc
Toluene	0.230		0.000412	0.00100	0.00100	1	07/30/2019 13:01	WG1319881	
Ethylbenzene	0.219		0.000160	0.000500	0.000500	1	07/30/2019 13:01	WG1319881	<sup>3</sup> Ss
Total Xylene	0.437		0.000510	0.00150	0.00150	1	07/30/2019 13:01	WG1319881	55
(S) a,a,a-Trifluorotoluene(PID)	95.5				79.0-125		07/30/2019 13:01	WG1319881	4
(S) a,a,a-Trifluorotoluene(PID)	103				79.0-125		08/01/2019 06:47	WG1320778	Cn

Volatile Organic Compounds (GC) by Method 8021B

## QUALITY CONTROL SUMMARY

#### Method Blank (MB)

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	10 10:00			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Benzene	U		0.000190	0.000500
Toluene	U		0.000412	0.00100
Ethylbenzene	U		0.000160	0.000500
Total Xylene	U		0.000510	0.00150
(S) a,a,a-Trifluorotoluene(PID)	102			79.0-125

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3436571-1 07/29/19 09:28 • (LCSD) R3436571-3 07/29/19 20:45										
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Benzene	0.0500	0.0534	0.0470	107	94.1	77.0-122			12.7	20
Toluene	0.0500	0.0519	0.0455	104	90.9	80.0-121			13.2	20
Ethylbenzene	0.0500	0.0563	0.0497	113	99.4	80.0-123			12.5	20
Total Xylene	0.150	0.168	0.146	112	97.0	47.0-154			14.1	20
(S) a,a,a-Trifluorotoluene(PID)				101	103	79.0-125				

Volatile Organic Compounds (GC) by Method 8021B

## QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

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#### Method Blank (MB)

Method Blank (MB)							
(MB) R3436079-3 07/30/19 11:57							
	MB Result	MB Qualifier	MB MDL	MB RDL		2	
Analyte	mg/l		mg/l	mg/l		⁻Tc	
Toluene	U		0.000412	0.00100			
Ethylbenzene	U		0.000160	0.000500		<sup>3</sup> Ss	
Total Xylene	U		0.000510	0.00150		00	
(S) a,a,a-Trifluorotoluene(PID)	102			79.0-125		⁴Cn	

#### Laboratory Control Sample (LCS)

(LCS) R3436079-1 07/30/19 10:31								
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier			
Analyte	mg/l	mg/l	%	%				
Toluene	0.0500	0.0449	89.7	80.0-121				
Ethylbenzene	0.0500	0.0487	97.4	80.0-123				
Total Xylene	0.150	0.144	95.7	47.0-154				
(S) a,a,a-Trifluorotoluene(PID)			102	79.0-125				

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### WG1320778

Volatile Organic Compounds (GC) by Method 8021B

# QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

#### Method Blank (MB)

(MB) R3436592-2 08/01/19 00:38								
	MB Result	MB Qualifier	MB MDL	MB RDL				
Analyte	mg/l		mg/l	mg/l				
Benzene	U		0.000190	0.000500				
(S) a,a,a-Trifluorotoluene(PID)	103			79.0-125				

#### Laboratory Control Sample (LCS)

(LCS) R3436592-1 07/31/19 23:39								
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier			
Analyte	mg/l	mg/l	%	%				
Benzene	0.0500	0.0517	103	77.0-122				
(S) a,a,a-Trifluorotoluene(PID)			102	79.0-125				

<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
<sup>8</sup> Gl
<sup>9</sup> AI

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### GLOSSARY OF TERMS

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#### Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

#### Abbreviations and Definitions

MDL	Method Detection Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

SDG: L1122862

### **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Nebraska
Alaska	17-026	Nevada
Arizona	AZ0612	New Hampshire
Arkansas	88-0469	New Jersey–NELAF
California	2932	New Mexico <sup>1</sup>
Colorado	TN00003	New York
Connecticut	PH-0197	North Carolina
Florida	E87487	North Carolina <sup>1</sup>
Georgia	NELAP	North Carolina <sup>3</sup>
Georgia <sup>1</sup>	923	North Dakota
Idaho	TN00003	Ohio-VAP
Illinois	200008	Oklahoma
Indiana	C-TN-01	Oregon
lowa	364	Pennsylvania
Kansas	E-10277	Rhode Island
Kentucky <sup>16</sup>	90010	South Carolina
Kentucky <sup>2</sup>	16	South Dakota
Louisiana	AI30792	Tennessee <sup>14</sup>
Louisiana 1	LA180010	Texas
Maine	TN0002	Texas <sup>5</sup>
Maryland	324	Utah
Massachusetts	M-TN003	Vermont
Michigan	9958	Virginia
Minnesota	047-999-395	Washington
Mississippi	TN00003	West Virginia
Missouri	340	Wisconsin
Montana	CERT0086	Wyoming

Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	Δ2Ι Δ

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 5	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

#### **Our Locations**

Plains All American, LP - GHD

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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Plains All American, LP - GHD 2135 S Loop 250 W Midland, TX 79703			505 N. B	Accounts Payable 505 N. Big Spring, Ste. 600 Midland, TX 79701								ales Subs					Pace, Netional Co	Analytical * Inter for Testing & Innove
Report to: lames Ornelas			Email To: Christopher.Knight@ghd.com; james.ornelas@ghd.com							1				1.00			12065 Lebanon Rd Mount Juliet, TN 37 Phone: 615-758-58	8 <b>325 3</b>
Project Description: Darr Angell #2- Lea	County, New	/ Mexico					1.4				inter .		20			Phone: 800-767-58 Fax: 615-758-5859	03037	
Phone: <b>432-686-0086</b> Fax:	Client Project 074685	#		Lab Project # PLAINSGHD-	074685			Carlos Carlos									L# L[]  24	2286 A 3
Collected by (print):	Site/Facility ID SRS#: LF 19			P.O. #			Ţ									-	Acctnum: PLAINSGHD	
Collected by (signature): Immediately Packed on Ice N Y	Same Da	ab MUST Be ay Five y 5 Day y 10 D ay	Day y (Rad Only)	Quote # Date Rest	ults Needed	No. of	40mlAmb-HCl	Page -				A			Template:T139790 Prelogin: P719649 TSR: 134 - Mark W. Ber PB:		9649	
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	BTEX										Shipped Via: Remarks	Sample # (lab on
MW-4K-072319	G	GW		7-23-19	1535	3	X			-				and a				-0
MW-12-072319	Pering of	GW	*	1-1-5	1600	3	X	11				1.1		-			A.	00
Rw12-072317		GW			1645	3	X								925 A			0
Rw-11-072319		GW			1730	3	X					< 6		194		AREA.		0
Dun-1-072219		GW		V	-	3	X										in the second second	0
· / ·		GW										2					7.4	
		GW						-			The second							
		GW									Sec.	Series .		-			an de la	
		GW			100			1		1.2.2			A STATE					
TRIP BLANK		GW			1200		1212			1	4	-						
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater	Remarks:	Report	SDLS Costino	a) Cancentr	trug				pH Temp Flow Other			-	COC S: Bottle Correc	Sample Receipt Checklist COC Seal Present/Intact: WP Y COC Signed/Accurate: Bottles arrive intact: C Correct bottles used:				
DW - Drinking Water     Samples returned via:       OT - Other     UPS       Relinquished by : (Signature)     Date:       Relinquished by : (Signature)     Date:			urier	Tr	acking# 4	51	0	16	,50	1	57	174	has t		Constant of		volume sent: <u> If Applical</u> adspace:	
			Time: Received by: (Signa				1.55		Trip Blar	nk Rece	eived: N	es No HCL/Me TBR	еоН	VOA Zero Headspace: Y Preservation Correct/Checked: Y AD SCRIII: <0.5 mR/h:				
		1	1	eceived by: (Sign	ature)		a A		Temp: 5.3	mp: °C		Bottles Receive				preservation required by Login: Dat		
Relinquished by : (Signature)		Date:	1	lime: Re	eceived for lab b	y: (Signa	iture)			Date:	6/19	Tin	ne: 3145		Hold:			Condition NCF / O



# ANALYTICAL REPORT

### Plains All American, LP - GHD

Sample Delivery Group:	L1133471
Samples Received:	08/28/2019
Project Number:	074685
Description:	Darr Angell #2- Lea County, New Mexico
Site:	SRS#: LF 1999-62
Report To:	James Ornelas
	2135 S Loop 250 W
	Midland, TX 79703

Cp <sup>2</sup>Tc <sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Tr <sup>6</sup>Sr <sup>7</sup>Qc <sup>8</sup>Gl <sup>9</sup>Al <sup>10</sup>Sc

Entire Report Reviewed By:

Mark W. Beasley Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

ACCOUNT: Plains All American, LP - GHD PROJECT: 074685 SDG: L1133471 DATE/TIME: 08/30/19 14:38

PAGE: 1 of 13

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\*

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Volatile Organic Compounds (MS) by Method M18-Mod	10	Qc
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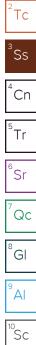
SDG: L1133471

DATE/TIME: 08/30/19 14:38 PAGE: 2 of 13

### SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

			Collected by	Collected date/time	Received date/	'time
DARR-2-EZHAUST-PUMPOFF-081419 L1133471-01	Air			08/14/19 13:00	08/28/19 08:45	;
Method	Batch		Preparation	Analysis	Analyst	Location
			date/time	date/time		
Volatile Organic Compounds (MS) by Method M18-Mod	WG1336161	2000	08/28/19 23:58	08/28/19 23:58	MBF	Mt. Juliet, TN



\*

Ср

ACCOUNT: Plains All American, LP - GHD PROJECT: 074685 SDG: L1133471 DATE/TIME: 08/30/19 14:38 PAGE: 3 of 13

### CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

h

Mark W. Beasley Project Manager

Τс Ss Cn Tr Sr Qc GI AI Śc

SDG: L1133471

PAGE: 4 of 13

### Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte
  - for each method and matrix.
- R10 Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Mark W. Beasley Project Manager

### Laboratory Review Checklist: Reportable Data

\*

Lab	orato	ry Name: Pace Analytical National	LRC Date: 08/30/2019 14:38									
Proj Me>		lame: Darr Angell #2- Lea County, New	Laboratory Job Number: L1133471-01									
Rev	iewe	r Name: Mark W. Beasley	Prep Batch Number(s): WG1336161									
# <sup>1</sup>	<b>A</b> <sup>2</sup>	Description	•	Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>				
R1	OI	Chain-of-custody (C-O-C)										
		Did samples meet the laboratory's standard conditions	s of sample acceptability upon receipt?	Х								
		Were all departures from standard conditions describe	ed in an exception report?			Х						
72	OI	Sample and quality control (QC) identification										
		Are all field sample ID numbers cross-referenced to th	e laboratory ID numbers?	X		1						
		Are all laboratory ID numbers cross-referenced to the	corresponding QC data?	X								
23	OI	Test reports			•	•						
		Were all samples prepared and analyzed within holdin	q times?	X	1	1	1					
		Other than those results < MQL, were all other raw values	-	Х								
		Were calculations checked by a peer or supervisor?		X								
		Were all analyte identifications checked by a peer or s	upen/isor?	X								
		Were sample detection limits reported for all analytes		X								
				X								
		Were all results for soil and sediment samples reported	· · ·	<u> </u>		×						
		Were % moisture (or solids) reported for all soil and se	•			X	<b> </b>					
		Were bulk soils/solids samples for volatile analysis ext			X							
		If required for the project, are TICs reported?				Х						
24	0	Surrogate recovery data		·	1	-						
		Were surrogates added prior to extraction?		X								
		Were surrogate percent recoveries in all samples with	Х									
25	OI	Test reports/summary forms for blank samples										
		Were appropriate type(s) of blanks analyzed?		X								
		Were blanks analyzed at the appropriate frequency?		X								
		Were method blanks taken through the entire analytic	al process, including preparation and, if applicable,	X								
		cleanup procedures?										
		Were blank concentrations < MQL?		Х								
86	OI	Laboratory control samples (LCS):										
		Were all COCs included in the LCS?		X								
		Was each LCS taken through the entire analytical proc	edure, including prep and cleanup steps?	X								
		Were LCSs analyzed at the required frequency?		X								
		Were LCS (and LCSD, if applicable) %Rs within the labo	pratory QC limits?	X								
			ne laboratory's capability to detect the COCs at the MDL	x								
		used to calculate the SDLs?					L					
		Was the LCSD RPD within QC limits?		Х								
87	OI	Matrix spike (MS) and matrix spike duplicate (MSD) dat		-		-	-	-				
		Were the project/method specified analytes included i	n the MS and MSD?			Х						
		Were MS/MSD analyzed at the appropriate frequency?	2			Х						
		Were MS (and MSD, if applicable) %Rs within the labor	atory QC limits?			Х						
		Were MS/MSD RPDs within laboratory QC limits?				Х						
88	OI	Analytical duplicate data										
		Were appropriate analytical duplicates analyzed for ea	ach matrix?			Х						
		Were analytical duplicates analyzed at the appropriate	e frequency?			Х						
		Were RPDs or relative standard deviations within the la	aboratory QC limits?			Х						
89	OI	Method quantitation limits (MQLs):										
		Are the MQLs for each method analyte included in the	laboratory data package?	X								
		Do the MQLs correspond to the concentration of the lo		Х		1	1	1				
		Are unadjusted MQLs and DCSs included in the labora		Х			1	1				
10	OI	Other problems/anomalies	· · ·	•	•	•	•	•				
	1 - '	Are all known problems/anomalies/special conditions	noted in this LRC and ER?	X								
			er the SDL to minimize the matrix interference effects on									
		the sample results?		X				1				
		Is the laboratory NELAC-accredited under the Texas L and methods associated with this laboratory data pack	aboratory Accreditation Program for the analytes, matrices kage?	х								
shoul 2. O 3. NA 1. NF	ld be re = orga A = Not R = Not	etained and made available upon request for the appro nic analyses; I = inorganic analyses (and general chemi t applicable; reviewed;			dentifie	ed by th	e letter	"S"				

### Laboratory Review Checklist: Supporting Data

1 ķ

Lab	orato	ory Name: Pace Analytical National	LRC Date: 08/30/2019 14:38									
Proj Me>		Name: Darr Angell #2- Lea County, New	Laboratory Job Number: L1133471-01									
Rev	iewe	r Name: Mark W. Beasley	Prep Batch Number(s): WG1336161	nber(s): WG1336161								
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR⁴	ER# <sup>5</sup>				
51	01	Initial calibration (ICAL)										
		Were response factors and/or relative response factor	ors for each analyte within QC limits?	Х	1	1	1	T				
		Were percent RSDs or correlation coefficient criteria	• •	X								
		Was the number of standards recommended in the m		Х			1					
		Were all points generated between the lowest and hi	ighest standard used to calculate the curve?	Х								
		Are ICAL data available for all instruments used?	5	X								
		Has the initial calibration curve been verified using a	appropriate second source standard?	X								
52	OI	Initial and continuing calibration verification (ICCV an	· · · ·				I					
_	•	Was the CCV analyzed at the method-required freque	· · · · · ·	X	1	1	T	T				
		Was the eev analyzed at the method required negative Were percent differences for each analyte within the	•	X	+		<u> </u>					
		Was the ICAL curve verified for each analyte?		X	1	1	<u> </u>					
		Was the absolute value of the analyte concentration	in the inerganic CCR $<$ MDI 2			X						
33	0	Mass spectral tuning					I					
55	10	Was the appropriate compound for the method used	for tuning?	X	T	T	T T	<u> </u>				
		Were ion abundance data within the method-required		+								
64	0	· · ·	^			I						
94	0	Internal standards (IS)	athed required OC limits?		1	<b>1</b>	т —	r				
		Were IS area counts and retention times within the m	ethod-required QC limits?									
5	OI	Raw data (NELAC Section 5.5.10)			1	<u> </u>	1	<u> </u>				
		Were the raw data (for example, chromatograms, spe		<u> </u>								
		Were data associated with manual integrations flagge	ed on the raw data?	X								
6	0	Dual column confirmation			-			1				
_		Did dual column confirmation results meet the metho	d-required QC?			Х						
57	0	Tentatively identified compounds (TICs)			<b>1</b>		т —					
		If TICs were requested, were the mass spectra and T	IC data subject to appropriate checks?			Х						
8		Interference Check Sample (ICS) results					<del>.</del>	1				
		Were percent recoveries within method QC limits?				Х						
59		Serial dilutions, post digestion spikes, and method of			1	1	1	<u> </u>				
		Were percent differences, recoveries, and the linearit	ty within the QC limits specified in the method?			Х						
510	OI	Method detection limit (MDL) studies			-	-	r	<b>-</b>				
		Was a MDL study performed for each reported analy		X			<b> </b>					
		Is the MDL either adjusted or supported by the analy	sis of DCSs?	X								
511	OI	Proficiency test reports			-		<u> </u>					
		Was the laboratory's performance acceptable on the	applicable proficiency tests or evaluation studies?	X								
512	OI	Standards documentation			-		-					
		Are all standards used in the analyses NIST-traceable	e or obtained from other appropriate sources?	Х								
513	OI	Compound/analyte identification procedures		-								
		Are the procedures for compound/analyte identification	on documented?	Х								
14	OI	Demonstration of analyst competency (DOC)										
		Was DOC conducted consistent with NELAC Chapter	Х									
		Is documentation of the analyst's competency up-to-	date and on file?	Х								
515	OI	Verification/validation documentation for methods (N	ELAC Chapter 5)									
		Are all the methods used to generate the data docun	nented, verified, and validated, where applicable?	Х								
516	OI	Laboratory standard operating procedures (SOPs)										
		Are laboratory SOPs current and on file for each met	hod performed	Х								
shoul 2. O 3. NA	d be r = orga A = No	ntified by the letter "R" must be included in the laborat etained and made available upon request for the appro- anic analyses; I = inorganic analyses (and general chen t applicable; t reviewed;		t(s). Items	identifie	ed by th	e letter	"S"				

4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

SDG: L1133471

#### Laboratory Review Checklist: Exception Reports ONE LAB. NATIONWIDE.

Laboratory Name: Pace Analytical National	LRC Date: 08/30/2019 14:38					
Project Name: Darr Angell #2- Lea County, New Mexico	Laboratory Job Number: L1133471-01					
Reviewer Name: Mark W. Beasley	Prep Batch Number(s): WG1336161					
ER #1 Description						

The Exception Report intentionally left blank, there are no exceptions applied to this SDG.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

a. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
NA = Not applicable;
NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Ср

Тс

Ss

Cn

Ϋ́r

Qc

GI

ΆI

Sc



#### Volatile Organic Compounds (MS) by Method M18-Mod

-									
	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
Analyte			ppbv	ug/m3	ppbv	ug/m3			
Benzene	71-43-2	78.10	400	1280	36600	117000		2000	WG1336161
Toluene	108-88-3	92.10	400	1510	49400	186000		2000	WG1336161
Ethylbenzene	100-41-4	106	400	1730	7050	30500		2000	WG1336161
m&p-Xylene	1330-20-7	106	800	3470	36800	160000		2000	WG1336161
o-Xylene	95-47-6	106	400	1730	10600	46100		2000	WG1336161
Methyl tert-butyl ether	1634-04-4	88.10	400	1440	ND	ND		2000	WG1336161
TPH (GC/MS) Low Fraction	8006-61-9	101	100000	413000	5060000	20900000		2000	WG1336161
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		101				WG1336161

Volatile Organic Compounds (MS) by Method M18-Mod

# QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

#### Method Blank (MB)

(MB) R3445016-3 08/28/19 10:33											
	MB Result	MB Qualifier	MB MDL	MB RDL							
Analyte	ppbv		ppbv	ppbv							
Benzene	U		0.0460	0.200							
Ethylbenzene	U		0.0506	0.200							
MTBE	U		0.0505	0.200							
Toluene	U		0.0499	0.200							
m&p-Xylene	U		0.0946	0.400							
o-Xylene	U		0.0633	0.200							
TPH (GC/MS) Low Fraction	34.5	J	6.91	50.0							
(S) 1,4-Bromofluorobenzene	97.5			60.0-140							

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3445016-1 08/28/19 09:08 • (LCSD) R3445016-2 08/28/19 09:51												
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits		
Analyte	ppbv	ppbv	ppbv	%	%	%			%	%		
MTBE	3.75	4.46	4.39	119	117	70.0-130			1.59	25		
Benzene	3.75	4.64	4.59	124	122	70.0-130			1.13	25		
Toluene	3.75	4.58	4.49	122	120	70.0-130			1.94	25		
Ethylbenzene	3.75	4.74	4.65	126	124	70.0-130			1.87	25		
m&p-Xylene	7.50	9.52	9.19	127	123	70.0-130			3.56	25		
o-Xylene	3.75	4.73	4.60	126	123	70.0-130			2.73	25		
TPH (GC/MS) Low Fraction	203	239	236	118	117	70.0-130			0.981	25		
(S) 1,4-Bromofluorobenzene				99.7	97.9	60.0-140						

SDG: L1133471 DATE/TIME: 08/30/19 14:38 PAGE: 10 of 13

### GLOSSARY OF TERMS

### ₩

Ср

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Ss

Cn

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Qc

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#### Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

#### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description

J

The identification of the analyte is acceptable; the reported value is an estimate.

SDG: L1133471 DATE/TIME: 08/30/19 14:38

### **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Ne
Alaska	17-026	Ne
Arizona	AZ0612	Ne
Arkansas	88-0469	Ne
California	2932	Ne
Colorado	TN00003	Ne
Connecticut	PH-0197	No
Florida	E87487	No
Georgia	NELAP	No
Georgia <sup>1</sup>	923	No
ldaho	TN00003	Oł
Illinois	200008	01
Indiana	C-TN-01	Or
lowa	364	Pe
Kansas	E-10277	Rh
Kentucky <sup>16</sup>	90010	Sc
Kentucky <sup>2</sup>	16	Sc
Louisiana	AI30792	Te
Louisiana <sup>1</sup>	LA180010	Te
Maine	TN0002	Te
Maryland	324	Ut
Massachusetts	M-TN003	Ve
Michigan	9958	Vi
Minnesota	047-999-395	W
Mississippi	TN00003	W
Missouri	340	W
Montana	CERT0086	W

lebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey-NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 5	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

#### **Our Locations**

Plains All American, LP - GHD

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



074685

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08/30/19 14:38

Τс Ss Cn Tr Sr Qc GI AI Śc

	10 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Billing Info	rmation:	2 - 17 Stars			Sec. 19	Analysis / Co	ntainer / Preserva	ative	Pinters.	Chain of Custody	Page of	
Plains All American, LP - GHD 2135 S Loop 250 W Midland, TX 79703			Accounts Payable 505 N. Big Spring, Ste. 600 Midland, TX 79701			Pres Chk							Pace	nalytical <sup>®</sup>	
							10					Hanshar Gariur kur tesuny a litticiviti			
Report to: ames Ornelas John S	hable		Email To: C james.orm	o: Christopher.Knight@ghd.com; ornelas@ghd.com Jonn. Schnabil(@c			stom	M				12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859			
Project Description: Darr Angell #2- Lea C	ounty, New	Mexico		City/State Collected:									Fax: 615-758-5859		
	Client Project # 074685			Lab Project # PLAINSGHD	Lab Project # PLAINSGHD-074685 P.O. #									L# /133471 G229	
	Site/Facility ID SRS#: LF 19			P.O. #									Acctnum: PLAINSGHD		
Collected by (signature):	Rush? (La Same Day	ab MUST Be y Five D		Quote #			Tedlar					Template: <b>T140</b> Prelogin: <b>P720</b>		014	
Immediately Packed on Ice N Y	Next Day Five Day Next Day S Day (Rad Only) Two Day 10 Day (Rad Only) Three Day		Date Re	Date Results Needed		MOD						PB: To -	4 - Mark W. Beasley Tb 7-17-19 d Via: FedEX Ground		
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	M18-I		a damp		- Cornel or		Remarks	Sample # (lab only	
Darr-2-Exhaugt - Pumpoff-081419	Grub	Air	-	8/14/19	1300	1	Х		1		1	1		-01	
	1 1 1	Air	1.14	1		1	X		Carlo I						
		Air	1	-		1	X			11.11		1			
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DW - Drinking Water OT - Other	Samples returned via: UPSFedExCourier Tracking # 10 8					82	59	91 4	1540		2	Sufficie VOA Zero	nt volume sent: <u>If Applicab</u> Headspace:	Y	
Relinquished by : (Signature)		Date: 0/14/1	9	Time: Received by: (Signatu					Trip Blank Received: Yes No HCL7 MeoH TBR		Preservation Correct/Checked:YN				
Relinquished by : (Signature)		Date:		Time: Received by: (Signature)					Temp:	4.6 /		If preservation required by Login: Date/Time		gin: Date/Time	
Relinquished by : (Signature)		Date:		Time:	Received for lab	y: (Signa:	ture)		Date:	Time:	45	Hold:	12 3%	Condition: NCF / OK	



# ANALYTICAL REPORT

November 06, 2019

### Plains All American, LP - GHD

Sample Delivery Group: L1154397 Samples Received: 10/26/2019 Project Number: 074685 Description: Darr Angell #2- Lea County, New Mexico SRS#: LF 1999-62 Site: Report To: John Schnable 2135 S Loop 250 W Midland, TX 79703

Entire Report Reviewed By:

Mark W. Beasley Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

ACCOUNT: Plains All American, LP - GHD PROJECT: 074685

SDG: L1154397

DATE/TIME: 11/06/19 14:32

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SDG: L1154397 DATE/TIME: 11/06/19 14:32

### SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

\*

Ср

Tc

Ss

Cn

⁵Tr

Sr

Qc

GI

A

<sup>10</sup>Sc

	0/ 22 0					
MW-8-102219 L1154397-01 GW			Collected by Justin Nixon	Collected date/time 10/22/19 17:05	Received da 10/26/19 08:	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1374701	1	11/05/19 04:06	11/05/19 04:06	ACG	Mt. Juliet, TN
MW-9-102219 L1154397-02 GW			Collected by Justin Nixon	Collected date/time 10/22/19 17:30	Received da 10/26/19 08:	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1374701	1	11/05/19 04:26	11/05/19 04:26	ACG	Mt. Juliet, TN
MW-4R-102219 L1154397-03 GW			Collected by Justin Nixon	Collected date/time 10/22/19 17:45	Received da 10/26/19 08:	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1374701	1	11/05/19 04:47	11/05/19 04:47	ACG	Mt. Juliet, TN
MW-12-102219 L1154397-04 GW			Collected by Justin Nixon	Collected date/time 10/22/19 18:10	Received da 10/26/19 08:	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1374701 WG1370550	1 1	11/05/19 05:08 10/29/19 17:41	11/05/19 05:08 10/30/19 03:54	ACG AAT	Mt. Juliet, TN Mt. Juliet, TN
RW11-102219 L1154397-05 GW			Collected by Justin Nixon	Collected date/time 10/22/19 18:30	Received date/time 10/26/19 08:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1374701	1	11/05/19 05:28	11/05/19 05:28	ACG	Mt. Juliet, TN
RW12-102219 L1154397-06 GW			Collected by Justin Nixon	Collected date/time 10/22/19 19:05	Received date/time 10/26/19 08:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1374701	10	11/05/19 05:49	11/05/19 05:49	ACG	Mt. Juliet, TN
DUP-1-102219 L1154397-07 GW			Collected by Justin Nixon	Collected date/time 10/22/19 00:00	Received date/time 10/26/19 08:00	
			<b>D</b>	Arealis		Leastion
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location

PROJECT: 074685 SDG: L1154397 DATE/TIME: 11/06/19 14:32

### CASE NARRATIVE

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All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley Project Manager

#### Sample Delivery Group (SDG) Narrative

VOC pH outside of method requirement.

Lab Sample ID L1154397-01 Project Sample ID MW-8-102219 Method 8021B



PROJECT: 074685 SDG: L1154397 DATE/TIME: 11/06/19 14:32 PAGE:

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### Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte
  - for each method and matrix.
- R10 Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Mark W. Beasley Project Manager

#### Laboratory Review Checklist: Reportable Data

Lab	orato	ry Name: Pace Analytical National LR	LRC Date: 11/06/2019 14:32								
Project Name: Darr Angell #2- Lea County, New Mexico			ooratory Job Number: L1154397-01, 02, 03, 04, 05,	06 and	d 07						
Rev	viewei	r Name: Mark W. Beasley Pre	Prep Batch Number(s): WG1370550, WG1374701 and WG1375386								
#1	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>			
R1	OI	Chain-of-custody (C-O-C)									
		Did samples meet the laboratory's standard conditions of sa	ample acceptability upon receipt?	Х							
		Were all departures from standard conditions described in a	an exception report?			Х					
R2	OI	Sample and quality control (QC) identification									
		Are all field sample ID numbers cross-referenced to the labo	pratory ID numbers?	Х							
		Are all laboratory ID numbers cross-referenced to the corres	sponding QC data?	Х							
R3	OI	Test reports									
		Were all samples prepared and analyzed within holding time	es?	Х							
		Other than those results < MQL, were all other raw values br	racketed by calibration standards?	Х							
		Were calculations checked by a peer or supervisor?		Х							
		Were all analyte identifications checked by a peer or superv	risor?	Х							
		Were sample detection limits reported for all analytes not de	etected?	Х							
		Were all results for soil and sediment samples reported on a		Х							
		Were % moisture (or solids) reported for all soil and sedimen	nt samples?			Х					
		Were bulk soils/solids samples for volatile analysis extracted	d with methanol per SW846 Method 5035?			Х					
		If required for the project, are TICs reported?				Х					
R4	0	Surrogate recovery data									
		Were surrogates added prior to extraction?	Х								
		Were surrogate percent recoveries in all samples within the	Х								
R5	OI	Test reports/summary forms for blank samples									
		Were appropriate type(s) of blanks analyzed?		Х							
		Were blanks analyzed at the appropriate frequency?		Х							
		Were method blanks taken through the entire analytical proc	cess, including preparation and, if applicable,	х							
		cleanup procedures?		X			I				
		Were blank concentrations < MQL?		Х							
R6	OI	Laboratory control samples (LCS):		V	1	1	<u>г</u>	r –			
		Were all COCs included in the LCS?	X X								
		Was each LCS taken through the entire analytical procedure	e, including prep and cleanup steps?	X							
		Were LCSs analyzed at the required frequency? Were LCS (and LCSD, if applicable) %Rs within the laboratory	- OC limite?	X							
		Does the detectability check sample data document the laboratory		^							
		used to calculate the SDLs?	Х								
		Was the LCSD RPD within QC limits?	Х								
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data				1		1			
		Were the project/method specified analytes included in the	MS and MSD?	Х			ļ	L			
		Were MS/MSD analyzed at the appropriate frequency?		Х							
		Were MS (and MSD, if applicable) %Rs within the laboratory	QC limits?	Х							
		Were MS/MSD RPDs within laboratory QC limits?		Х							
R8	OI	Analytical duplicate data			-		-	-			
		Were appropriate analytical duplicates analyzed for each ma				X					
		Were analytical duplicates analyzed at the appropriate frequ				X					
<b>D</b> O		Were RPDs or relative standard deviations within the laborat	tory QC limits?			Х					
R9	OI	Method quantitation limits (MQLs):		X	1	T	1	1			
		Are the MQLs for each method analyte included in the labor	, , , , , , , , , , , , , , , , , , , ,	X							
		Do the MQLs correspond to the concentration of the lowest		X							
D40		Are unadjusted MQLs and DCSs included in the laboratory c	data package?	Х							
R10	OI	Other problems/anomalies	in this LDC and ED2		V	1	r				
		Are all known problems/anomalies/special conditions noted Was applicable and available technology used to lower the s			X						
		the sample results?	SDL to minimize the matrix interference effects on	Х							
		Is the laboratory NELAC-accredited under the Texas Laborat and methods associated with this laboratory data package?		х							
shoul 2. O 3. N/ 4. NF	ld be re = orga A = Not R = Not	ntified by the letter "R" must be included in the laboratory dat etained and made available upon request for the appropriate nic analyses; I = inorganic analyses (and general chemistry, w t applicable; ; reviewed; cception Report identification number (an Exception Report sh	retention period. when applicable);		dentifie	d by th	e letter	"S"			

#### Laboratory Review Checklist: Supporting Data

1 ķ

LdD	orato	ory Name: Pace Analytical National	LRC Date: 11/06/2019 14:32								
Project Name: Darr Angell #2- Lea County, New Mexico			Laboratory Job Number: L1154397-01, 02, 03, 04, 05, 06 and 07								
Rev	iewe	r Name: Mark W. Beasley	Prep Batch Number(s): WG1370550, WG1374701 and WG1375386								
#1	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER# <sup>5</sup>			
S1	OI	Initial calibration (ICAL)									
		Were response factors and/or relative response factor	ors for each analyte within QC limits?	Х			1	Τ			
		Were percent RSDs or correlation coefficient criteria	met?	Х							
		Was the number of standards recommended in the m	nethod used for all analytes?	X							
		Were all points generated between the lowest and hi	ghest standard used to calculate the curve?	Х							
		Are ICAL data available for all instruments used?	Х								
		Has the initial calibration curve been verified using ar	X			1					
52	OI	Initial and continuing calibration verification (ICCV and	· · · ·					-			
		Was the CCV analyzed at the method-required freque		X	Т	T	Г	Τ			
		Were percent differences for each analyte within the		X							
		Was the ICAL curve verified for each analyte?		X							
		Was the absolute value of the analyte concentration i	in the inorganic CCB < MDI ?			Х					
53	0	Mass spectral tuning				1	1				
	-	Was the appropriate compound for the method used	for tuning?	X	T	1	Г	Т			
		Were ion abundance data within the method-required		X							
54	0	Internal standards (IS)		^			1				
	ļ,	Were IS area counts and retention times within the m	ethod-required QC limits?	X	1	T	T	Т			
55	OI	Raw data (NELAC Section 5.5.10)			•		1	L			
		Were the raw data (for example, chromatograms, spe	ctral data) reviewed by an analyst?	X	Т	1	Г	Т			
	Were data associated with manual integrations flagge										
66	0	Dual column confirmation		^	-	<u> </u>	I	L			
50		Did dual column confirmation results meet the metho	d required OC2	-	1	X	1	T			
57	0	Tentatively identified compounds (TICs)					I	L			
57		If TICs were requested, were the mass spectra and T	IC data subject to appropriate checks?		1	X	T	Τ			
58	1.	Interference Check Sample (ICS) results					I	<u> </u>			
00		Were percent recoveries within method QC limits?			T	X	T T	T			
59	1.	•	standard additions			<u> </u>	I	<u> </u>			
59		Serial dilutions, post digestion spikes, and method of Were percent differences, recoveries, and the linearit			T	X	<u>т</u>	Т			
10		•	sy within the QC limits specified in the method?			<u> </u>					
510	OI	Method detection limit (MDL) studies			1	1	T T	T			
		Was a MDL study performed for each reported analytic		X							
- 44		Is the MDL either adjusted or supported by the analys	sis of DCSs?	X		I	I	<u> </u>			
511	OI	Proficiency test reports			1	1	<u> </u>				
~4~		Was the laboratory's performance acceptable on the	applicable proticiency tests or evaluation studies?	X			<u> </u>	<u> </u>			
512	OI	Standards documentation			1	1	1	T			
10		Are all standards used in the analyses NIST-traceable	or obtained from other appropriate sources?	X			I	L			
513	OI	Compound/analyte identification procedures			-	1	1	<b>—</b>			
		Are the procedures for compound/analyte identificati	on documented?	X							
514	OI	Demonstration of analyst competency (DOC)		-	1	<u> </u>	1				
		Was DOC conducted consistent with NELAC Chapter			-		-				
			becomentation of the analyst's competency up-to-date and on file?								
515	OI	Verification/validation documentation for methods (N		-	1	r –					
		Are all the methods used to generate the data docum	X		1	I	L				
516	OI	Laboratory standard operating procedures (SOPs)		-							
		Are laboratory SOPs current and on file for each meth	and performed		1	1	1	1			

4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

SDG: L1154397

Laborato	ory Name: Pace Analytical National	LRC Date: 11/06/2019 14:32						
Project Mexico	Name: Darr Angell #2- Lea County, New	Laboratory Job Number: L1154397-01, 02, 03, 04, 05, 06 and 07						
Reviewe	r Name: Mark W. Beasley	Prep Batch Number(s): WG1370550, WG1374701 and WG1375386						
ER # <sup>1</sup>	Description							
1	8021B WG1374701 L1154397-01: VOC pH outside of method requirement.							

Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
 NA = Not applicable;
 NR = Not reviewed;
 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

#### SAMPLE RESULTS - 01 L1154397

#### <u>پو</u>

#### Volatile Organic Compounds (GC) by Method 8021B

Volatile Organic Compounds (GC) by Method 8021B									1
	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	0.000773		0.000190	0.000500	0.000500	1	11/05/2019 04:06	WG1374701	Ťτ
Toluene	0.000654	J	0.000412	0.00100	0.00100	1	11/05/2019 04:06	WG1374701	
Ethylbenzene	0.000780		0.000160	0.000500	0.000500	1	11/05/2019 04:06	WG1374701	<sup>3</sup> Ss
Total Xylene	0.00239		0.000510	0.00150	0.00150	1	11/05/2019 04:06	WG1374701	5.
(S) a,a,a-Trifluorotoluene(PID)	100				79.0-125		11/05/2019 04:06	WG1374701	4

<sup>³</sup> Ss
<sup>4</sup> Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
<sup>°</sup> GI
<sup>9</sup> Al
<sup>10</sup> Sc

ACCOUNT: Plains All American, LP - GHD PROJECT: 074685

SDG: L1154397

DATE/TIME: 11/06/19 14:32 PAGE: 9 of 23

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#### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	0.000344	J	0.000190	0.000500	0.000500	1	11/05/2019 04:26	WG1374701	T
Toluene	0.000609	J	0.000412	0.00100	0.00100	1	11/05/2019 04:26	WG1374701	
Ethylbenzene	0.000289	J	0.000160	0.000500	0.000500	1	11/05/2019 04:26	WG1374701	<sup>3</sup> c
Total Xylene	0.00114	J	0.000510	0.00150	0.00150	1	11/05/2019 04:26	WG1374701	
(S) a,a,a-Trifluorotoluene(PID)	100				79.0-125		11/05/2019 04:26	WG1374701	4

<sup>³</sup> Ss
<sup>4</sup> Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
<sup>°</sup> Gl
<sup>9</sup> Al
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#### Volatile Organic Compounds (GC) by Method 8021B

volatile Organic Comp		i by meth	JU 0021D						$^{1}$ C $\sim$
	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	0.000301	J	0.000190	0.000500	0.000500	1	11/05/2019 04:47	WG1374701	Tc
Toluene	0.000535	J	0.000412	0.00100	0.00100	1	11/05/2019 04:47	WG1374701	
Ethylbenzene	0.000380	J	0.000160	0.000500	0.000500	1	11/05/2019 04:47	WG1374701	<sup>3</sup> Ss
Total Xylene	0.00172		0.000510	0.00150	0.00150	1	11/05/2019 04:47	WG1374701	55
(S) a,a,a-Trifluorotoluene(PID)	100				79.0-125		11/05/2019 04:47	WG1374701	4

<sup>3</sup> Ss
<sup>4</sup> Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
°GI
<sup>9</sup> Al
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#### MW-12-102219 Collected date/time: 10/22/19 18:10

#### SAMPLE RESULTS - 04 L1154397

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#### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	0.000319	J	0.000190	0.000500	0.000500	1	11/05/2019 05:08	WG1374701	Tc
Toluene	0.000583	J	0.000412	0.00100	0.00100	1	11/05/2019 05:08	WG1374701	
Ethylbenzene	0.000321	J	0.000160	0.000500	0.000500	1	11/05/2019 05:08	WG1374701	<sup>3</sup> Ss
Total Xylene	0.00138	J	0.000510	0.00150	0.00150	1	11/05/2019 05:08	WG1374701	55
(S) a,a,a-Trifluorotoluene(PID)	100				79.0-125		11/05/2019 05:08	WG1374701	4
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#### Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		L
Anthracene	U		0.0000140	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	6
Acenaphthene	U		0.0000100	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	
Acenaphthylene	U		0.0000120	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	7
Benzo(a)anthracene	U		0.00000410	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	, in the second s
Benzo(a)pyrene	U		0.0000116	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	L
Benzo(b)fluoranthene	U		0.00000212	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	8
Benzo(g,h,i)perylene	U		0.00000227	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	
Benzo(k)fluoranthene	U		0.0000136	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	9
Chrysene	U		0.0000108	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	Ĵ
Dibenz(a,h)anthracene	U		0.00000396	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	L
Dibenzofuran	0.0000235	ВJ	0.00000105	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	10
Fluoranthene	U		0.0000157	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	
Fluorene	0.0000217	J	0.00000850	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	
Indeno(1,2,3-cd)pyrene	U		0.0000148	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	
Naphthalene	0.000197	J	0.0000198	0.000250	0.000250	1	10/30/2019 03:54	WG1370550	
Phenanthrene	0.0000231	J	0.00000820	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	
Pyrene	U		0.0000117	0.0000500	0.0000500	1	10/30/2019 03:54	WG1370550	
1-Methylnaphthalene	0.000123	ВJ	0.00000821	0.000250	0.000250	1	10/30/2019 03:54	WG1370550	
2-Methylnaphthalene	0.000101	ВJ	0.00000902	0.000250	0.000250	1	10/30/2019 03:54	WG1370550	
(S) Nitrobenzene-d5	127				31.0-160		10/30/2019 03:54	WG1370550	
(S) 2-Fluorobiphenyl	117				48.0-148		10/30/2019 03:54	WG1370550	
(S) p-Terphenyl-d14	117				37.0-146		10/30/2019 03:54	WG1370550	

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DATE/TIME: 11/06/19 14:32

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#### Volatile Organic Compounds (GC) by Method 8021B

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	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	0.167		0.000190	0.000500	0.000500	1	11/05/2019 05:28	WG1374701	Tc
Toluene	0.00805		0.000412	0.00100	0.00100	1	11/05/2019 05:28	WG1374701	
Ethylbenzene	0.0287		0.000160	0.000500	0.000500	1	11/05/2019 05:28	WG1374701	<sup>3</sup> Ss
Total Xylene	0.0937		0.000510	0.00150	0.00150	1	11/05/2019 05:28	WG1374701	53
(S) a,a,a-Trifluorotoluene(PID)	120				79.0-125		11/05/2019 05:28	WG1374701	4

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<sup>4</sup> Cn
⁵Tr
<sup>6</sup> Sr
<sup>7</sup> Qc
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<sup>9</sup> Al
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#### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2
Benzene	1.12		0.00190	0.000500	0.00500	10	11/05/2019 05:49	WG1374701	[1]
Toluene	0.186		0.00412	0.00100	0.0100	10	11/05/2019 05:49	WG1374701	
Ethylbenzene	0.353		0.00160	0.000500	0.00500	10	11/05/2019 05:49	WG1374701	<sup>3</sup> c
Total Xylene	0.389		0.00510	0.00150	0.0150	10	11/05/2019 05:49	WG1374701	`
(S) a,a,a-Trifluorotoluene(PID)	118				79.0-125		11/05/2019 05:49	WG1374701	4

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#### Volatile Organic Compounds (GC) by Method 8021B

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch				
Analyte	mg/l		mg/l	mg/l	mg/l		date / time		2			
Benzene	0.950		0.00475	0.000500	0.0125	25	11/05/2019 17:56	WG1375386	Tc			
Toluene	0.112		0.000412	0.00100	0.00100	1	11/05/2019 06:09	WG1374701				
Ethylbenzene	0.186		0.000160	0.000500	0.000500	1	11/05/2019 06:09	WG1374701	<sup>3</sup> Ss			
Total Xylene	0.256		0.000510	0.00150	0.00150	1	11/05/2019 06:09	WG1374701	55			
(S) a,a,a-Trifluorotoluene(PID)	109				79.0-125		11/05/2019 06:09	WG1374701	4			
(S) a,a,a-Trifluorotoluene(PID)	105				79.0-125		11/05/2019 17:56	WG1375386	Ċr			

Volatile Organic Compounds (GC) by Method 8021B

## QUALITY CONTROL SUMMARY

#### Method Blank (MB)

(MB) R3468588-2 11/04/1	9 23:18			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Benzene	U		0.000190	0.000500
Toluene	U		0.000412	0.00100
Ethylbenzene	U		0.000160	0.000500
Total Xylene	U		0.000510	0.00150
(S) a,a,a-Trifluorotoluene(PID)	99.8			79.0-125

#### Laboratory Control Sample (LCS)

#### (LCS) R3468588-1 11/04/19 22:22

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Benzene	0.0500	0.0534	107	77.0-122	
Toluene	0.0500	0.0498	99.6	80.0-121	
Ethylbenzene	0.0500	0.0532	106	80.0-123	
Total Xylene	0.150	0.148	98.7	47.0-154	
(S) a,a,a-Trifluorotoluene(PID)			114	79.0-125	

#### L1154298-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Benzene	0.0500	0.000335	0.0624	0.0517	124	103	1	10.0-160			18.8	21
Toluene	0.0500	U	0.0554	0.0469	111	93.8	1	12.0-148			16.6	21
Ethylbenzene	0.0500	0.000173	0.0569	0.0484	113	96.5	1	22.0-149			16.1	21
Fotal Xylene	0.150	0.00102	0.158	0.133	105	88.0	1	13.0-155			17.2	21
(S) a.a.a-Trifluorotoluene(PID)					112	110		79.0-125				

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Volatile Organic Compounds (GC) by Method 8021B

# QUALITY CONTROL SUMMARY

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#### Method Blank (MB)

(MB) R3468898-2 11/05/19 11:47										
	MB Result	MB Qualifier	MB MDL	MB RDL						
Analyte	mg/l		mg/l	mg/l						
Benzene	U		0.000190	0.000500						
(S) a,a,a-Trifluorotoluene(PID)	103			79.0-125						

#### Laboratory Control Sample (LCS)

(LCS) R3468898-1 11/05/1	CS) R3468898-1 11/05/19 10:40									
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier					
Analyte	mg/l	mg/l	%	%						
Benzene	0.0500	0.0597	119	77.0-122						
(S) a,a,a-Trifluorotoluene(PID)			104	79.0-125						

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#### Method Blank (MB)

(MB) R3466490-3 10/29/1	19 21:40			
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Anthracene	U		0.0000140	0.0000500
Acenaphthene	U		0.0000100	0.0000500
Acenaphthylene	U		0.0000120	0.0000500
Benzo(a)anthracene	U		0.00000410	0.0000500
Benzo(a)pyrene	U		0.0000116	0.0000500
Benzo(b)fluoranthene	U		0.00000212	0.0000500
Benzo(g,h,i)perylene	U		0.00000227	0.0000500
Benzo(k)fluoranthene	U		0.0000136	0.000500
Chrysene	U		0.0000108	0.0000500
Dibenz(a,h)anthracene	U		0.00000396	0.0000500
Fluoranthene	U		0.0000157	0.0000500
Fluorene	U		0.00000850	0.0000500
Indeno(1,2,3-cd)pyrene	U		0.0000148	0.0000500
Naphthalene	U		0.0000198	0.000250
Phenanthrene	U		0.00000820	0.0000500
Pyrene	U		0.0000117	0.0000500
1-Methylnaphthalene	0.0000124	J	0.00000821	0.000250
2-Methylnaphthalene	0.0000200	J	0.00000902	0.000250
Dibenzofuran	0.00000719	J	0.00000105	0.0000500
(S) Nitrobenzene-d5	131			31.0-160
(S) 2-Fluorobiphenyl	114			48.0-148
(S) p-Terphenyl-d14	138			37.0-146

#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Dibenzofuran	0.00200	0.00210	0.00207	105	103	67.0-134			1.44	20
Anthracene	0.00200	0.00206	0.00207	103	103	67.0-150			0.484	20
Acenaphthene	0.00200	0.00209	0.00206	105	103	65.0-138			1.45	20
Acenaphthylene	0.00200	0.00231	0.00224	115	112	66.0-140			3.08	20
Benzo(a)anthracene	0.00200	0.00223	0.00214	111	107	61.0-140			4.12	20
Benzo(a)pyrene	0.00200	0.00223	0.00220	111	110	60.0-143			1.35	20
Benzo(b)fluoranthene	0.00200	0.00216	0.00205	108	102	58.0-141			5.23	20
Benzo(g,h,i)perylene	0.00200	0.00222	0.00218	111	109	52.0-153			1.82	20
Benzo(k)fluoranthene	0.00200	0.00224	0.00230	112	115	58.0-148			2.64	20
Chrysene	0.00200	0.00216	0.00214	108	107	64.0-144			0.930	20
Dibenz(a,h)anthracene	0.00200	0.00217	0.00214	108	107	52.0-155			1.39	20

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#### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3466490-1 10/2	9/19 20:58 • (LCS	D) R3466490	-2 10/29/19 21:1	9						
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Fluoranthene	0.00200	0.00231	0.00226	115	113	69.0-153			2.19	20
Fluorene	0.00200	0.00214	0.00210	107	105	64.0-136			1.89	20
Indeno(1,2,3-cd)pyrene	0.00200	0.00224	0.00220	112	110	54.0-153			1.80	20
Naphthalene	0.00200	0.00191	0.00192	95.5	96.0	61.0-137			0.522	20
Phenanthrene	0.00200	0.00214	0.00211	107	105	62.0-137			1.41	20
Pyrene	0.00200	0.00229	0.00222	114	111	60.0-142			3.10	20
1-Methylnaphthalene	0.00200	0.00199	0.00201	99.5	100	66.0-142			1.00	20
2-Methylnaphthalene	0.00200	0.00189	0.00188	94.5	94.0	62.0-136			0.531	20
(S) Nitrobenzene-d5				121	119	31.0-160				
(S) 2-Fluorobiphenyl				105	108	48.0-148				
(S) p-Terphenyl-d14				125	121	37.0-146				

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#### GLOSSARY OF TERMS

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#### Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

#### Abbreviations and Definitions

MDL	Method Detection Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description

В	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.

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#### **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	N
Alaska	17-026	N
Arizona	AZ0612	N
Arkansas	88-0469	N
California	2932	N
Colorado	TN00003	N
Connecticut	PH-0197	N
Florida	E87487	N
Georgia	NELAP	N
Georgia <sup>1</sup>	923	N
Idaho	TN00003	0
Illinois	200008	0
Indiana	C-TN-01	0
lowa	364	Pe
Kansas	E-10277	RI
Kentucky <sup>16</sup>	90010	So
Kentucky <sup>2</sup>	16	So
Louisiana	Al30792	Te
Louisiana <sup>1</sup>	LA180010	Te
Maine	TN0002	Te
Maryland	324	Ut
Massachusetts	M-TN003	Ve
Michigan	9958	Vi
Minnesota	047-999-395	W
Mississippi	TN00003	W
Missouri	340	W
Montana	CERT0086	W

Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey-NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee 14	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 5	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

#### **Our Locations**

Plains All American, LP - GHD

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



074685

L1154397

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11/06/19 14:32

Τс Ss Cn Tr Sr Qc GI AI Śc

Plains All American,	LP - GHD		Billing Inf		ł			Analysis / Container / Preservative								
				nts Payable Big Spring, S	Sta 600		Pres Chk					inner / Pres	ervative		Chain of	Custody Page_
2135 S Loop 250 W Midland, TX 79703			Midlan	d, TX 79701	ste. 600	L	CIIK								0	7
															-11	ace Analytica
Report to: John Schnable Project		Email To:. Christoph	John.Schnable her.Knight@ghd	@ghd.com,					1						ownee for resting a	
	N. Same	City/State				se Circle:							and and		12065 Lebar	Ion 8d
Description: Darr Angell #2- Lea		Collected:		And a second second	PT N	AT CT ET			E						Phone: 615-	, TN 37122
Phone: <b>432-686-0086</b> Fax:	Client Project 074685	#		Lab Project # PLAINSGH					res-w						Fax: 615-758-	67-5859 5859
Collected by (print): Justin	Site/Facility ID SRS#: LF 19			P.O. #			-	40mlAmb-Nob	Inn-d							115939° 243
Collected by (signature):	Rush? (Lab MUST Be Notified)		Notified)	Quote #				I Any		1					Acctnum: B	LAINSGHD
Immediately Packed on Ice N Y Y	Same Day Same Day Next Day Two Day Three Day	y5 Day y10 Day	Day (Rad Only) iy (Rad Only)	Date R	esults Needed	No.	40mlAmh-Hci	VI 40m					The same		Template: <b>T</b> : Prelogin: <b>P7</b>	139790 /36583
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	of Cntr	Distances of the								PM: <b>134 - M</b> ; PB:	ark W. Beasley
MW-8-102219	G	GW		10-22-19	17:05	12	8	PA		12					Shipped Via: Remarks	1
MW-9-102219		GW		10-22-19	11.00		X	-			1				Hernarka	Sample # (lab only
MW-4R-102219		GW		10-22-14	11.30		X									-01
MW-12-102219		GW		10-22-19		3	X	1							E.	02
RW-11-102219		GW		10-22-19	1 4. 2	5	X	X								03
RW-12-102219		GW		10-22-19	18:30	3	X								. Ander	04
Dup-1-102219	V	GW		10-22-19		3	X							++		05
Trip blank	4	GW	-	10-22-19	INTE	3	X				-					06
Sec. Stranger		GW	1		NIA	No	×						-	++		59
TRIP BLANK		GW			San Ir						11.00					
S - Soil AIR - Air F - Filter W - Groundwater B - Bioassay W - WasteWater	Remarks: R FI	leport t	in SPLs	s Concentratio	ions					рн	Tem;	P	Cog s	Sample	Receipt Chec	klist
	Samples returned via: UPSFedExCourier			Tra	Tracking #					Flow Other		Bottle	es arrive	urate: 7	NP Y N	
Relinquished by : (Signature)	D	Date: 10-25-1	IG Time	e: fius Rece	eived by: (Signat	ture)		-	Trip	Blank Rec	ceived: Ye	S (NO)	VOA Ze	To Headsp	Applicable Dace:	
telinguished by : (Signature)	- 0	Date:	Time:	Rece	eived by: (Signat	turo)					Н	ICL / MeoH	RAD Sc	reen <0.5	mR/hr:	
and	0	0-5-1	7 (2)	S au:	1	urej			Tem	ip: Asert	°C Bottle	BR s Received:				
elinquished by : (Signature)	D	Date:	Time:		ived for lab by: (	(Signature)		1000	1-8	1-0-28	2	3	in preser	vation requi	ired by Login: D	ate/Time
			and a	1º	110C	the			Date:	- 122	Time:	8:00	Hold:			

# Matt Shacklock

Pace Analytical <sup>®</sup> National Center for Testing & Innovation

Login #: L1154397 Client: PLAINSGHI	D Date: 10/26/19	Evaluated by: Jeremy
von-Conformance (check applicable items)	ems)	

Sample Integrity	Chain of Custody Clarification	
Parameter(s) past holding time	Login Clarification Needed	If Broken Container:
Temperature not in range	Chain of custody is incomplete	Insufficient packing material around container
Improper container type	Please specify Metals requested.	Insufficient packing material inside cooler
pH not in range.	Please specify TCLP requested.	Improper handling by carrier (FedEx / UPS / Courie
Insufficient sample volume.	Received additional samples not listed on coc.	Sample was frozen
Sample is biphasic.	Sample ids on containers do not match ids on coc	Container lid not intact
Vials received with headspace.	x Trip Blank not received.	If no Chain of Custody:
Broken container	Client did not "X" analysis.	Received by:
Broken container:	Chain of Custody is missing	Date/Time:
Sufficient sample remains		Temp./Cont. Rec./pH:
		Carrier:
		Tracking#

# Login Comments: Did not receive TRIP BLANK

Client informed by:	Call	Email	Voice Mail	Date: 10/28/19	Time: 1030
TSR Initials: MB	Client Conta	ct:			

Disregard this TB - reference L1154385-14, L1154391-15, & L1154393-16 for trip blank data

Notice: This communication and any attached files may contain privileged or other confidential information. If you have received this in error, please contact the sender immediately via reply email and immediately delete the message and any attachments without copying or disclosing the contents. Thank you.



# ANALYTICAL REPORT

November 26, 2019

#### Plains All American, LP - GHD

Sample Delivery Group: L1160934 Samples Received: 11/14/2019 Project Number: 074685 Description: Site: Report To:

Darr Angell #2- Lea County, New Mexico SRS#: LF 1999-62 John Schnable 2135 S Loop 250 W Midland, TX 79703

Тс Ss Cn Ϋ́r Śr Qc GI AI Sc

Entire Report Reviewed By:

Mark W. Beasley Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

ACCOUNT: Plains All American, LP - GHD PROJECT: 074685

SDG: L1160934

DATE/TIME: 11/26/19 08:18 PAGE: 1 of 16

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<sup>1</sup>Cp <sup>2</sup>Tc <sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Tr <sup>6</sup>Sr <sup>7</sup>Qc <sup>8</sup>Gl <sup>9</sup>Al <sup>10</sup>Sc

\*

ACCOUNT: Plains All American, LP - GHD PROJECT: 074685 SDG: L1160934 DATE/TIME: 11/26/19 08:18

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#### SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

			Collected by	Collected date/time	Received date/time 11/14/19 09:30	
RW-11-111219 L1160934-01 GW			Justin Nixon	11/12/19 13:00		
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Semi Volatile Organic Compounds (GC/MS) by Method 8270 C-SIM	WG1382732	1	11/18/19 18:13	11/19/19 06:18	ADF	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
RW-12-111219 L1160934-02 GW			Justin Nixon	11/12/19 13:30	11/14/19 09:3	0
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Semi Volatile Organic Compounds (GC/MS) by Method 8270 C-SIM	WG1382732	1	11/18/19 18:13	11/19/19 06:40	ADF	Mt. Juliet, TN

\*

Ср

SDG: L1160934 DATE/TIME: 11/26/19 08:18

#### CASE NARRATIVE

\*

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

h

Mark W. Beasley Project Manager

Τс Ss Cn Tr Sr Qc GI AI Śc

SDG: L1160934

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#### Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte
  - for each method and matrix.
- R10 Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Mark W. Beasley Project Manager

#### Laboratory Review Checklist: Reportable Data

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Lab	orato	ry Name: Pace Analytical National	LRC Date: 11/26/2019 08:18					
Proj Me>		lame: Darr Angell #2- Lea County, New	Laboratory Job Number: L1160934-01 and 02					
Rev	viewe	r Name: Mark W. Beasley	Prep Batch Number(s): WG1382732					
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR⁴	ER# <sup>5</sup>
R1	OI	Chain-of-custody (C-O-C)						
		Did samples meet the laboratory's standard conditions	s of sample acceptability upon receipt?	Х				
		Were all departures from standard conditions describe	d in an exception report?			Х		
R2	OI	Sample and quality control (QC) identification						
		Are all field sample ID numbers cross-referenced to the	e laboratory ID numbers?	Х				
		Are all laboratory ID numbers cross-referenced to the	corresponding QC data?	Х				
R3	OI	Test reports						
		Were all samples prepared and analyzed within holding	g times?	Х				
		Other than those results < MQL, were all other raw values	ues bracketed by calibration standards?	Х				
		Were calculations checked by a peer or supervisor?		Х				
		Were all analyte identifications checked by a peer or s	upervisor?	Х				
		Were sample detection limits reported for all analytes r	not detected?	Х				
		Were all results for soil and sediment samples reported	d on a dry weight basis?	Х				
		Were % moisture (or solids) reported for all soil and see	diment samples?			Х		
		Were bulk soils/solids samples for volatile analysis extr	racted with methanol per SW846 Method 5035?			Х		
		If required for the project, are TICs reported?				Х		
२४	0	Surrogate recovery data						
		Were surrogates added prior to extraction?		Х				
		Were surrogate percent recoveries in all samples withi	n the laboratory QC limits?	Х				
75	OI	Test reports/summary forms for blank samples						
		Were appropriate type(s) of blanks analyzed?		X				
		Were blanks analyzed at the appropriate frequency?		Х				
		Were method blanks taken through the entire analytica	al process, including preparation and, if applicable,	X				
		cleanup procedures?						<u> </u>
		Were blank concentrations < MQL?		X				
R6	OI	Laboratory control samples (LCS):		r	1	1	1	-
		Were all COCs included in the LCS?		X				<u> </u>
		Was each LCS taken through the entire analytical proc	edure, including prep and cleanup steps?	X				<u> </u>
		Were LCSs analyzed at the required frequency?		X				
		Were LCS (and LCSD, if applicable) %Rs within the labo		X			I	
		Does the detectability check sample data document th used to calculate the SDLs?	e laboratory's capability to detect the COCs at the MDL	X				
		Was the LCSD RPD within QC limits?		x				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) dat	2		I	1	I	
()		Were the project/method specified analytes included in		X	1	1	1	<u>г</u>
		Were MS/MSD analyzed at the appropriate frequency?		X				
		Were MS (and MSD, if applicable) %Rs within the laborate			Х			1
		Were MS/MSD RPDs within laboratory QC limits?		x	^			<u>+                                    </u>
78	0	Analytical duplicate data				1	1	<u> </u>
10		Were appropriate analytical duplicates analyzed for ea	ch matrix?	1	1	X	1	T
		Were analytical duplicates analyzed to real		<u> </u>	1	X		+
		Were RPDs or relative standard deviations within the la	• •			X		<del> </del>
29	OI	Method quantitation limits (MQLs):		l	I		I	
19	10	Are the MQLs for each method analyte included in the	laboratory data package?	X	1	1	1	T
		Do the MQLs correspond to the concentration of the lo		X				
		Are unadjusted MQLs and DCSs included in the labora		X				
R10	OI	Other problems/anomalies			I	1	I	L
10		Are all known problems/anomalies/special conditions r	noted in this LPC and EP2	X	1	T	1	1
		Was applicable and available technology used to lowe	r the SDL to minimize the matrix interference effects on	X		1		+
			aboratory Accreditation Program for the analytes, matrices	x	-		-	
		and methods associated with this laboratory data pack	kage?		Ļ	<u> </u>	<u> </u>	
shoul 2. O 3. NA 4. NF	ld be r = orga A = No R = Not	etained and made available upon request for the appropriate appropriate analyses; I = inorganic analyses (and general chemic applicable; etails); reviewed;			dentifie	ed by th	e letter	"S"

#### Laboratory Review Checklist: Supporting Data

1 ķ

Lab	orato	ory Name: Pace Analytical National	LRC Date: 11/26/2019 08:18								
	ject N xico	Name: Darr Angell #2- Lea County, New	Laboratory Job Number: L1160934-01 and 02								
Rev	viewe	er Name: Mark W. Beasley	Prep Batch Number(s): WG1382732								
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR <sup>4</sup>	ER#⁵			
" S1	01	Initial calibration (ICAL)		1100	1.10	1.04	1				
51		Were response factors and/or relative response factors	tors for each analyte within QC limits?	X	1	1	T	1			
		Were percent RSDs or correlation coefficient criteria	•	X							
		Was the number of standards recommended in the		X			1				
		Were all points generated between the lowest and	· · · · · · · · · · · · · · · · · · ·	X							
		Are ICAL data available for all instruments used?		X							
		Has the initial calibration curve been verified using a	an appropriate second source standard?	X			1				
52	OI	Initial and continuing calibration verification (ICCV a					I	I			
		Was the CCV analyzed at the method-required freq		X	Т	1	Т	1			
		Was the Cev analyzed at the method required neq Were percent differences for each analyte within the		X			1				
		Was the ICAL curve verified for each analyte?		X							
		Was the absolute value of the analyte concentration	in the inorganic CCB < MDL?			Х					
S3	0	Mass spectral tuning					1	· · · ·			
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Ĭ	Was the appropriate compound for the method use	d for tuning?	X	T	T	1	1			
		Was the appropriate compound for the method use		X	+		<u> </u>				
54	0	Internal standards (IS)			<u> </u>		I				
7		Were IS area counts and retention times within the	method-required OC limits?	X	1	1	1	<u> </u>			
55	OI	Raw data (NELAC Section 5.5.10)	nethod-required de ninits:	^		<u> </u>	<u> </u>				
50		Were the raw data (for example, chromatograms, sp	poetral data) roviowod by an analyst?	X	1	T	T	T			
		Were data associated with manual integrations flage						<u> </u>			
56	0	Dual column confirmation		^		1	I	<u> </u>			
50	10	Did dual column confirmation results meet the meth	ad required QC2	-	T	X	1	r			
57	0	Tentatively identified compounds (TICs)					I	I			
57		If TICs were requested, were the mass spectra and	TIC data subject to appropriate sheeks?		1	X	T	T T			
58		Interference Check Sample (ICS) results				^	L	I			
50		Were percent recoveries within method QC limits?			1	X	T	<u> </u>			
59		Serial dilutions, post digestion spikes, and method of	of standard additions				I	<u> </u>			
59		Were percent differences, recoveries, and the linear			1	X	T	T			
510	OI	Method detection limit (MDL) studies	ity within the QC limits speched in the method:		I		I	I			
310		Was a MDL study performed for each reported anal	uto2	X	1	1	T	r –			
		Is the MDL either adjusted or supported by the anal		$-\frac{x}{x}$				<u> </u>			
S11	OI	Proficiency test reports		^	I	I	I	L			
211		Was the laboratory's performance acceptable on the	a applicable proficiency tests or evaluation studies?	X	1	1	T	r –			
512	OI	Standards documentation	e applicable proficiency tests of evaluation studies:	^		1	1				
712		Are all standards used in the analyses NIST-traceab	le or obtained from other appropriate sources?	X	1	1	T	1			
S13	OI	Compound/analyte identification procedures	te of obtained nom other appropriate sources.			1	1				
515		Are the procedures for compound/analyte identification	tion documented?	X	1	T	1	1			
S14	OI	Demonstration of analyst competency (DOC)	tion documented:	^			<u> </u>				
		Was DOC conducted consistent with NELAC Chapte	or 52	X	1	1	T	<u> </u>			
		Is documentation of the analyst's competency up-to		×			-				
515	OI	Verification/validation documentation for methods (		^	1	1	1	I			
515		Are all the methods used to generate the data docu		X		T	Г	1			
S16	OI	Laboratory standard operating procedures (SOPs)	mented, vermed, and valuated, where applicable?	I ^	1	1	1	I			
טוכ			thed performed	X		1	1	<u>г</u>			
1 14.	-1 o an	Are laboratory SOPs current and on file for each me	•		l alartif	 		"C"			
shou 2. O 3. N/	ld be r = orga A = No	entified by the letter of must be included in the labora retained and made available upon request for the app anic analyses; I = inorganic analyses (and general che ot applicable; ot reviewed;		us). items		եղ որ էլ	elletter	3			

4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

SDG: L1160934

#### Laboratory Review Checklist: Exception Reports ONE LAB. NATIONWIDE.

Laborato	ry Name: Pace Analytical National	LRC Date: 11/26/2019 08:18					
Project N Mexico	lame: Darr Angell #2- Lea County, New	Laboratory Job Number: L1160934-01 and 02					
Reviewe	r Name: Mark W. Beasley	Prep Batch Number(s): WG1382732					
ER # <sup>1</sup>	Description						
1	8270 C-SIM WG1382732 Naphthalene: Percent Recovery is outside of established control limits.						

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; 1 = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

#### SAMPLE RESULTS - 01 L1160934

#### Semi Volatile Organic Compounds (GC/MS) by Method 8270 C-SIM

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l	mg/l	mg/l		date / time	
Anthracene	0.00112		0.00000800	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Acenaphthene	U		0.0000100	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Acenaphthylene	U		0.00000700	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Benzo(a)anthracene	0.000318		0.0000830	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Benzo(a)pyrene	0.0000296	J	0.0000158	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Benzo(b)fluoranthene	0.0000490	J	0.00000212	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Benzo(g,h,i)perylene	0.0000273	J	0.00000227	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Benzo(k)fluoranthene	U		0.0000255	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Chrysene	0.000157		0.0000144	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Dibenz(a,h)anthracene	U		0.00000454	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Dibenzofuran	0.00159		0.00000105	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Fluoranthene	0.000153		0.0000165	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Fluorene	0.00192		0.0000898	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Indeno(1,2,3-cd)pyrene	U		0.00000739	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Naphthalene	0.00242		0.0000120	0.000250	0.000250	1	11/19/2019 06:18	WG1382732
Phenanthrene	0.00325		0.0000184	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
Pyrene	0.000402		0.0000155	0.0000500	0.0000500	1	11/19/2019 06:18	WG1382732
1-Methylnaphthalene	0.00511		0.0000189	0.000250	0.000250	1	11/19/2019 06:18	WG1382732
2-Methylnaphthalene	0.00334		0.0000155	0.000250	0.000250	1	11/19/2019 06:18	WG1382732
2-Chloronaphthalene	U		0.0000165	0.000250	0.000250	1	11/19/2019 06:18	WG1382732
(S) Nitrobenzene-d5	103				11.0-135		11/19/2019 06:18	WG1382732
(S) 2-Fluorobiphenyl	88.5				32.0-120		11/19/2019 06:18	WG1382732
(S) p-Terphenyl-d14	94.5				23.0-122		11/19/2019 06:18	WG1382732
(S) 2-Methylnaphthalene-D10	83.0				50.0-150		11/19/2019 06:18	WG1382732
(S) Fluoranthene-D10	103				50.0-150		11/19/2019 06:18	WG1382732

SDG: L1160934

#### SAMPLE RESULTS - 02 L1160934

#### Semi Volatile Organic Compounds (GC/MS) by Method 8270 C-SIM

	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l	mg/l	mg/l		date / time	
Anthracene	0.0000849		0.00000800	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Acenaphthene	U		0.0000100	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Acenaphthylene	U		0.00000700	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Benzo(a)anthracene	U		0.0000830	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Benzo(a)pyrene	U		0.0000158	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Benzo(b)fluoranthene	U		0.00000212	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Benzo(g,h,i)perylene	U		0.00000227	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Benzo(k)fluoranthene	U		0.0000255	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Chrysene	U		0.0000144	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Dibenz(a,h)anthracene	U		0.00000454	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Dibenzofuran	0.00125		0.00000105	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Fluoranthene	U		0.0000165	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Fluorene	0.000319		0.0000898	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Indeno(1,2,3-cd)pyrene	U		0.00000739	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Naphthalene	0.0104		0.0000120	0.000250	0.000250	1	11/19/2019 06:40	WG1382732
Phenanthrene	0.000714		0.0000184	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
Pyrene	U		0.0000155	0.0000500	0.0000500	1	11/19/2019 06:40	WG1382732
1-Methylnaphthalene	0.00597		0.0000189	0.000250	0.000250	1	11/19/2019 06:40	WG1382732
2-Methylnaphthalene	0.00660		0.0000155	0.000250	0.000250	1	11/19/2019 06:40	WG1382732
2-Chloronaphthalene	U		0.0000165	0.000250	0.000250	1	11/19/2019 06:40	WG1382732
(S) Nitrobenzene-d5	134				11.0-135		11/19/2019 06:40	WG1382732
(S) 2-Fluorobiphenyl	80.5				32.0-120		11/19/2019 06:40	WG1382732
(S) p-Terphenyl-d14	91.5				23.0-122		11/19/2019 06:40	WG1382732
(S) 2-Methylnaphthalene-D10	112				50.0-150		11/19/2019 06:40	WG1382732
(S) Fluoranthene-D10	106				50.0-150		11/19/2019 06:40	WG1382732

L1160934-01,02

#### Method Blank (MB)

(MB) R3473468-2 11/19/19	00:22				Ср
	MB Result	MB Qualifier	MB MDL	MB RDL	
Analyte	mg/l		mg/l	mg/l	Tc
Anthracene	U		0.00000800	0.0000500	
Acenaphthene	U		0.0000100	0.0000500	<sup>3</sup> Ss
Acenaphthylene	U		0.00000700	0.0000500	00
Benzo(a)anthracene	U		0.00000830	0.0000500	4
Benzo(a)pyrene	U		0.0000158	0.0000500	Cn
Benzo(b)fluoranthene	U		0.00000212	0.0000500	
Benzo(g,h,i)perylene	U		0.00000227	0.0000500	⁵Tr
Benzo(k)fluoranthene	U		0.0000255	0.0000500	
Chrysene	U		0.0000144	0.0000500	6
Dibenz(a,h)anthracene	U		0.00000454	0.0000500	ँSr
Fluoranthene	U		0.0000165	0.0000500	
Fluorene	U		0.00000898	0.0000500	<sup>7</sup> Qc
Indeno(1,2,3-cd)pyrene	U		0.00000739	0.0000500	~~~
Naphthalene	0.0000325	J	0.0000120	0.000250	8
Phenanthrene	U		0.0000184	0.0000500	Ğ
Pyrene	U		0.0000155	0.0000500	
1-Methylnaphthalene	U		0.0000189	0.000250	<sup>9</sup> Al
2-Methylnaphthalene	0.0000161	J	0.0000155	0.000250	2 M
2-Chloronaphthalene	U		0.0000165	0.000250	10
Dibenzofuran	0.00000195		0.00000105	0.0000500	Sc
(S) Nitrobenzene-d5	102			11.0-135	
(S) 2-Methylnaphthalene-d10	83.5			50.0-150	
(S) 2-Fluorobiphenyl	80.5			32.0-120	
(S) Fluoranthene-d10	106			50.0-150	
(S) p-Terphenyl-d14	95.5			23.0-122	

#### Laboratory Control Sample (LCS)

(LCS) R3473468-1 11/19/	/19 00:01				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Anthracene	0.00200	0.00196	98.0	43.0-127	
Acenaphthene	0.00200	0.00169	84.5	42.0-120	
Acenaphthylene	0.00200	0.00172	86.0	43.0-120	
Benzo(a)anthracene	0.00200	0.00192	96.0	46.0-120	
Benzo(a)pyrene	0.00200	0.00195	97.5	44.0-122	
Benzo(b)fluoranthene	0.00200	0.00175	87.5	43.0-122	
Benzo(g,h,i)perylene	0.00200	0.00160	80.0	25.0-137	
Benzo(k)fluoranthene	0.00200	0.00199	99.5	39.0-128	

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LCS Qualifier

L1160934-01,02

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#### Laboratory Control Sample (LCS)

#### (LCS) R3473468-1 11/19/19 00:01

(200) 10 17 0 100 1 17 10 10				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits
Analyte	mg/l	mg/l	%	%
Chrysene	0.00200	0.00189	94.5	42.0-129
Dibenz(a,h)anthracene	0.00200	0.00167	83.5	25.0-139
Fluoranthene	0.00200	0.00199	99.5	48.0-131
Fluorene	0.00200	0.00182	91.0	42.0-120
Indeno(1,2,3-cd)pyrene	0.00200	0.00168	84.0	37.0-133
Naphthalene	0.00200	0.00155	77.5	30.0-120
Phenanthrene	0.00200	0.00181	90.5	42.0-120
Pyrene	0.00200	0.00173	86.5	38.0-124
1-Methylnaphthalene	0.00200	0.00162	81.0	43.0-120
2-Methylnaphthalene	0.00200	0.00156	78.0	40.0-120
2-Chloronaphthalene	0.00200	0.00163	81.5	39.0-120
Dibenzofuran	0.00200	0.00174	87.0	70.0-130
(S) Nitrobenzene-d5			113	11.0-135
(S) 2-Methylnaphthalene-d10			87.5	50.0-150
(S) 2-Fluorobiphenyl			85.5	32.0-120
(S) Fluoranthene-d10			108	50.0-150
(S) p-Terphenyl-d14			98.0	23.0-122

Semi Volatile Organic Compounds (GC/MS) by Method 8270 C-SIM

#### L1160934-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Anthracene	0.00200	0.0000849	0.00207	0.00204	99.3	97.8	1	28.0-120			1.46	25
Acenaphthene	0.00200	U	0.00187	0.00186	93.5	93.0	1	16.0-120			0.536	25
Acenaphthylene	0.00200	U	0.00177	0.00176	88.5	88.0	1	16.0-121			0.567	26
Benzo(a)anthracene	0.00200	U	0.00184	0.00181	92.0	90.5	1	19.0-125			1.64	26
Benzo(a)pyrene	0.00200	U	0.00111	0.00121	55.5	60.5	1	10.0-126			8.62	32
Benzo(b)fluoranthene	0.00200	U	0.00106	0.00110	53.0	55.0	1	10.0-125			3.70	36
Benzo(g,h,i)perylene	0.00200	U	0.000279	0.000291	13.9	14.5	1	10.0-128			4.21	37
Benzo(k)fluoranthene	0.00200	U	0.00116	0.00130	58.0	65.0	1	10.0-124			11.4	32
Chrysene	0.00200	U	0.00173	0.00172	86.5	86.0	1	18.0-127			0.580	26
Dibenz(a,h)anthracene	0.00200	U	0.000270	0.000250	13.5	12.5	1	10.0-132			7.69	43
Fluoranthene	0.00200	U	0.00203	0.00199	102	99.5	1	37.0-122			1.99	23
Fluorene	0.00200	0.000319	0.00218	0.00217	93.0	92.5	1	20.0-120			0.460	26
Indeno(1,2,3-cd)pyrene	0.00200	U	0.000341	0.000369	17.0	18.4	1	10.0-130			7.89	38
Naphthalene	0.00200	0.0104	0.0107	0.0106	15.0	10.0	1	14.0-120		V	0.939	20
Phenanthrene	0.00200	0.000714	0.00254	0.00255	91.3	91.8	1	26.0-120			0.393	24
Pyrene	0.00200	U	0.00182	0.00175	91.0	87.5	1	29.0-120			3.92	24

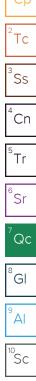
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#### L1160934-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1160934-02 11/19/19 0	6:40 • (MS) R3	3473468-3 11/1	9/19 07:01 • (M	SD) R3473468-	4 11/19/19 07:2	2						
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
1-Methylnaphthalene	0.00200	0.00597	0.00698	0.00687	50.5	45.0	1	10.0-145			1.59	24
2-Methylnaphthalene	0.00200	0.00660	0.00750	0.00737	45.0	38.5	1	10.0-143			1.75	24
2-Chloronaphthalene	0.00200	U	0.00158	0.00158	79.0	79.0	1	16.0-120			0.000	25
(S) Nitrobenzene-d5					118	115		11.0-135				
(S) 2-Methylnaphthalene-d10					96.5	93.0		50.0-150				
(S) 2-Fluorobiphenyl					83.0	82.5		32.0-120				
(S) Fluoranthene-d10					112	111		50.0-150				
(S) p-Terphenyl-d14					92.0	90.5		23.0-122				



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#### GLOSSARY OF TERMS

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#### Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

#### Abbreviations and Definitions

MDL	Method Detection Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
	The identification of the analyte is acceptable: the reported value is an estimate

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.

#### **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

Alabama	40660	Nebraska
Alaska	17-026	Nevada
Arizona	AZ0612	New Hampshire
Arkansas	88-0469	New Jersey–NELAF
California	2932	New Mexico <sup>1</sup>
Colorado	TN00003	New York
Connecticut	PH-0197	North Carolina
Florida	E87487	North Carolina <sup>1</sup>
Georgia	NELAP	North Carolina <sup>3</sup>
Georgia <sup>1</sup>	923	North Dakota
Idaho	TN00003	Ohio-VAP
Illinois	200008	Oklahoma
Indiana	C-TN-01	Oregon
lowa	364	Pennsylvania
Kansas	E-10277	Rhode Island
Kentucky <sup>16</sup>	90010	South Carolina
Kentucky <sup>2</sup>	16	South Dakota
Louisiana	Al30792	Tennessee <sup>1 4</sup>
Louisiana 1	LA180010	Texas
Maine	TN0002	Texas ⁵
Maryland	324	Utah
Massachusetts	M-TN003	Vermont
Michigan	9958	Virginia
Minnesota	047-999-395	Washington
Mississippi	TN00003	West Virginia
Missouri	340	Wisconsin
Montana	CERT0086	Wyoming
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lebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 5	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

#### **Our Locations**

Plains All American, LP - GHD

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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Plains All American, LP - GHD 2135 S Loop 250 W		Billing Information: Accounts Payable 505 N. Big Spring, Ste. 600 Midland, TX 79701			T		Analysis / Container / Preservative Chai					hain of Custod	Page of					
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			Christopher.Kn nable@ghd.com										N	2065 Lebanon Rd Iount Juliet, TN 3	122			
				City/State Collected:				ΝT							P	Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859		
Phone: <b>432-686-0086</b> Fax:	Client Project 074685	#		Lab Project # PLAINSGH			1000-00 1000-00	40mlAmb-NoPres-WT							-	L# L11 60434 H033		
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Relinquished by : (Signature) Date:		Т	ſime:	Received for lab by:	(Signat	ature)			Date: Time: Time: 1430				Hold:			Condition: NCF / OK		



# ANALYTICAL REPORT

November 20, 2019

#### Plains All American, LP - GHD

Entire Report Reviewed By:

Sample Delivery Group: L1161076 Samples Received: 11/15/2019 Project Number: 074685 Description: Darr Angell #2- Lea County, New Mexico SRS#: LF 1999-62 Site: Report To: John Schnable 2135 S Loop 250 W Midland, TX 79703

Mark W. Beasley Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

ACCOUNT: Plains All American, LP - GHD

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SDG: L1161076

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	Tr: TRRP Summary	5				
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	Sr: Sample Results	9				
	PUMP OFF L1161076-01	9				
	PUMP ON L1161076-02	10				
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	Volatile Organic Compounds (MS) by Method M18-Mod	11				
	GI: Glossary of Terms	12				
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	14					

<sup>1</sup> Cp <sup>2</sup> Tc <sup>3</sup> Ss <sup>4</sup> Cn <sup>5</sup> Tr <sup>6</sup> Sr <sup>7</sup> Qc <sup>8</sup> GI <sup>9</sup> AI <sup>10</sup> Sc

\*

SDG: L1161076 DATE/TIME: 11/20/19 16:02

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

PUMP OFF L1161076-01 Air			Collected by Heath Boyd	Collected date/time 11/12/19 14:00	Received da 11/15/19 08:3	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method M18-Mod	WG1381132	2000	11/15/19 22:54	11/15/19 22:54	CAW	Mt. Juliet, TN
			Collected by	Collected date/time	Received da	te/time
PUMP ON L1161076-02 Air			Heath Boyd	11/12/19 14:30	11/15/19 08:3	0
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Volatile Organic Compounds (MS) by Method M18-Mod	WG1381132	2000	11/15/19 23:44	11/15/19 23:44	CAW	Mt. Juliet, TN

<sup>10</sup>Sc

\*

Ср

SDG: L1161076 DATE/TIME: 11/20/19 16:02

PAGE:

3 of 14

## CASE NARRATIVE

\*

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

h

Mark W. Beasley Project Manager

Τс Ss Cn Tr Sr Qc GI AI Śc

SDG: L1161076 DATE/TIME: 11/20/19 16:02 PAGE: 4 of 14

# Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a. Items consistent with NELAC Chapter 5,
  - b. dilution factors,
  - c. preparation methods,
  - d. cleanup methods, and
  - e. if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a. Calculated recovery (%R), and
  - b. The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a. LCS spiking amounts,
  - b. Calculated %R for each analyte, and
  - c. The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a. Samples associated with the MS/MSD clearly identified,
  - b. MS/MSD spiking amounts,
  - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d. Calculated %Rs and relative percent differences (RPDs), and
  - e. The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a. The amount of analyte measured in the duplicate,
  - b. The calculated RPD, and
  - c. The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte
  - for each method and matrix.
- R10 Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Mark W. Beasley Project Manager

# Laboratory Review Checklist: Reportable Data

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Lab	orato	ry Name: Pace Analytical National	LRC Date: 11/20/2019 16:02					
Project Name: Darr Angell #2- Lea County, New Mexico			Laboratory Job Number: L1161076-01 and 02					
Rev	viewe	r Name: Mark W. Beasley	Prep Batch Number(s): WG1381132					
# <sup>1</sup>	A <sup>2</sup>	Description		Yes	No	NA <sup>3</sup>	NR⁴	ER# <sup>5</sup>
R1	OI	Chain-of-custody (C-O-C)						
		Did samples meet the laboratory's standard conditions	of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described	d in an exception report?			Х		
۲2	OI	Sample and quality control (QC) identification						
		Are all field sample ID numbers cross-referenced to the	e laboratory ID numbers?	Х				
		Are all laboratory ID numbers cross-referenced to the c	orresponding QC data?	X				
23	OI	Test reports			•			
		Were all samples prepared and analyzed within holding	g times?	X				
		Other than those results < MQL, were all other raw value		Х				
		Were calculations checked by a peer or supervisor?		X				
		Were all analyte identifications checked by a peer or su	ipervisor?	X				
		Were sample detection limits reported for all analytes r	•	X				
		Were all results for soil and sediment samples reported		X				
		Were % moisture (or solids) reported for all soil and sec			<u> </u>	X	<u> </u>	<u> </u>
		Were bulk soils/solids samples for volatile analysis extr				X		
			acted with methanol per SW846 Method 5055!			X	l	
24		If required for the project, are TICs reported?					I	I
24	0	Surrogate recovery data			1	1	r –	1
		Were surrogates added prior to extraction?	- the lab and a CO line it - 2	X				
25		Were surrogate percent recoveries in all samples within	n the laboratory QC limits?	X		I	I	
25	OI	Test reports/summary forms for blank samples			1	1	1	1
		Were appropriate type(s) of blanks analyzed?		X				
		Were blanks analyzed at the appropriate frequency?		X				
		Were method blanks taken through the entire analytica	I process, including preparation and, if applicable,	X				
		cleanup procedures? Were blank concentrations < MQL?		x				
	01					L	I	I
76		Laboratory control samples (LCS):			1	1	r –	1
		Were all COCs included in the LCS?	adura including area and classic stand?	X				
		Was each LCS taken through the entire analytical proce	edure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?		X				
		Were LCS (and LCSD, if applicable) %Rs within the labo		X				
		Does the detectability check sample data document the used to calculate the SDLs?	e laboratory's capability to detect the COCs at the MDL	X				
		Was the LCSD RPD within QC limits?		X				
27	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data			I	1	I	I
()		Were the project/method specified analytes included in		<u> </u>	1	X	1	1
		Were MS/MSD analyzed at the appropriate frequency?				X		
		, , , , ,	to a c C limite?			X		
		Were MS (and MSD, if applicable) %Rs within the labora Were MS/MSD RPDs within laboratory QC limits?				X		
0					1		I	
8	OI	Analytical duplicate data	ale martela 2	1	1		1	r –
		Were appropriate analytical duplicates analyzed for each				X		
		Were analytical duplicates analyzed at the appropriate				X		
		Were RPDs or relative standard deviations within the la	boratory QC limits?			Х		
89	OI	Method quantitation limits (MQLs):			1		1	-
		Are the MQLs for each method analyte included in the		X				
		Do the MQLs correspond to the concentration of the lo		X				
		Are unadjusted MQLs and DCSs included in the laborat	tory data package?	X				
210	OI	Other problems/anomalies		-			-	
		Are all known problems/anomalies/special conditions n		X	<u> </u>		<u> </u>	┝──
		Was applicable and available technology used to lower the sample results?	the SDL to minimize the matrix interference effects on	X		1		
			boratory Accreditation Program for the analytes, matrices	x				
shou 2. O 3. N/ 4. NI	ld be r = orga A = No R = No	ntified by the letter "R" must be included in the laborator etained and made available upon request for the approp nic analyses; I = inorganic analyses (and general chemis applicable; reviewed;	y data package submitted in the TRRP-required report(s). riate retention period.		<b>I</b> dentifie	L ed by th	L e letter	"S"

# Laboratory Review Checklist: Supporting Data

1 ķ

161076-01 and 02 381132 nits?										
			Laboratory Job Number: L1161076-01 and 02							
nits?										
nits?	Yes	No	NA <sup>3</sup>	NR⁴	ER# <sup>5</sup>					
nits?										
	X				Γ					
	X									
	X									
the curve?	X									
	X									
ndard?	X									
n blank (CCB):	-				-					
	Х	Т	1	T	Т					
	X	1		1	<u> </u>					
	X	1	1	1	1					
		1	X	<u> </u>	+					
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	X	T	1	1	T					
	X									
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	X	1	1	T	T					
	^		I	I						
-42		1	1	1	T					
st?	X									
	X		1	I						
		T		T	T					
			X							
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ecks?			Х							
				-	1					
			Х							
		-	1	-	<u> </u>					
n the method?			Х							
		-		T	1					
	X									
	X									
			-							
valuation studies?	X									
			-		-					
iate sources?	X									
		-	-							
	Х									
				_						
	X									
	Х									
horo applicable?	Х									
mere applicable:										
	X									
	where applicable?	where applicable? X	where applicable? X	where applicable? X	where applicable?					

4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

SDG: L1161076

#### Laboratory Review Checklist: Exception Reports ONE LAB. NATIONWIDE.

	ory Name: Pace Analytical National Name: Darr Angell #2- Lea County, New	Laboratory Job Number: L1161076-01 and 02	
Mexico		·	
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1381132	
ER # <sup>1</sup>	Description		

The Exception Report intentionally left blank, there are no exceptions applied to this SDG.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

a. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
NA = Not applicable;
NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

# SAMPLE RESULTS - 01

# \*

Ср

Тс

Ss

Cn

Ϋ́r

Qc

GI

ΆI

Sc

## Volatile Organic Compounds (MS) by Method M18-Mod

-									
	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
Analyte			ppbv	ug/m3	ppbv	ug/m3			
Benzene	71-43-2	78.10	400	1280	19500	62300		2000	WG1381132
Toluene	108-88-3	92.10	400	1510	14100	53100		2000	WG1381132
Ethylbenzene	100-41-4	106	400	1730	2190	9490		2000	WG1381132
m&p-Xylene	1330-20-7	106	800	3470	7210	31300		2000	WG1381132
o-Xylene	95-47-6	106	400	1730	2240	9710		2000	WG1381132
Methyl tert-butyl ether	1634-04-4	88.10	400	1440	ND	ND		2000	WG1381132
TPH (GC/MS) Low Fraction	8006-61-9	101	100000	413000	4150000	17100000		2000	WG1381132
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		99.0				WG1381132

# SAMPLE RESULTS - 02

# \*

Ср

Тс

Ss

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Qc

GI

ΆI

Sc

## Volatile Organic Compounds (MS) by Method M18-Mod

-										
	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch	
Analyte			ppbv	ug/m3	ppbv	ug/m3				
Benzene	71-43-2	78.10	400	1280	21600	69000		2000	WG1381132	
Toluene	108-88-3	92.10	400	1510	15200	57300		2000	WG1381132	
Ethylbenzene	100-41-4	106	400	1730	2340	10100		2000	WG1381132	
m&p-Xylene	1330-20-7	106	800	3470	7120	30900		2000	WG1381132	
o-Xylene	95-47-6	106	400	1730	2170	9410		2000	WG1381132	
Methyl tert-butyl ether	1634-04-4	88.10	400	1440	ND	ND		2000	WG1381132	
TPH (GC/MS) Low Fraction	8006-61-9	101	100000	413000	4330000	17900000		2000	WG1381132	
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		99.2				WG1381132	

Volatile Organic Compounds (MS) by Method M18-Mod

# QUALITY CONTROL SUMMARY

#### Method Blank (MB)

MB) R3472424-3 11/15/19 11:23								
	MB Result	MB Qualifier	MB MDL	MB RDL				
Analyte	ppbv		ppbv	ppbv				
Benzene	U		0.0460	0.200				
Ethylbenzene	U		0.0506	0.200				
MTBE	U		0.0505	0.200				
Toluene	U		0.0499	0.200				
m&p-Xylene	U		0.0946	0.400				
o-Xylene	U		0.0633	0.200				
TPH (GC/MS) Low Fraction	21.3	J	6.91	50.0				
(S) 1,4-Bromofluorobenzene	95.9			60.0-140				

### Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3472424-1 11/15/19 09:40 • (LCSD) R3472424-2 11/15/19 10:32										
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	ppbv	ppbv	ppbv	%	%	%			%	%
MTBE	3.75	3.73	3.81	99.5	102	70.0-130			2.12	25
Benzene	3.75	3.73	3.73	99.5	99.5	70.0-130			0.000	25
Toluene	3.75	3.78	3.86	101	103	70.0-130			2.09	25
Ethylbenzene	3.75	3.77	3.88	101	103	70.0-130			2.88	25
m&p-Xylene	7.50	7.78	7.78	104	104	70.0-130			0.000	25
o-Xylene	3.75	3.89	3.93	104	105	70.0-130			1.02	25
TPH (GC/MS) Low Fraction	203	221	227	109	112	70.0-130			2.68	25
(S) 1,4-Bromofluorobenzene				101	101	60.0-140				

SDG: L1161076 DATE/TIME: 11/20/19 16:02

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# GLOSSARY OF TERMS

# ₩

Ср

Τс

Ss

Cn

Tr

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Qc

GI

AI

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#### Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

#### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description

J

The identification of the analyte is acceptable; the reported value is an estimate.

SDG: L1161076

# **ACCREDITATIONS & LOCATIONS**

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

#### State Accreditations

40660	Nebraska
17-026	Nevada
AZ0612	New Hampshire
88-0469	New Jersey-NELA
2932	New Mexico 1
TN00003	New York
PH-0197	North Carolina
E87487	North Carolina <sup>1</sup>
NELAP	North Carolina <sup>3</sup>
923	North Dakota
TN00003	Ohio-VAP
200008	Oklahoma
C-TN-01	Oregon
364	Pennsylvania
E-10277	Rhode Island
90010	South Carolina
16	South Dakota
AI30792	Tennessee 14
LA180010	Texas
TN0002	Texas ⁵
324	Utah
M-TN003	Vermont
9958	Virginia
047-999-395	Washington
TN00003	West Virginia
340	Wisconsin
	Wyoming
	17-026         AZ0612         88-0469         2932         TN00003         PH-0197         E87487         NELAP         923         TN00003         200008         C-TN-01         364         E-10277         90010         16         AI30792         LA180010         TN0002         324         M-TN003         9958         047-999-395         TN00003

lebraska	NE-OS-15-05
Vevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T104704245-18-15
Texas ⁵	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

#### Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

#### **Our Locations**

Plains All American, LP - GHD

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



074685

L1161076

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11/20/19 16:02

			Billing Information:				Analvsis / Container / Preservative									Chain of Custody	Page	_ of
Plains All American, LP - GHD 2135 S Loop 250 W Midland, TX 79703			Accounts Payable 505 N. Big Spring, Ste. 600 Midland, TX 79701			Pres			80							2	Apple tipels	
																National C	Analytical <sup>®</sup> Jenter for Testing & Innovation	
			Atta: Camille Bryant													1		
Report to: Email To:				John.Schnable@g		epo									12065 Lebanon Rd	<b>a</b>	an l	
				er.Knight@ghd.co	yank		aal	2.Co	m				1.00		Mount Juliet, TN 3712 Phone: 615-758-5858			
Project Description: Darr Angell #2- Lea	County, Ne	City/State Collected:			Please Ci	rcle:										Phone: 800-767-58 Fax: 615-758-5859		圖
Phone: <b>432-686-0086</b> Fax:	Client Project # 074685			Lab Project # PLAINSGHD			22	610							SDG # 116 076			
Collected by (print): Heath Boyd	Site/Facility ID # SRS#: LF 1999-62			P.O. #				7 801,	99 802						Acctnum: PLAINSGHD			
Collected by (signature):	Rush? (L	Rush? (Lab MUST Be Notified)			Quote #									1		Template: <b>T140281</b>		
	Same Day Five Day			112	12	Tedlar	V	Vi						Prelogin: <b>P740764</b>				
Immediately Next Da Two Day Packed on Ice N X Y Three D		10 Da	r (Rad Only) ay (Rad Only)	Date Results Needed		No. of	LOOM	H	X							PM: 134 - Mark W. Beasley PB:		y
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	M18-MOD	TW	BI							Shipped Via: Remarks	Sample # (	lab only)
Pump Off Pump On	Grab Grab	Air		11-12-19	7 1400	1	1	X	X				2		1992			51
Pump On	Grah	Air		11-12-10	7 1430	6	1	x	X									or
		Air				14												
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				alter son alter														
						1						1						
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay	Remarks: Re	ag est	to SU	Concentrations						рН _	-94-1 2 (6	Temp		Sample Receipt Checklist COC Seal Present/Intact: ANP _Y COC Signed/Accurate:				Y N Y N
WW - WasteWater						1.10			Flow_		Other			Bottles arrive intact: Correct bottles used:			YN	
DW - Drinking Water OT - Other	Samples return UPSFee	ned via: dExCou	rier	Tracking #										Suffi	icient	volume sent: <u>If Applicat</u> eadspace:		Y N
Alten Schmable		11-14-19 14		rime: R 14:45	4:45 Latte		C	1	-	Trip Blank	Receive	Received: Yes / No HCL / MeoH TBR		Prese	ervatio	<pre>con Correct/Ch &lt;0.5 mR/hr:</pre>		
		Date: Ti		Time: R						HAB	°C Bottles Received:		If pres	servation	n required by Lo	d by Login: Date/Time		
Relinquished by : (Signature)		Date: Ti		Time:	eceived for lab b	ture)	>	Date: /S-/9 (SS-)			Hold:			Condit NCF /				



# about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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