



# Annual Report of Groundwater Monitoring and Remediation in 2019

Darr Angell #1, SRS Darr Angell #1  
NW/4, SE/4 of Section 11, T15S, R37E  
Lea County, New Mexico  
NMOCD AP-007

Plains All American Pipeline, L.P.





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## 1. Introduction

This *Annual Report of Groundwater Monitoring and Remediation in 2019* is being submitted on behalf of Plains All American Pipeline, L.P. (Plains) by GHD Services Inc. (GHD) 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. The Site falls under NMOCD Abatement Plan number AP-007. This report describes results of groundwater monitoring conducted in February, May, July, and October 2019. Also included are periodic remedial activities completed at the Darr Angell No.1 location (Site) in 2019. The Site is located in Lea County, New Mexico. Latitude and longitude of the Site are 33.026600°N and 103.166600°W. A Site Location Map is provided as Figure 1. A map of details of the Site is shown in Figure 2.

### 1.1 Site History

The Site was formerly the responsibility of Enron Oil Trading and Transportation (EOTT) and 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 New Mexico Oil Conservation Division (NMOCD) on May 1, 1997. According to the release report, approximately 25 barrels of crude oil were released and 15 barrels were recovered during initial response actions. The release was reported to have occurred from an 8-inch EOTT pipeline and was attributed to internal corrosion.

Beginning on May 29, 2004, project management responsibilities were conducted by Nova Training and Environmental. Monitor wells MW-1 through MW-20 and recovery wells RW-1 through RW-10 were installed at the Site between 2000 and 2011.

GHD took over monitoring, remedial activities, and project management on May 2, 2011. A trailer-mounted mobile dual-phase extraction unit was installed and began operating at the Site in October 2012. The system included four AP4 bottom loading pumps, a vapor-liquid separator, an air compressor, a vacuum extraction manifold, and an above-ground tank for storage of extracted LNAPL and groundwater.

Monitoring wells MW-17, MW-19, and MW-20 were plugged and abandoned with NMOCD approval in October 2014. Replacement monitoring wells MW-17R, MW-19R, and MW-20R, and recovery wells RW-13 and RW-14 were drilled and constructed with NMOCD approval in October 2014. Wells installed in 2014 were professionally surveyed on November 11, 2014.

Monitoring wells MW-12, MW-15, MW-16 and MW-18 were plugged and abandoned with NMOCD approval in February 2017. Monitoring and recovery wells MW-12R, MW-16R, MW-18R, MW-22, MW-23, and RW-12 were installed with NMOCD approval in February 2017. Wells installed in 2017 were professionally surveyed on June 28, 2017.

## 2. Regulatory Framework

The Site was assigned an Abatement Plan number AP-007 by the NMOCD, whose regulations require groundwater to be analyzed for potential contaminants as defined by New Mexico





Administrative Code (NMAC) 20.6.2.3103 Section A. This regulation provides the Human Health Standards and toxic pollutant standards for groundwater. They are listed for each chemical of concern in Table 2.1. These standards are used to guide assessment and remediation at the Site.

Table 2.1 NMWQCC Human Health and Toxic Pollutant Standards

Analyte	NMWQCC Human Health and 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 mg/L

Table 2.2 is the sampling schedule approved by the NMOCD in correspondence dated April 28, 2004 and amended in NMOCD correspondences dated June 20, 2005 and April 11, 2006.

Table 2.2 NMOCD-Approved Sampling Schedule

Location	Schedule	Location	Schedule	Location	Schedule
MW-1	Quarterly	MW-12	Plugged/Abandoned	RW-1	Quarterly
MW-2	Quarterly	MW-13	Quarterly	RW-2	Quarterly
MW-3	Quarterly	MW-14	Quarterly	RW-3	Quarterly
MW-4	Annually	MW-15	Plugged/Abandoned	RW-4	Quarterly
MW-5	Quarterly	MW-16	Plugged/Abandoned	RW-5	Quarterly
MW-6	Quarterly	MW-17	Plugged/Abandoned	RW-6	Quarterly
MW-7	Semi-Annually	MW-18	Plugged/Abandoned	RW-7	Quarterly
MW-8	Quarterly	MW-19	Plugged/Abandoned	RW-8	Quarterly
MW-9	Quarterly	MW-20	Plugged/Abandoned	RW-9	Quarterly
MW-10	Quarterly	MW-21	Quarterly	RW-10	Quarterly
MW-11	Annually			RW-11	Quarterly

Monitoring and recovery wells MW-12R, MW-16R, MW-17R, MW-18R, MW-19R, MW-20R, MW-22, MW-23, and RW-12 are being sampled on a quarterly basis to establish consistent historical data regarding dissolved phase COCs and LNAPL thicknesses. These wells will be added to the approved Site sample schedule subsequent to approval by the NMOCD. A letter to the NMOCD requesting groundwater monitoring activity changes was submitted along with the 2016 Annual Groundwater Monitoring Report in April 2017.



### 3. Groundwater Monitoring

GHD conducted quarterly groundwater monitoring on February 25-27, May 20-22, July 23-24, and October 21-24, 2019. Wells containing measureable amounts of LNAPL (>0.01 feet) were not sampled.

#### 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. Wells not containing LNAPL were purged of three casing volumes of groundwater. Samples of groundwater were collected using clean, disposable polyvinyl chloride (PVC) bailers. Duplicate samples of groundwater were collected from the tenth well and last well to be sampled. Laboratory-supplied sample containers were filled directly from bailers. 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 55.6 gallons, 94.5 gallons, 64.8 gallons, and 80.8 gallons. The total volume of groundwater purged from wells during monitoring events in 2019 was 296 gallons.

#### 3.2 Potentiometric Surface and Gradient

All fluid level measurements were from tops of casings which were professionally surveyed. Elevations of the potentiometric surface were calculated using a specific gravity of 0.81 of LNAPL, where it is present. Fluid level measurements made by GHD during the quarterly groundwater monitoring events in 2018 and 2019 are presented in Table 1. Maps of the potentiometric surface in February, May, July, and October are provided as Figures 3, Figure 4, Figure 5, and Figure 6, respectively. The bottoms of LNAPL columns in MW-1, MW-9, MW-10, RW-3, RW-4, RW-5, RW-6, RW-7, RW-8, and RW-10 were below the bottoms of well casings during at least one quarterly monitoring event; so elevations of the potentiometric surface could not be calculated on those occasions.

The groundwater flow is toward the southeast and is consistent with previous quarterly monitoring events. Gradients of the potentiometric surface during the first, second, third, and fourth quarterly monitoring events were 0.0018 ft./ft., 0.0016 ft./ft., 0.0017 ft./ft., and 0.0016 ft./ft., respectively. These gradients are also consistent with gradients during previous years. Elevations of the potentiometric surface fell between November 27, 2018 and October 21, 2019 in all wells in which fluid measurements could be made accurately. The maximum decline was 0.99 feet. The smallest decline was 0.44 foot. The average decline was 0.68 foot.

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

LNAPL was observed in MW-1, MW-5, MW-8, MW-9, MW-10, MW-23, RW-3, RW-4, RW-5, RW-6, RW-7, RW-8, RW-9, RW-10, RW-11, RW-13, and RW-14 throughout 2019. The bottoms of LNAPL



columns in MW-1, MW-9, M-10, RW-3, RW-4, RW-5, RW-6, RW-7, RW-8, and RW-10 were below the bottoms of well casings during at least one quarterly monitoring event of 2019.

Charts showing thicknesses of LNAPL in all wells that have had significant impact by LNAPL are in Appendix A. All charts indicate visually declining trends of LNAPL thicknesses, except for MW-23. The trend in MW-23 is visually stable.

### 3.4 Dissolved-phase Hydrocarbons in Groundwater

Wells MW-3, MW-11, MW-13, MW-14, RW-1 and RW-2 were gauged dry during throughout 2019.

Analytical results of groundwater monitoring conducted at the Site during 2018 and 2019 are summarized 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.

Dissolved benzene concentrations in wells MW-6 exceeded the NMWQCC Human Health Standard of 0.01 mg/L during all four quarterly monitoring events. Benzene concentrations in MW-2 exceeded the standard during the first, second, and fourth quarterly monitoring events. All samples collected from recovery well RW-12 during 2019 had detections of dissolved benzene; however, all were below the NWQCC Human Health Standard. All other BTEX constituents were below their respective NWQCC Human Health Standards in all samples collected during 2019. Charts showing concentrations of dissolved benzene versus time in monitor and recovery wells which have shown significant impact by dissolved benzene are in Appendix B. These wells show visually declining trends of concentrations of dissolved benzene except for the chart for MW-2. It shows a visually increasing trend. Certified laboratory reports are in Appendix C.

On December 12, 2012, NMCOD corresponded with Plains via email regarding PAHs providing 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 0.001mg/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).*

In accordance with the NMOCD request, samples from MW-2, MW-6, MW-7, MW-12R, MW-22, and RW-12 were analyzed for PAH compounds. The sample collected from MW-2 contained concentrations of anthracene, dibenzofuran, fluorene, and phenanthrene which exceeded the standard of 0.001 mg/L for PAH compounds required in correspondence from NMOCD referenced above. No other PAH compounds exceeded applicable regulatory standards. Concentrations of PAH compounds that exceeded regulatory standards are also included on Figure 10. A cumulative summary of analytical results of PAH compounds is in Table 3.

## 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 364 gallons of LNAPL were recovered during 2019 by operation of the remediation system and by hand-bailing. Approximately 21,233 gallons of groundwater were recovered by the remediation system and hand-bailing. The total volume of liquids recovered at the Site during 2019 was approximately 21,597 gallons.

Semimonthly hand bailing of MW-1, MW-2, MW-5, MW-6, MW-9, MW-10, MW-23, RW-3, RW-4, RW-5, RW-6, RW-7, RW-8, RW-9, and RW-11 continued throughout 2019 to reduce thicknesses of LNAPL and concentrations of dissolved-phase contaminants. The total volume of LNAPL recovered in this manner during the year was 95 gallons. The total volume of groundwater recovered in this manner during the year was 61 gallons.

The trailer-mounted groundwater system was operated at the Site for a total of 167 days during 2019. Soil vapor and total fluids were recovered from MW-9, RW-11, RW-13, and RW-14 during 2019. 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 pneumatic total fluid pumps and air compressor, adjustment of depths of total fluid pumps, and gauging of recovered fluids in the storage tank, and general housekeeping tasks. Approximately 269 gallons (364 gallons total recovery less 95 gallons recovery by hand-bailing) of LNAPL and 20,876 gallons (21,233 gallons total recovery less 296 gallons recovered by quarterly purging, less 61 gallons recovered during LNAPL bailing) of groundwater were recovered by the automated trailer mounted remediation system during 2019.

Samples of emissions from the remediation system were collected on June 19, August 14, and November 12, 2019 and used to calculate emission rates and total emissions from the remediation system. Using a standard flow rate of 40 cubic feet per minute, the maximum rate of emissions during 2019 was 3.413 lb. TPH/hour. Total mass of emissions during 2019 was 5.3544 tons of TPH.

The total volume of LNAPL recovered since the start of the LNAPL abatement program in 1999 is approximately 83,177.7 gallons.

All liquids recovered from quarterly purging, remediation system operation, BTEX abatement by hand, and LNAPL abatement by hand were transferred to an AST at the Site 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-3, MW-11, MW-13, MW-14, RW-1 and RW-2 were gauged dry throughout 2019. The bottoms of LNAPL columns in MW-1, MW-9, M-10, RW-3, RW-4, RW-5, RW-6, RW-7, RW-8, and RW-10 were below the bottoms of well casings during at least one quarterly monitoring event; so thicknesses of LNAPL could not be accurately measured on those occasions.



- Groundwater flow direction is toward the southeast and is consistent with previous monitoring events. Gradients of the potentiometric surface during all quarterly groundwater monitoring events were between 0.0016 ft./ft. and 0.0018 ft./ft., inclusive.
- Elevations of the potentiometric surface declined in all wells during 2019. The average decline was 0.68 ft.
- LNAPL was observed in MW-1, MW-5, MW-8, MW-9, MW-10, MW-23, RW-3, RW-4, RW-5, RW-6, RW-7, RW-8, RW-9, RW-10, RW-11, RW-13, and RW-14 during all quarterly groundwater monitoring events in 2019. LNAPL was present in MW-6 only during a gauging event in April. The bottoms of LNAPL columns in MW-1, MW-9, M-10, RW-3, RW-4, RW-5, RW6, RW-7, RW-8, and RW-10 were below the bottoms of well casings during at least one quarterly monitoring event.
- Dissolved benzene concentrations in wells MW-6 exceeded the NMWQCC Human Health Standard of 0.01 mg/L during all four quarterly monitoring events. Benzene concentrations in MW-2 exceeded the standard during the first, second, and fourth quarterly monitoring events. All other BTEX constituents were below their respective NMWQCC Human Health Standards in all samples collected during 2019.
- The sample collected from MW-2 contained concentrations of anthracene, dibenzofuran, fluorene, and phenanthrene which exceeded the standard of 0.001 mg/L for PAH compounds required in correspondence of 2012 from NMOCD. No other PAH compounds exceeded applicable regulatory standards.
- Approximately 269 gallons of LNAPL and 20,876 gallons of groundwater were recovered by the automated trailer mounted remediation system during 2019. The maximum rate of emissions during 2019 was 3.413 lb. TPH/hour. Total mass of emissions during 2019 was 5.3544 tons TPH.
- The total volume of LNAPL recovered by hand-bailing during the year was 95 gallons.
- Semimonthly hand bailing from selected wells to reduce BTEX concentrations recovered 61 gallons of groundwater.
- Approximately 364 gallons of LNAPL were recovered during 2019 by hand-bailing and the trailer-mounted system. Total LNAPL recovered by all methods since the start of the LNAPL abatement program in 1999 is 83,177.7 gallons.

## 6. Recommendations

Based on data and conclusions presented in this report, GHD recommends the following for 2020:

- Continue quarterly groundwater gauging and sampling according to the schedule approved by the NMOCD and annual reporting to the NMOCD. Analyses of groundwater for PAH compounds should be conducted during the fourth quarterly monitoring event according to the NMOCD directive.
- Continue remediation of the soil profile and groundwater by operating the trailer mounted automated remediation system on targeted wells: MW-5, MW-9, RW-13, and RW-14.



- Continue manual LNAPL and BTEX abatement on select monitoring and recovery wells.
- A work plan proposing plugging and abandoning MW-3, MW-11, MW-13, MW-14, MW-21, RW-1 and RW-2 was submitted to the NMOCD on July 10, 2019. Those wells were dry or had insufficient fluid columns from which to collect samples of groundwater or recover LNAPL. The same work plan proposed installing MW-11R, MW-21R, MW-24, MW-25, RW-1R, RW-15, RW-16, RW-17, RW-18, and RW-19. The work plan will be implemented during 2020 out of necessity to maintain delineation of the contaminant plume and enhance the ability to recover LNPL. Details regarding plugging and installation of these wells will be included in the annual report for 2020.

All of Which is Respectfully Submitted,

GHD

A handwritten signature in blue ink that reads "John P. Schnable".

John Schnable

Senior project Manager

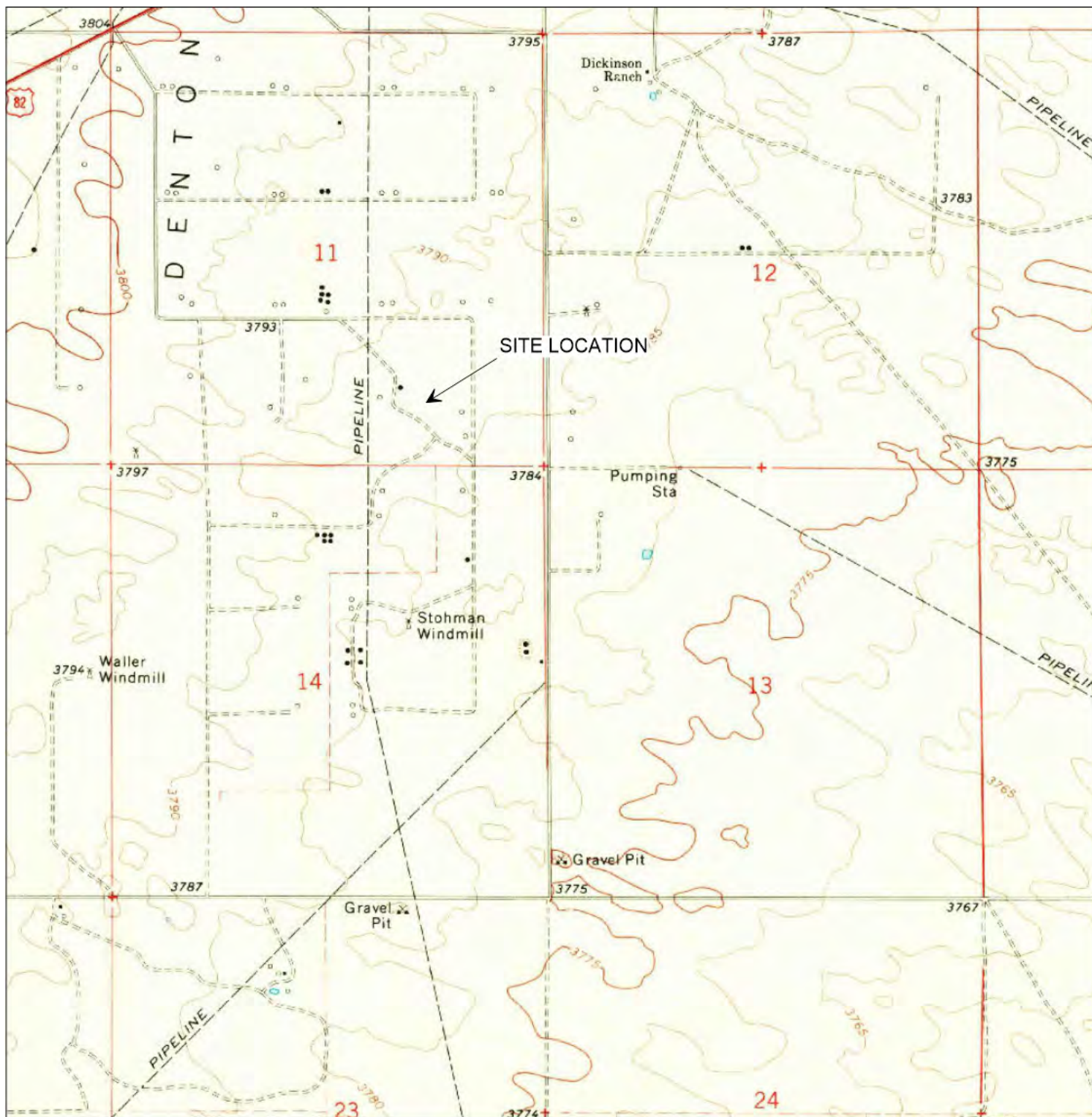
A handwritten signature in black ink that reads "Rebecca Haskell".

Rebecca Haskell

Senior Project Manger



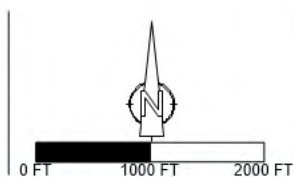
## Figures



SOURCE: USGS 7.5 MINUTE QUADRANGLE  
PRAIRIEVIEW, NEW MEXICO

LAT/LONG: 33.0266° NORTH, 103.1666° WEST  
COORDINATE: NAD83 DATUM U.S. FOOT  
STATE PLANE ZONE - NEW MEXICO EAST

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FEBRUARY 4, 2020



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Darr Angell #1 SRS Darr Angell #1  
NMOCD AP-007  
ANNUAL REPORT OF GROUNDWATER MONITORING  
AND REMEDIATION IN 2019  
SITE LOCATION MAP

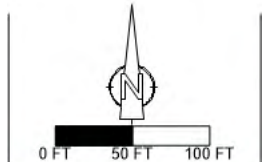
FIGURE 1





- Monitor Well
- ⊘ Plugged Monitor Well
- ▼ Well Equipped with Pump

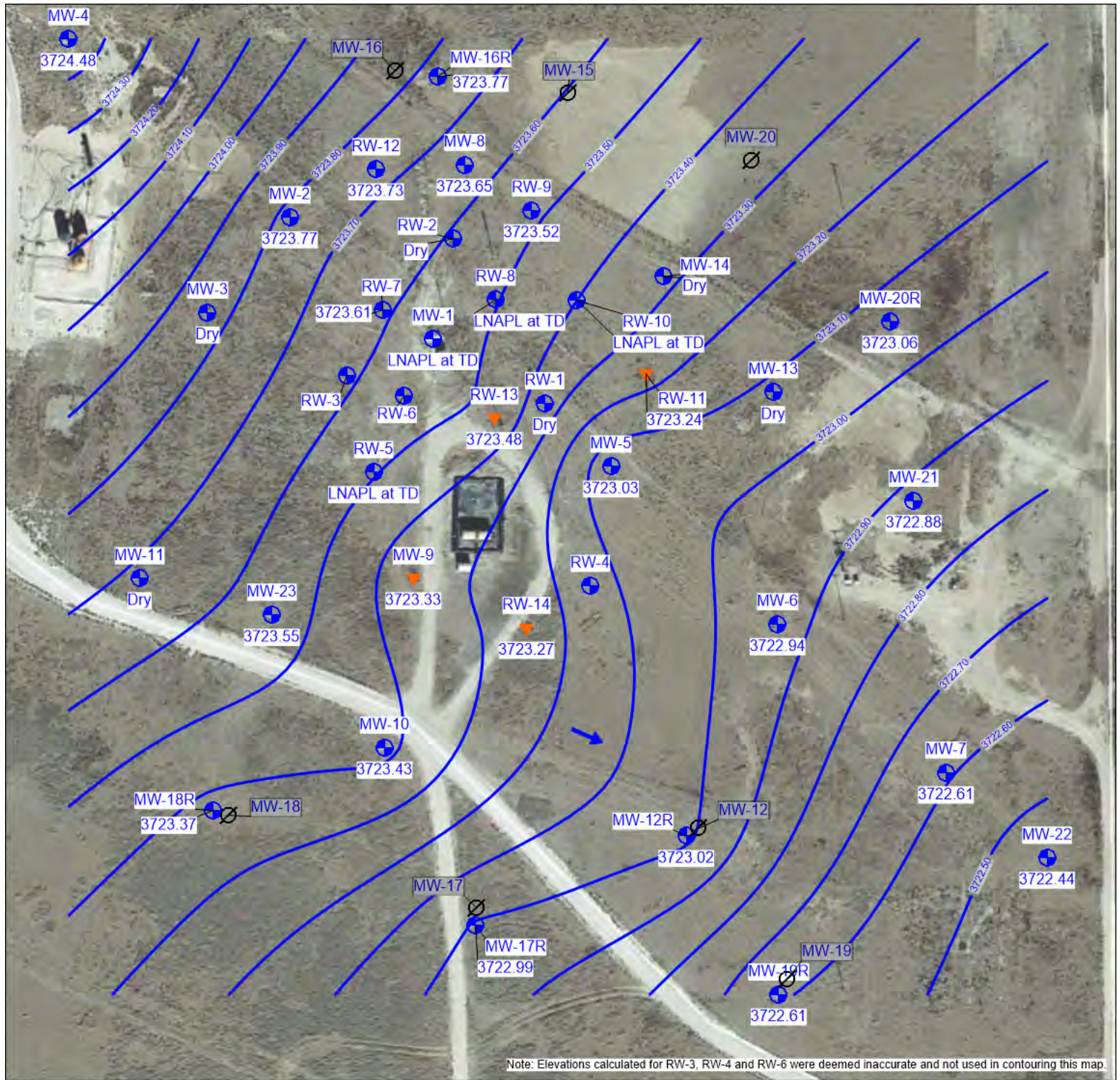
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OCTOBER 21, 2019



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ANNUAL REPORT OF GROUNDWATER MONITORING  
AND REMEDIATION IN 2019  
SITE DETAILS MAP

FIGURE 2



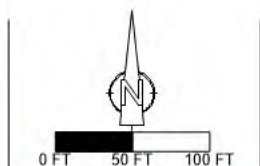


- Monitor Well
- ⊗ Plugged Monitor Well
- ▼ Well Equipped with Skimmer Pump
- 3725.00 Elevation of Potentiometric Surface (famsl) (C.I. = 0.10 ft.)
- ↑ Direction of Flow of Groundwater

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 DARR ANGELL #1  
 SRS DARR ANGELL #1  
 ANNUAL REPORT OF GROUNDWATER MONITORING  
 AND REMEDIATION IN 2019  
 MAP OF THE POTENTIOMETRIC SURFACE  
 FEBRUARY 25, 2019

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 FEBRUARY 25, 2019

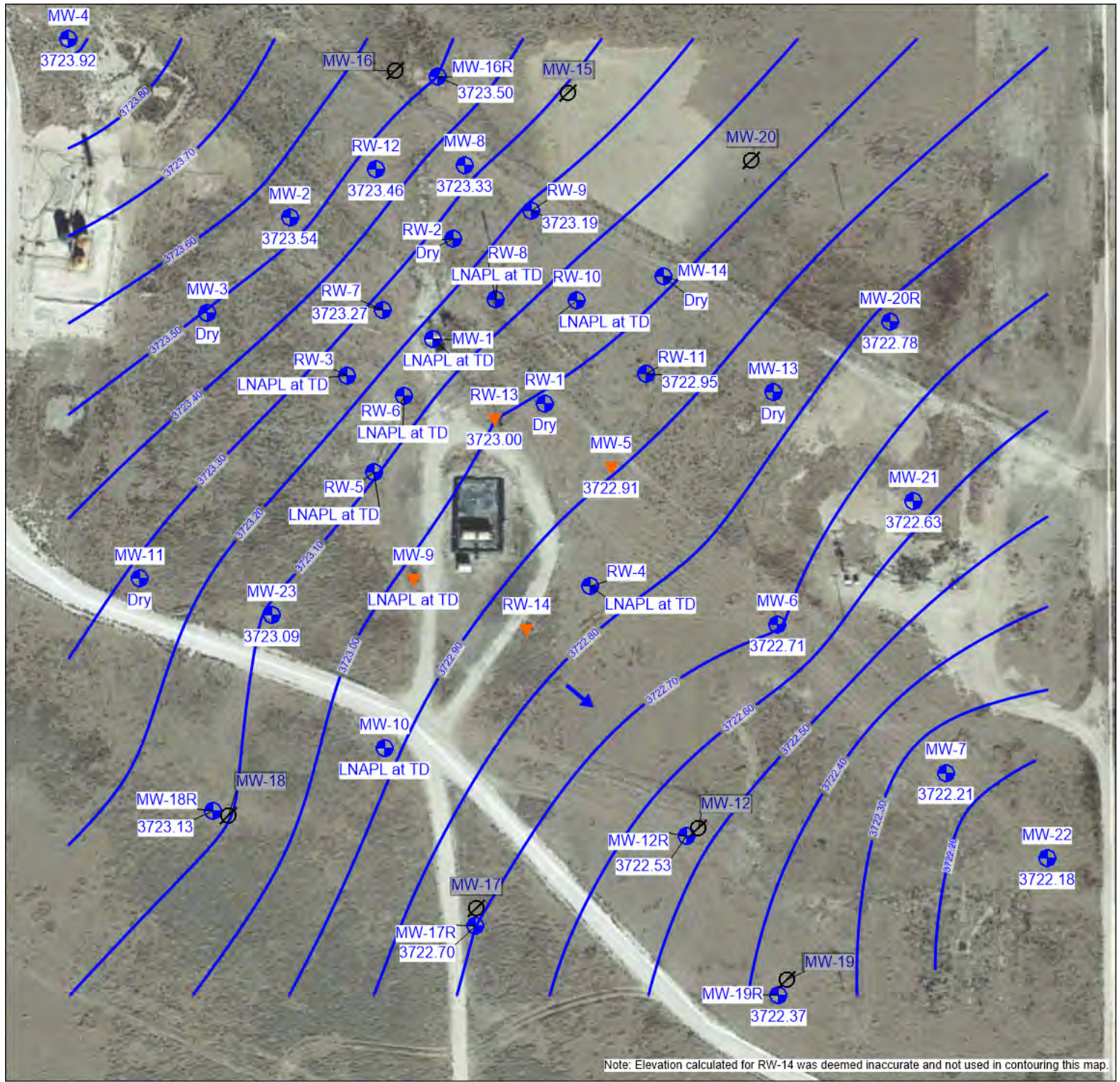
FIGURE 3









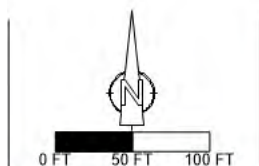


- ⊕ Monitor Well
- ⊗ Plugged Monitor Well
- ▲ Well Equipped with Skimmer Pump
- 3725.00 Elevation of Potentiometric Surface (famsl) (C.I. = 0.10 ft.)
- ↑ Direction of Flow of Groundwater

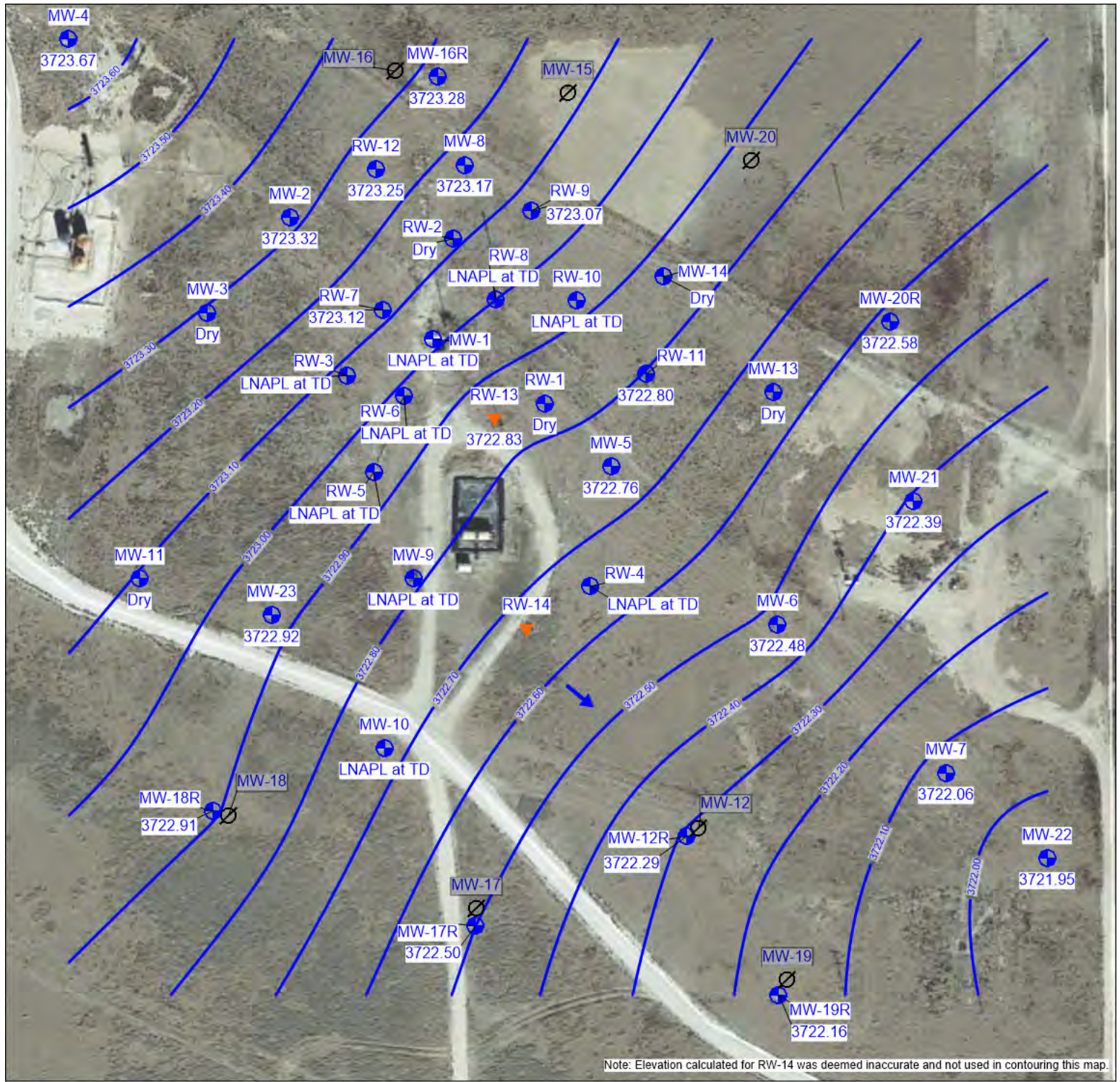
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ANNUAL REPORT OF GROUNDWATER MONITORING  
AND REMEDIATION IN 2019  
MAP OF THE POTENTIOMETRIC SURFACE  
JULY 23, 2019

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JULY 23, 2019

FIGURE 5





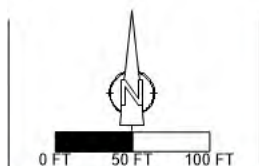


- Monitor Well
- Plugged Monitor Well
- Well Equipped with Skimmer Pump
- Elevation of Potentiometric Surface (famsl) (C.I. = 0.10 ft.)
- Direction of Flow of Groundwater

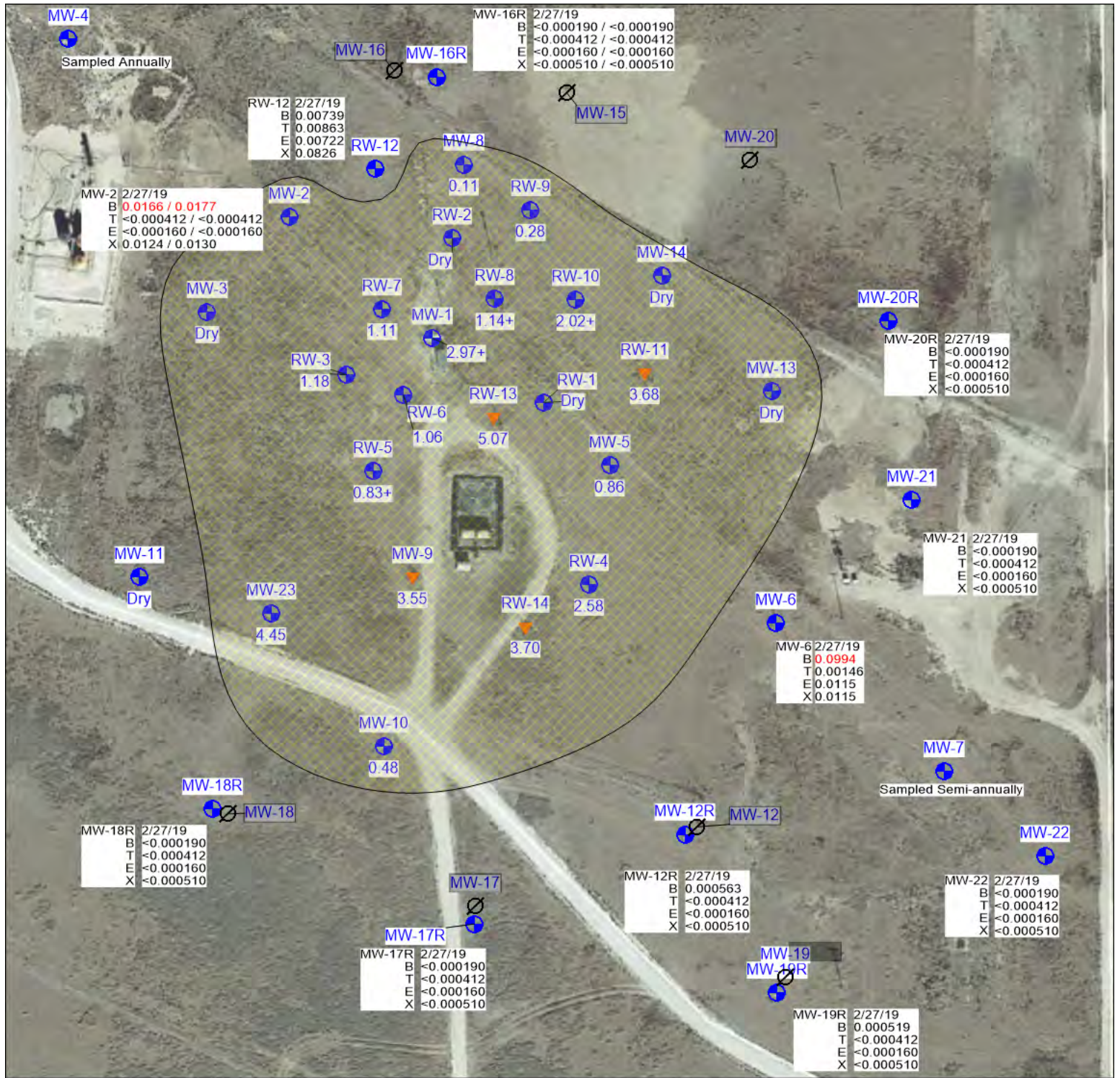
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ANNUAL REPORT OF GROUNDWATER MONITORING  
AND REMEDIATION IN 2019  
MAP OF THE POTENTIOMETRIC SURFACE  
OCTOBER 21, 2019

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OCTOBER 21, 2019

FIGURE 6

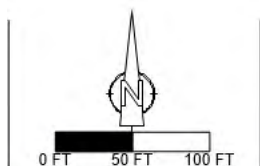






SAMPLE LOCATION	MW-2	11/11/18	DATE SAMPLED
BENZENE	B	0.0231	ANALYTICAL RESULT (mg/l). RED
TOLUENE	T	<0.00100	FONT INDICATES CONCENTRATION
ETHYLBENZENE	E	0.00240	EXCEEDS NMWQCC HUMAN HEALTH STD.
XYLENES	X	0.0113 / 0.0113	SECOND RESULTS ARE FIELD DUPLICATES
SPECIFIC PAH		0.00126	PAHS-ONLY EXCEEDANCES OF NMWQCC
			STANDARDS ARE POSTED

- Well Location
- Plugged Well Location
- Well Equipped with Remediation Pump
- 3.25 Thickness of LNAPL (ft.)
- Approximate Area Exceeding NMWQCC Human Health Standard for Benzene (0.01 mg/l)

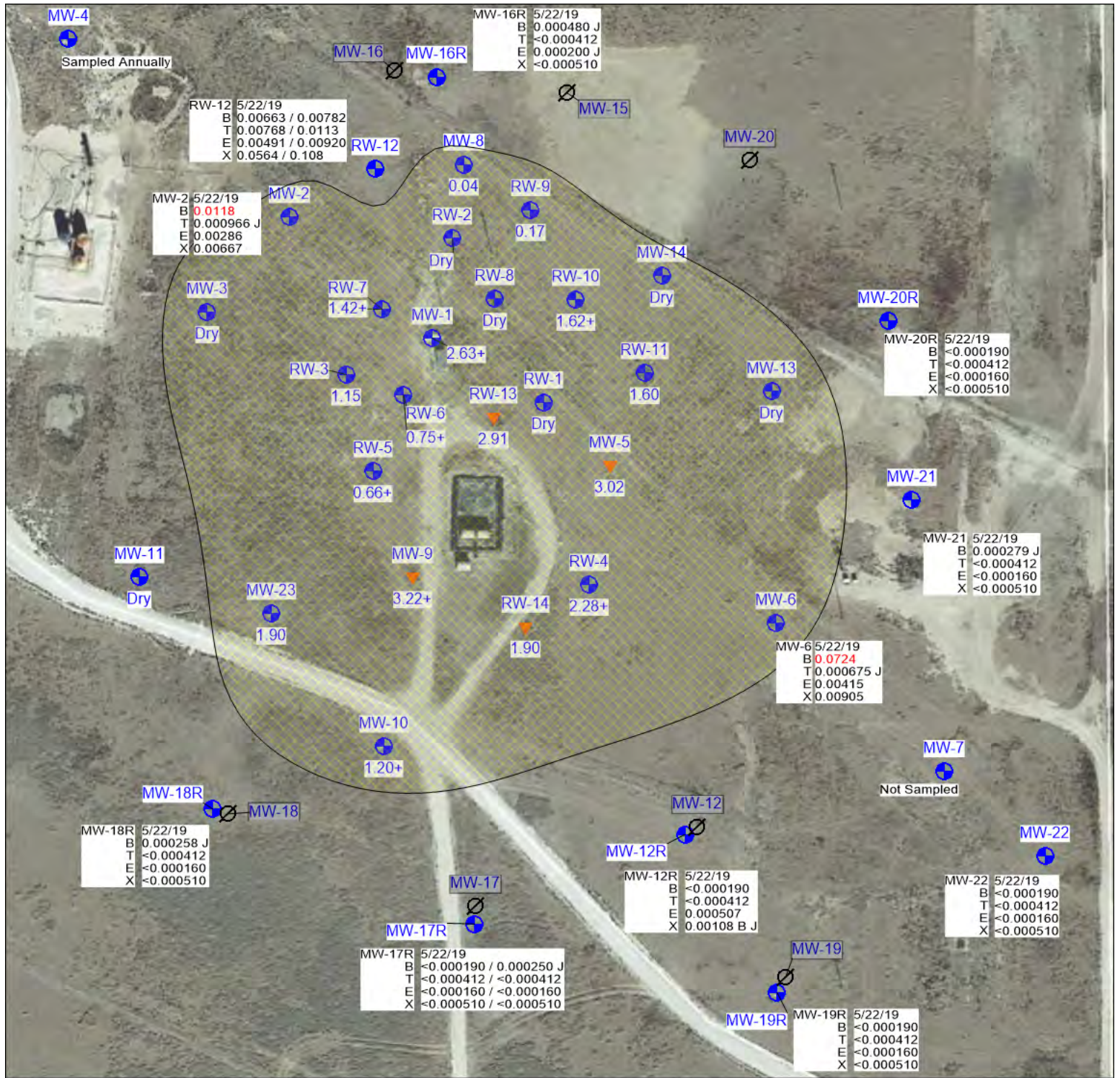


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ANNUAL REPORT OF GROUNDWATER MONITORING  
AND REMEDIATION IN 2019  
DISSOLVED BTEX IN GROUNDWATER  
FEBRUARY 27, 2019

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FEBRUARY 27, 2019

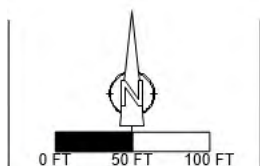
FIGURE 7





SAMPLE LOCATION	MW-2	11/11/18	DATE SAMPLED
BENZENE	B	0.0231	ANALYTICAL RESULT (mg/l). RED
TOLUENE	T	<0.00100	FONT INDICATES CONCENTRATION
ETHYLBENZENE	E	0.00240	EXCEEDS NMWQCC HUMAN HEALTH STD.
XYLENES	X	0.0113 / 0.0113	SECOND RESULTS ARE FIELD DUPLICATES
SPECIFIC PAH		0.00126	PAHS-ONLY EXCEEDANCES OF NMWQCC
			STANDARDS ARE POSTED

- Well Location
- Plugged Well Location
- Well Equipped with Remediation Pump
- 3.25 Thickness of LNAPL (ft.)
- Approximate Area Exceeding NMWQCC Human Health Standard for Benzene (0.01 mg/l)

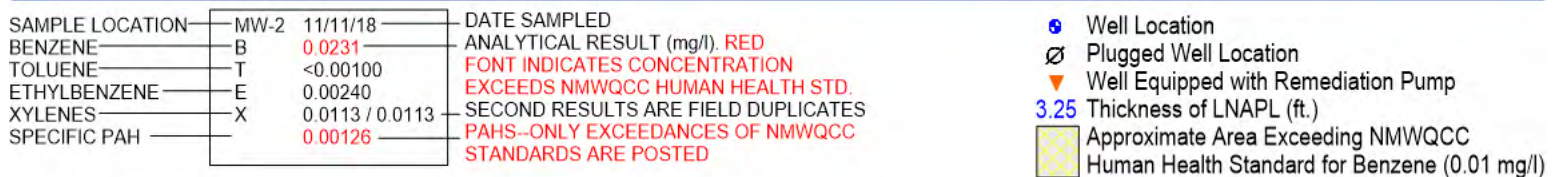


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ANNUAL REPORT OF GROUNDWATER MONITORING  
AND REMEDIATION IN 2019  
DISSOLVED BTEX IN GROUNDWATER  
MAY 22, 2019

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MAY 22, 2019

FIGURE 8

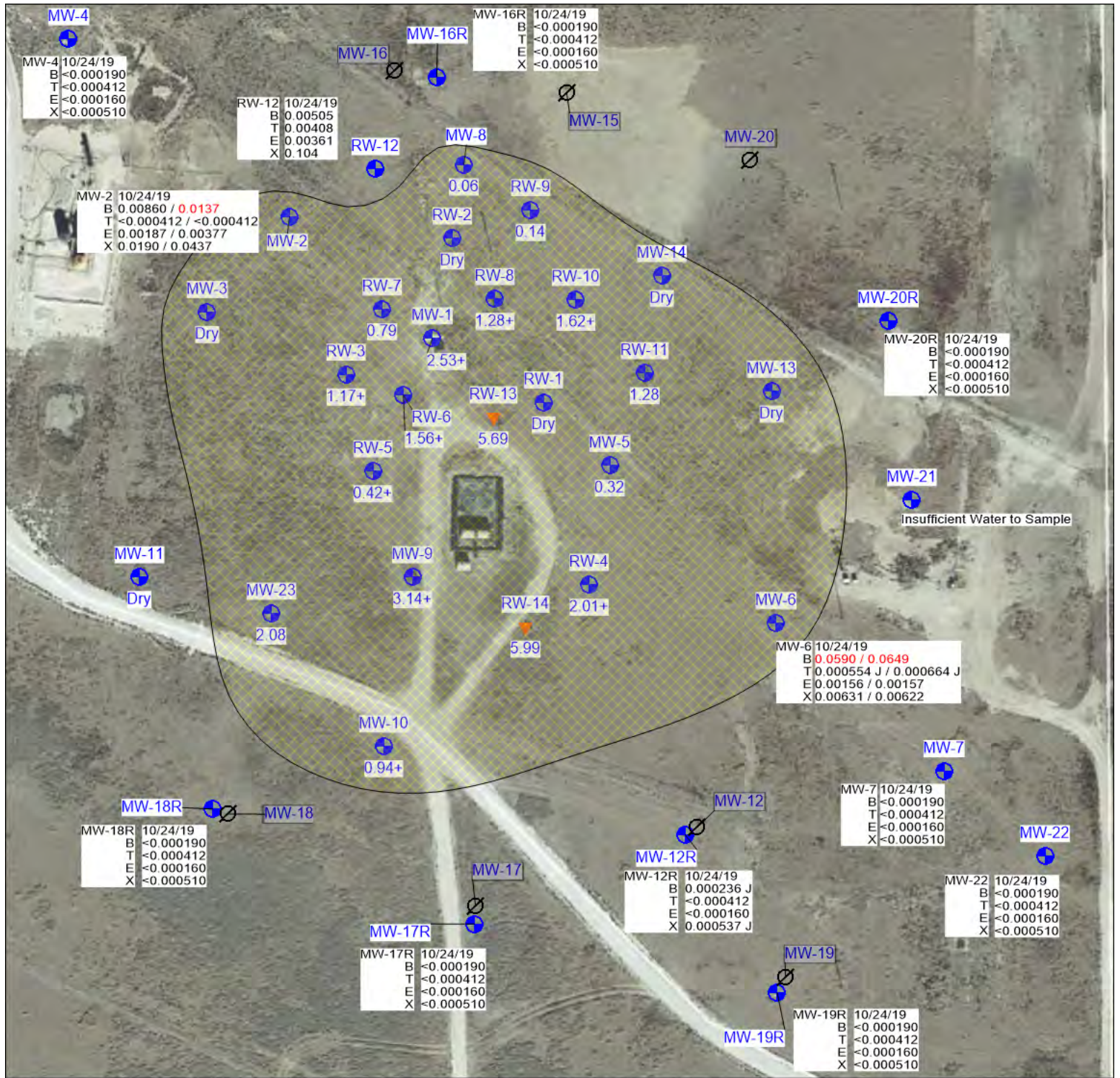




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JULY 24, 2019

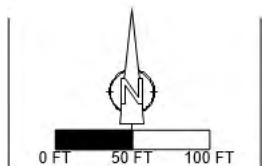
FIGURE 9





SAMPLE LOCATION	MW-2	11/11/18	DATE SAMPLED
BENZENE	B	0.0231	ANALYTICAL RESULT (mg/l). RED
TOLUENE	T	<0.00100	FONT INDICATES CONCENTRATION
ETHYLBENZENE	E	0.00240	EXCEEDS NMWQCC HUMAN HEALTH STD.
XYLENES	X	0.0113 / 0.0113	SECOND RESULTS ARE FIELD DUPLICATES
SPECIFIC PAH		0.00126	PAHS-ONLY EXCEEDANCES OF NMWQCC
			STANDARDS ARE POSTED

- Well Location
- Plugged Well Location
- Well Equipped with Remediation Pump
- 3.25 Thickness of LNAPL (ft.)
- Approximate Area Exceeding NMWQCC Human Health Standard for Benzene (0.01 mg/l)



PLAINS ALL AMERICAN PIPELINE COMPANY  
DARR ANGELL #1  
SRS DARR ANGELL #1  
ANNUAL REPORT OF GROUNDWATER MONITORING  
AND REMEDIATION IN 2019  
DISSOLVED BTEX IN GROUNDWATER  
OCTOBER 24, 2019

PROJECT 11209885  
OCTOBER 24, 2019

FIGURE 10

## Tables



**Table 1**  
**Summary of Fluid Level Measurements**  
**Plains Pipeline, L.P.**  
**Darr Angell No. 1**  
**Lea County, New Mexico**

<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
MW-01	3790.02	2/27/18		64.80	3.40+	LNAPL at TD	68.20	50-70 (4 in.)				
MW-01	3790.02	5/29/18		65.87	3.26+	LNAPL at TD	69.13					
MW-01	3790.02	8/29/18		65.95	3.18+	LNAPL at TD	67.16					
MW-01	3790.02	10/3/18							3.0	0.0		
MW-01	3790.02	11/27/18		65.10	3.17+	LNAPL at TD	68.27					
MW-01	3790.02	1/29/19							3.5	0.2		
MW-01	3790.02	2/5/19							0.0			
MW-01	3790.02	2/25/19		65.30	2.97+	LNAPL at TD						
MW-01	3790.02	3/6/19							0.0	0		
MW-01	3790.02	4/30/19	69.33	66.39	2.94+	LNAPL at TD			1.0	0		
MW-01	3790.02	5/20/19		66.48	2.63+	LNAPL at TD						
MW-01	3790.02	6/11/19							3.0	0		
MW-01	3790.02	6/18/19							2.0	0.2		
MW-01	3790.02	6/25/19							3.1	0		
MW-01	3790.02	7/2/19							2.0	0.0		
MW-01	3790.02	7/8/19							1.3	0.2		
MW-01	3790.02	7/22/19		66.65	2.56+	LNAPL at TD	69.21					
MW-01	3790.02	8/6/19							1.5	0.0		
MW-01	3790.02	8/13/19							1.9	0.1		
MW-01	3790.02	8/20/19							2.4	0.1		
MW-01	3790.02	8/28/19							2.3	0.1		
MW-01	3790.02	9/10/19							0.0	1.5		
MW-01	3790.02	9/25/19							1.8	0.0		
MW-01	3790.02	10/2/19							1.8			
MW-01	3790.02	10/21/19	68.19	65.82	2.37	3723.75	69.35					
MW-01	3790.02	10/23/19		66.82	2.53+	LNAPL at TD						
MW-01	3790.02	11/20/19							2.0			
MW-01	3790.02	12/11/19							2.0	0.0		
MW-01	3790.02	12/18/19							2.5	0.0		
MW-01	3790.02	12/24/19							0.5	0.5		
MW-01	3790.02	1/8/20							1.5	0.0		
MW-01	3790.02	1/15/20							2.0	0.0		
MW-01	3790.02	1/29/20							1.5	0.0		
MW-01	3790.02	2/11/20	-	66.85	2.05+	LNAPL at TD	68.9	50-70 (4 in.)				TD Measured
MW-02	3790.83	2/27/18	66.30			3723.25	71.58	50-70 (4 in)				
MW-02	3790.83	5/29/18	66.31			3723.24	71.4					
MW-02	3790.83	8/29/18	66.46	66.44	0.02	3724.39	71.58					
MW-02	3790.83	11/27/18	66.69		0.00	3724.14				3.0		
MW-02	3790.83	2/25/19	67.06		0.00	3723.77						
MW-02	3790.83	2/26/19								1.0		
MW-02	3790.83	5/20/19	67.20		0.00	3723.63						
MW-02	3790.83	5/22/19							0	8.0		
MW-02	3790.83	7/23/19	67.29		0.00	3723.54						
MW-02	3790.83	7/24/19							0.0	3.0		
MW-02	3790.83	8/28/19							0.0	0.5		

**Table 1**  
**Summary of Fluid Level Measurements**  
**Plains Pipeline, L.P.**  
**Darr Angell No. 1**  
**Lea County, New Mexico**

<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
MW-02	3790.83	9/10/19								0.5		
MW-02	3790.83	10/2/19								1.0		
MW-02	3790.83	10/21/19	67.51		0.00	3723.32	71.58					
MW-02	3790.83	10/24/19								6.0		
MW-02	3790.83	2/11/20	67.61	-	0.00	3723.22	74.01	50-70 (4 in.)				TD Measured
MW-03	3791.44	2/27/18		66.98	0.32+	LNAPL at TD	67.30	50-70 (4 in)				
MW-03	3791.44	5/29/18	66.92	66.81	0.11	3724.61	67.3					
MW-03	3791.44	8/29/18				Dry	67.49					
MW-03	3791.44	11/27/18				Dry	67.48					
MW-03	3791.44	2/25/19				Dry						
MW-03	3791.44	5/20/19				Dry						
MW-03	3791.44	7/23/19				Dry						
MW-03	3791.44	10/21/19				Dry	67.33					
MW-04	3792.51	2/27/18	67.60		0.00	3724.91	70.24	50-70 (4 in.)				
MW-04	3792.51	5/29/18	67.79		0.00	3724.72	72.31					
MW-04	3792.51	8/29/18	67.95		0.00	3724.56	70.24					
MW-04	3792.51	11/27/18	68.13		0.00	3724.38				1.0		
MW-04	3792.51	2/25/19	68.03		0.00	3724.48						
MW-04	3792.51	5/20/19	68.50		0.00	3724.01						
MW-04	3792.51	7/23/19	68.59		0.00	3723.92						
MW-04	3792.51	10/21/19	68.84		0.00	3723.67	70.24					
MW-04	3792.51	10/24/19								0.5		
MW-04	3792.51	2/11/20	69.06		0.00	3723.45	74.09	50-70 (4 in.)				TD Measured
MW-05	3789.50	2/27/18	66.28	65.35	0.93	3723.97	71.41	50-70 (4 in.)				
MW-05	3789.50	5/29/18	67.20	65.42	1.78	3723.74						
MW-05	3789.50	8/29/18	68.49	65.34	3.15	3723.56						
MW-05	3789.50	11/27/18	70.70	65.10	5.60	3723.34						
MW-05	3789.50	2/25/19	67.17	66.31	0.86	3723.03						
MW-05	3789.50	4/30/19							0.5	0.0		
MW-05	3789.50	5/20/19	68.93	65.91	3.02	3723.02						
MW-05	3789.50	6/11/19							3.0	1.0		
MW-05	3789.50	6/18/19							1.0	1.0		
MW-05	3789.50	6/25/19							0.4	1.6		
MW-05	3789.50	7/8/19							0.2	1.8		
MW-05	3789.50	7/23/19	67.33	66.42	0.91	3722.91						
MW-05	3789.50	10/21/19	67.00	66.68	0.32	3722.76						
MW-05	3789.50	11/20/19							0.4	1.6		
MW-05	3789.50	12/11/19							0.9	0.6		
MW-05	3789.50	12/24/19							0.3	0.8		
MW-05	3789.50	1/29/20							1	1.2		
MW-05	3789.50	2/11/20	67.76	66.84	0.92	3722.49	73.85	50-70 (4 in.)				TD Measured
MW-06	3789.27	2/27/18	65.61		0.00	3723.66	71.24	50-70 (4 in.)				

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**Plains Pipeline, L.P.**  
**Darr Angell No. 1**  
**Lea County, New Mexico**

<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
MW-06	3789.27	5/29/18	65.81		0.00	3723.46	71.5					
MW-06	3789.27	8/29/18	65.93		0.00	3723.34	71.24					
MW-06	3789.27	11/27/18	66.35	--	0.00	3722.92				7.0		
MW-06	3789.27	2/25/19	66.33		0.00	3722.94						
MW-06	3789.27	2/26/19								10.0		
MW-06	3789.27	4/30/19	66.59	66.58	0.01	3722.69						
MW-06	3789.27	5/20/19	66.50		0.00	3722.77						
MW-06	3789.27	5/22/19							0	8.0		
MW-06	3789.27	6/11/19							0.3	0.0		
MW-06	3789.27	7/23/19	66.56		0.00	3722.71						
MW-06	3789.27	7/24/19							0.0	5.0		
MW-06	3789.27	8/21/19							0.2	0.0		
MW-06	3789.27	8/28/19							0.0	3.0		
MW-06	3789.27	9/10/19							0.0	3.0		
MW-06	3789.27	9/25/19							0.0	3.0		
MW-06	3789.27	10/21/19	66.79		0.00	3722.48	71.24					
MW-06	3789.27	10/24/19								5.0		
MW-06	3789.27	2/11/20	67.01	-	0.00	3722.26	74.3	50-70 (4 in.)		14.0		TD Measured
MW-07	3789.26	2/27/18	65.95		0.00	3723.31	73.33	50-70 (4 in.)				
MW-07	3789.26	5/29/18	66.17		0.00	3723.09						Possible bailer in well
MW-07	3789.26	8/29/18	66.28		0.00	3722.98						
MW-07	3789.26	11/27/18	66.42		0.00	3722.84				10.0		
MW-07	3789.26	2/25/19	66.65		0.00	3722.61						
MW-07	3789.26	5/20/19	66.81		0.00	3722.45						
MW-07	3789.26	7/23/19	67.05		0.00	3722.21						
MW-07	3789.26	10/21/19	67.20		0.00	3722.06	73.33					
MW-07	3789.26	10/24/19								7		
MW-07	3789.26	2/11/20	67.41		0.00	3721.85	75.36	50-70 (4 in.)				TD Measured
MW-08	3790.66	2/27/18	66.29	66.26	0.03	3724.39	72.78	50-70 (4 in)				
MW-08	3790.66	5/29/18	66.07	66.02	0.05	3724.63						
MW-08	3790.66	8/29/18	66.67	66.62	0.05	3724.03						
MW-08	3790.66	11/27/18	66.80	66.79	0.01	3723.87						
MW-08	3790.66	2/25/19	67.10	66.99	0.11	3723.65						
MW-08	3790.66	5/20/19	67.24	67.20	0.04	3723.45						
MW-08	3790.66	7/23/19	67.39	67.32	0.07	3723.33						
MW-08	3790.66	10/21/19	67.54	67.48	0.06	3723.17						
MW-08	3790.66	2/11/20	67.82	67.72	0.10	3722.92	74.35	50-70 (4 in)				TD Measured
MW-09	3790.94	2/27/18		65.60	4.60+	LNAPL at TD	70.2	50-70 (4 in.)				
MW-09	3790.94	5/29/18		65.17	4.32+	LNAPL at TD						
MW-09	3790.94	8/29/18	69.54	66.55	2.99	3723.82						
MW-09	3790.94	11/27/18		66.91	3.59+		70.50					
MW-09	3790.94	2/25/19	70.49	66.94	3.55	3723.33						
MW-09	3790.94	5/20/19		66.85	3.22+	LNAPL at TD						

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<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
MW-09	3790.94	7/23/19		67.60	3.55+	LNAPL at TD						
MW-09	3790.94	10/21/19		67.06	3.14+	LNAPL at TD	70.21					
MW-09	3790.94	12/11/19							1	0		
MW-09	3790.94	12/24/19							0.3	1.2		
MW-09	3790.94	1/29/20							0.2	0		
MW-09	3790.94	2/11/20	-	67.51	5.26+	LNAPL at TD	72.77	50-70 (4 in.)				TD Measured
MW-10	3790.94	2/27/18	67.12	66.90	0.22	3724.00	68.48	40-65 (2 in.)				
MW-10	3790.94	5/29/18	67.45	67.10	0.35	3723.77	68.48					
MW-10	3790.94	8/29/18	67.68	67.23	0.45	3723.62	68.48					
MW-10	3790.94	11/27/18	68.25	67.35	0.90	3723.42						
MW-10	3790.94	2/25/19	67.90	67.42	0.48	3723.43						
MW-10	3790.94	5/20/19		67.40	1.20+	LNAPL at TD						
MW-10	3790.94	6/11/19							0.1	0.0		
MW-10	3790.94	7/23/19		67.51	0.97+	LNAPL at TD						
MW-10	3790.94	8/28/19							0.3	0		
MW-10	3790.94	10/21/19		67.54	0.94+	LNAPL at TD	68.5					
MW-10	3790.94	2/11/20	67.64	-	0.00	3723.30	69.77	40-65 (2 in.)				TD Measured
MW-11	3792.02	2/27/18				Dry	63.42	35-60 (2 in.)				
MW-11	3792.02	5/29/18				Dry						
MW-11	3792.02	8/29/18				Dry						
MW-11	3792.02	11/27/18				Dry						
MW-11	3792.02	2/25/19				Dry						
MW-11	3792.02	5/20/19				Dry						
MW-11	3792.02	7/23/19				Dry						
MW-11	3792.02	10/21/19				Dry	63.45					
MW-12R	3789.55	2/27/18	66.10		0.00	3723.45	85.13	35-60 (2 in.)				
MW-12R	3789.55	5/29/18	66.26		0.00	3723.29						
MW-12R	3789.55	8/29/18	66.39		0.00	3723.16						
MW-12R	3789.55	11/27/18	66.61		0.00	3722.94				9.0		
MW-12R	3789.55	2/25/19	66.53		0.00	3723.02						
MW-12R	3789.55	2/26/19								9.6		
MW-12R	3789.55	5/20/19	66.95		0.00	3722.60						
MW-12R	3789.55	5/22/19							0	9.0		
MW-12R	3789.55	7/23/19	67.02		0.00	3722.53						
MW-12R	3789.55	7/24/19							0.0	6.0		
MW-12R	3789.55	10/21/19	67.26		0.00	3722.29	85.13					
MW-12R	3789.55	10/23/19								7.0		
MW-12R	3789.55	2/11/20	67.49	-	0.00	3722.06	87.65			10.0		
MW-13	3790.98	2/27/18				Dry	63.29	35-60 (2 in)				
MW-13	3790.98	5/29/18				Dry	63.3					
MW-13	3790.98	8/29/18				Dry	63.29					
MW-13	3790.98	11/27/18				Dry						

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<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
MW-13	3790.98	2/25/19				Dry						
MW-13	3790.98	5/20/19				Dry						
MW-13	3790.98	7/23/19				Dry						
MW-13	3790.98	10/21/19				Dry	63.31					
MW-14	3791.16	2/27/18				Dry	63.41	35-60 (2 in)				
MW-14	3791.16	5/29/18				Dry						
MW-14	3791.16	8/29/18				Dry						
MW-14	3791.16	11/27/18				Dry	63.40					
MW-14	3791.16	2/25/19				Dry						
MW-14	3791.16	5/20/19				Dry						
MW-14	3791.16	7/23/19				Dry						
MW-14	3791.16	10/21/19				Dry	63.41					
MW-16R	3791.21	2/27/18	66.72		0.00	3724.49	84.78					
MW-16R	3791.21	5/29/18	66.90		0.00	3724.31	84.85					
MW-16R	3791.21	8/29/18	67.05		0.00	3724.16	84.78					
MW-16R	3791.21	11/27/18	67.22		0.00	3723.99				7.0		
MW-16R	3791.21	2/25/19	67.44		0.00	3723.77						
MW-16R	3791.21	2/26/19								8.6		
MW-16R	3791.21	5/20/19	67.60		0.00	3723.61						
MW-16R	3791.21	5/22/19							0	8.5		
MW-16R	3791.21	7/23/19	67.71		0.00	3723.50						
MW-16R	3791.21	7/24/19							0.0	6.0		
MW-16R	3791.21	10/21/19	67.93		0.00	3723.28	84.78					
MW-16R	3791.21	10/24/19								6.0		
MW-16R	3791.21	2/11/20	68.19	-	0.00	3723.02	85.51			8.3		
MW-17R	3790.20	2/27/18	66.52		0.00	3723.68	78.69					
MW-17R	3790.20	5/29/18	66.71		0.00	3723.49	78.8					
MW-17R	3790.20	8/29/18	66.85		0.00	3723.35	78.69					
MW-17R	3790.20	11/27/18	67.03		0.00	3723.17				3.5		
MW-17R	3790.20	2/25/19	67.21		0.00	3722.99						
MW-17R	3790.20	2/26/19								5.6		
MW-17R	3790.20	5/20/19	67.42		0.00	3722.78						
MW-17R	3790.20	5/22/19							0	5.5		
MW-17R	3790.20	7/23/19	67.50		0.00	3722.70						
MW-17R	3790.20	7/24/19							0.0	4.0		
MW-17R	3790.20	10/21/19	67.70		0.00	3722.50	78.69					
MW-17R	3790.20	10/23/19								4.0		
MW-17R	3790.20	2/11/20	67.94	-	0.00	3722.26	79.15			5.3		TD Measured
MW-18R	3791.04	2/27/18	66.94		0.00	3724.10	81.48					
MW-18R	3791.04	5/29/18	67.13		0.00	3723.91	81.52					
MW-18R	3791.04	8/29/18	67.28		0.00	3723.76	81.48					
MW-18R	3791.04	11/27/18	67.47		0.00	3723.57				5.0		

**Table 1**  
**Summary of Fluid Level Measurements**  
**Plains Pipeline, L.P.**  
**Darr Angell No. 1**  
**Lea County, New Mexico**

<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
MW-18R	3791.04	2/25/19	67.67		0.00	3723.37						
MW-18R	3791.04	2/26/19								7.0		
MW-18R	3791.04	5/20/19	67.88		0.00	3723.16						
MW-18R	3791.04	5/22/19							0	6.5		
MW-18R	3791.04	7/23/19	67.91		0.00	3723.13						
MW-18R	3791.04	7/24/19							0.0	5.0		
MW-18R	3791.04	10/21/19	68.13		0.00	3722.91	81.48					
MW-18R	3791.04	10/23/19								5.0		
MW-18R	3791.04	2/11/20	68.39	-	0.00	3722.65	81.94			6.0		TD Measured
MW-19R	3789.67	2/27/18	66.37		0.00	3723.30	71.11					
MW-19R	3789.67	4/24/18	66.46		0.00	3723.21						
MW-19R	3789.67	5/29/18	66.55		0.00	3723.12	78.23					
MW-19R	3789.67	8/29/18	66.68		0.00	3722.99						
MW-19R	3789.67	11/27/18	66.85		0.00	3722.82				1.5		
MW-19R	3789.67	2/25/19	67.06		0.00	3722.61						
MW-19R	3789.67	2/26/19								2.0		
MW-19R	3789.67	5/20/19	67.23		0.00	3722.44						
MW-19R	3789.67	5/22/19							0	1.5		
MW-19R	3789.67	7/23/19	67.30		0.00	3722.37						
MW-19R	3789.67	7/24/19							0.0	1.0		
MW-19R	3789.67	10/21/19	67.51		0.00	3722.16	71.11					
MW-19R	3789.67	10/23/19								0.8		
MW-19R	3789.67	2/11/20	67.79	-	0.00	3721.88	78.79	61.5-81.5 (2 in)				TD Measured
MW-20R	3789.73	2/27/18	65.94		0.00	3723.79	72.06					
MW-20R	3789.73	4/24/18	66.07		0.00	3723.66	72.03					
MW-20R	3789.73	5/29/18	66.14		0.00	3723.59	72.06					
MW-20R	3789.73	8/29/18	66.28		0.00	3723.45						
MW-20R	3789.73	11/27/18	66.55		0.00	3723.18				1.5		
MW-20R	3789.73	2/25/19	66.67		0.00	3723.06						
MW-20R	3789.73	2/26/19								2.5		
MW-20R	3789.73	5/20/19	66.90		0.00	3722.83						
MW-20R	3789.73	5/22/19							0	2.5		
MW-20R	3789.73	7/23/19	66.95		0.00	3722.78						
MW-20R	3789.73	7/24/19							0.0	1.5		
MW-20R	3789.73	10/21/19	67.15		0.00	3722.58	72.06					
MW-20R	3789.73	10/24/19								0.5		
MW-20R	3789.73	2/11/20	67.39	-	0.00	3722.34	72.51	61.5-81.5 (2 in)		2.3		TD Measured
MW-21	3790.26	2/27/18	66.70		0.00	3723.56	68.4					
MW-21	3790.26	4/24/18	66.78		0.00	3723.48	68.45					
MW-21	3790.26	5/29/18	66.87		0.00	3723.39						
MW-21	3790.26	8/29/18	67.00		0.00	3723.26	68.48					
MW-21	3790.26	11/27/18	67.30		0.00	3722.96				0.2		
MW-21	3790.26	2/25/19	67.38		0.00	3722.88						



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**Summary of Fluid Level Measurements**  
**Plains Pipeline, L.P.**  
**Darr Angell No. 1**  
**Lea County, New Mexico**

<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
MW-21	3790.26	2/26/19								0.3		
MW-21	3790.26	5/20/19	67.61		0.00	3722.65						
MW-21	3790.26	5/22/19							0	0.5		
MW-21	3790.26	7/23/19	67.63		0.00	3722.63						
MW-21	3790.26	7/24/19							0.0	0.25		
MW-21	3790.26	10/21/19	67.87		0.00	3722.39	68.4					
MW-21	3790.26	10/24/19								0.00		Insufficient water to purge
MW-22	3788.97	2/27/18	65.90		0.00	3723.07	84.56					
MW-22	3788.97	5/29/18	66.04		0.00	3722.93	84.51					
MW-22	3788.97	8/29/18	66.17		0.00	3722.80	84.56					
MW-22	3788.97	11/27/18	66.38		0.00	3722.59				7.0		
MW-22	3788.97	2/25/19	66.53		0.00	3722.44						
MW-22	3788.97	2/26/19								9.0		
MW-22	3788.97	5/20/19	66.70		0.00	3722.27						
MW-22	3788.97	5/22/19							0	8.5		
MW-22	3788.97	7/23/19	66.79		0.00	3722.18						
MW-22	3788.97	7/24/19							0.0	6.0		
MW-22	3788.97	10/21/19	67.02		0.00	3721.95	84.56					
MW-22	3788.97	10/24/19								6.0		
MW-22	3788.97	2/11/20	67.31	-	0.00	3721.66	85.22			9.0		
MW-23	3790.93	2/27/18	67.90	66.52	1.38	3724.15	83.82					
MW-23	3790.93	5/29/18	66.84	66.62	0.22	3724.27						
MW-23	3790.93	8/29/18	68.37	66.80	1.57	3723.83						
MW-23	3790.93	10/3/18							1.0	0.2		
MW-23	3790.93	11/27/18	69.70	66.77	2.93	3723.60						
MW-23	3790.93	2/25/19	70.98	66.53	4.45	3723.55						
MW-23	3790.93	4/30/19	72.64	66.52	6.12	3723.25			4.7	0.3		
MW-23	3790.93	5/20/19	69.30	67.40	1.90	3723.17						
MW-23	3790.93	6/11/19							3	1		
MW-23	3790.93	6/18/19							1.5	0.5		
MW-23	3790.93	6/25/19							1.1	0.4		
MW-23	3790.93	7/2/19							0.3	0.4		
MW-23	3790.93	7/8/19							0.5	1.2		
MW-23	3790.93	7/23/19	69.31	67.50	1.81	3723.09						
MW-23	3790.93	8/6/19							0.8	0.5		
MW-23	3790.93	8/13/19							0.9	0.1		
MW-23	3790.93	8/20/19							2.0	0.5		
MW-23	3790.93	8/28/19							1.4	1.4		
MW-23	3790.93	9/10/19							0.9	0.1		
MW-23	3790.93	9/25/19							0.0	3.0		
MW-23	3790.93	10/2/19							0.8	0.2		
MW-23	3790.93	10/21/19	69.69	67.61	2.08	3722.92						
MW-23	3790.93	11/20/19							1.5	0.5		
MW-23	3790.93	12/11/19							2.5			

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<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
MW-23	3790.93	12/18/19							1.5	3.0		
MW-23	3790.93	12/24/19							0.25	0.75		
MW-23	3790.93	1/8/20							1.0	2.0		
MW-23	3790.93	1/15/20							0.5	0.2		
MW-23	3790.93	1/29/20							0.4	1.0		
MW-23	3790.93	2/11/20	69.37	67.93	1.44	3722.73	84.92					TD Measured
RW-01	3790.75	2/27/18				Dry	60.64	40-65 (6 in.)				
RW-01	3790.75	5/29/18				Dry	60.65					
RW-01	3790.75	8/29/18				Dry	60.64					
RW-01	3790.75	11/27/18				Dry						
RW-01	3790.75	2/25/19				Dry						
RW-01	3790.75	5/20/19				Dry						
RW-01	3790.75	7/23/19				Dry						
RW-01	3790.75	10/21/19				Dry	60.63					
RW-02	3791.66	2/27/18				Dry	66.33	40-65 (4 in.)				
RW-02	3791.66	5/29/18				Dry						
RW-02	3791.66	8/29/18				Dry						
RW-02	3791.66	11/27/18				Dry	66.42					
RW-02	3791.66	2/25/19				Dry						
RW-02	3791.66	5/20/19				Dry						
RW-02	3791.66	7/23/19				Dry						
RW-02	3791.66	10/21/19				Dry	66.35					
RW-03	3791.34	2/27/18	67.72	66.80	0.92	3724.37	68.13	40-65 (6 in.)				
RW-03	3791.34	5/29/18		66.39	1.69+	LNAPL at TD	68.08					
RW-03	3791.34	8/29/18		66.35	1.87+	LNAPL at TD	68.22					
RW-03	3791.34	10/3/18							1.2	0.0		
RW-03	3791.34	11/27/18	67.73	66.28	1.45	3724.78						
RW-03	3791.34	2/25/19	67.66	66.48	1.18	3724.64						
RW-03	3791.34	4/30/19	67.58	66.57	1.01	3724.58			0.3	0.3		
RW-03	3791.34	5/20/19	67.80	66.65	1.15	3724.47						
RW-03	3791.34	6/11/19							0.8	0		
RW-03	3791.34	6/18/19							1.2	0.0		
RW-03	3791.34	6/25/19							0.9	0.0		
RW-03	3791.34	7/2/19							0.8	0		
RW-03	3791.34	7/8/19							0.8	0.1		
RW-03	3791.34	7/23/19		63.77	4.13+	LNAPL at TD						
RW-03	3791.34	8/6/19							0.5	0.0		
RW-03	3791.34	8/20/19							0.2	0.0		
RW-03	3791.34	8/28/19							0.5	0.0		
RW-03	3791.34	10/21/19		66.96	1.17+	LNAPL at TD	68.15					
RW-03	3791.34	12/11/19							0.4	0.1		
RW-03	3791.34	12/18/19							0.5	0.0		
RW-03	3791.34	12/24/19							0.25	0.25		

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<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
RW-03	3791.34	1/8/20							0.5	0.0		
RW-03	3791.34	2/11/20	-	67.22	0.79+	LNAPL at TD	68.01					TD Measured
RW-04	3790.76	2/27/18	68.70	66.50	2.20	3723.84	68.94	50-70 (4 in.)				
RW-04	3790.76	5/29/18	67.83	66.27	1.56	3724.19						
RW-04	3790.76	8/29/18		66.19	2.75+	LNAPL at TD						
RW-04	3790.76	11/27/18		66.25	2.67+		68.92					
RW-04	3790.76	2/25/19	69.02	66.44	2.58	LNAPL at TD	69.02					
RW-04	3790.76	4/30/19	68.98	66.53	2.45	LNAPL at TD	68.98		1.2	0.0		
RW-04	3790.76	5/20/19		66.70	2.28+	LNAPL at TD						
RW-04	3790.76	6/11/19							1	0		
RW-04	3790.76	6/25/19							1.0	0.0		
RW-04	3790.76	7/23/19		66.80	2.10+	LNAPL at TD						
RW-04	3790.76	8/13/19							0.4	0.0		
RW-04	3790.76	8/20/19							0.2	0.2		
RW-04	3790.76	8/28/19							0.3	0.0		
RW-04	3790.76	10/21/19		66.93	2.01+	LNAPL at TD	68.96					
RW-04	3790.76	12/11/19							0.5	0.1		
RW-04	3790.76	12/24/19							0.5	0.5		
RW-04	3790.76	2/11/20	-	67.01	3.52+	LNAPL at TD	70.53	50-70 (4 in.)				TD Measured
RW-05	3791.45	2/27/18	67.30	65.80	1.50	3725.37	67.28	47-67 (4 in.)				
RW-05	3791.45	5/29/18		65.81	1.36+	LNAPL at TD	67.17					
RW-05	3791.45	8/29/18		65.96	1.59+	LNAPL at TD	67.55					
RW-05	3791.45	11/27/18		66.17	0.99+		67.16					
RW-05	3791.45	1/29/19							0.3			
RW-05	3791.45	2/25/19		66.33	0.83+	LNAPL at TD						
RW-05	3791.45	4/30/19		66.46	0.70+	LNAPL at TD	67.16		0.2	0.0		
RW-05	3791.45	5/20/19		66.50	0.66+	LNAPL at TD						
RW-05	3791.45	6/11/19							0.1	0		
RW-05	3791.45	7/2/19							1.0	1.0		
RW-05	3791.45	7/8/19							0.0	0.0		
RW-05	3791.45	7/23/19		66.65	0.51+	LNAPL at TD						
RW-05	3791.45	8/20/19							0	0		
RW-05	3791.45	8/28/19							0.2	0		
RW-05	3791.45	10/21/19		66.86	0.42+	LNAPL at TD	67.29					
RW-05	3791.45	12/18/19							0	Dry		
RW-05	3791.45	12/24/19							0.2	0.8		
RW-05	3791.45	1/8/20				Dry						
RW-05	3791.45	1/15/20							0	0		
RW-05	3791.45	2/11/20	-	67.11	2.33+	LNAPL at TD	69.44					TD Measured
RW-06	3791.39	2/27/18	67.40	65.90	1.50	3725.21	68.54	46-66 (4 in.)				
RW-06	3791.39	5/29/18	67.03	65.07	1.96	3725.95						
RW-06	3791.39	8/29/18	67.48	66.13	1.35	3725.00						
RW-06	3791.39	10/3/18							0.2	0.0		

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<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
RW-06	3791.39	11/27/18	67.47	66.30	1.17	3724.87						
RW-06	3791.39	1/29/19							0.3			
RW-06	3791.39	2/25/19	67.54	66.48	1.06	3724.71	67.45					
RW-06	3791.39	4/30/19							0.2	0.0		
RW-06	3791.39	5/20/19		66.70	0.75+	LNAPL at TD	67.45					
RW-06	3791.39	6/11/19							0.3	0		
RW-06	3791.39	6/25/19							0.2	0.0		
RW-06	3791.39	7/8/19							0.3	0.0		
RW-06	3791.39	7/23/19		66.84	0.61+	LNAPL at TD						
RW-06	3791.39	8/21/19							0.2	0		
RW-06	3791.39	8/28/19							0.3	0		
RW-06	3791.39	10/21/19		66.98	1.56+	LNAPL at TD	68.56					
RW-06	3791.39	12/11/19							0.1	0		
RW-06	3791.39	12/18/19							0	Dry		
RW-06	3791.39	12/24/19								0.1		
RW-06	3791.39	1/8/20				Dry						
RW-06	3791.39	2/11/20	-	67.22	0.31+	LNAPL at TD	67.53					TD Measured
RW-07	3791.51	2/27/18	67.68	67.04	0.64	3724.35	69.16	48-68 (4 in.)				
RW-07	3791.51	5/29/18	68.02	67.23	0.79	3724.13						
RW-07	3791.51	8/29/18	68.15	67.36	0.79	3724.00						
RW-07	3791.51	10/3/18							1.5	0.2		
RW-07	3791.51	11/27/18	68.45	67.45	1.00	3723.87						
RW-07	3791.51	1/29/19							1.2			
RW-07	3791.51	2/25/19	68.80	67.69	1.11	3723.61						
RW-07	3791.51	4/30/19	69.32	66.50	2.82	LNAPL at TD	69.32		1.0	0.0		
RW-07	3791.51	5/20/19		67.90	1.42+	LNAPL at TD						
RW-07	3791.51	6/11/19							0.6	0		
RW-07	3791.51	6/25/19							0.2	0.1		
RW-07	3791.51	7/8/19							0.2	0.2		
RW-07	3791.51	7/23/19	68.70	68.13	0.57	3723.27						
RW-07	3791.51	8/20/19							0.3	0.2		
RW-07	3791.51	8/28/19							0.5	0.5		
RW-07	3791.51	10/21/19	69.03	68.24	0.79	3723.12						
RW-07	3791.51	12/18/19							0.4	0		
RW-07	3791.51	2/11/20	-	68.30	1.18+	LNAPL at TD	69.48					TD Measured
RW-08	3790.90	2/27/18		65.60	2.43+	LNAPL at TD	68.03	47-67 (4 in.)				
RW-08	3790.90	5/29/18		65.75	2.47+	LNAPL at TD	68.22					
RW-08	3790.90	8/29/18		65.89	1.63+	LNAPL at TD	67.52					
RW-08	3790.90	11/27/18		66.10	1.32+		67.42					
RW-08	3790.90	2/25/19		66.28	1.14+	LNAPL at TD						
RW-08	3790.90	5/20/19		Dry		Dry						
RW-08	3790.90	6/25/19							0.1	0.0		
RW-08	3790.90	7/8/19							0.1	0.0		
RW-08	3790.90	7/23/19		66.60	0.82+	LNAPL at TD						

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<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
RW-08	3790.90	8/20/19							0.2	0.3		
RW-08	3790.90	8/28/19							0.1	0		
RW-08	3790.90	10/21/19		66.75	1.28+	LNAPL at TD	68					
RW-08	3790.90	2/11/20	-	66.93	2.42+	LNAPL at TD	69.35	47-67 (4 in.)				TD Measured
RW-09	3791.33	2/27/18	67.18	67.05	0.13	3724.26	71.18	49-69 (4 in.)				
RW-09	3791.33	5/29/18	67.40	67.26	0.14	3724.04						
RW-09	3791.33	8/29/18	67.59	67.39	0.20	3723.90						
RW-09	3791.33	11/27/18	67.79	67.57	0.22	3723.72						
RW-09	3791.33	2/25/19	68.04	67.76	0.28	3723.52						
RW-09	3791.33	5/20/19	68.18	68.01	0.17	3723.29						
RW-09	3791.33	7/23/19	68.33	68.10	0.23	3723.19						
RW-09	3791.33	8/28/19							0.1	1		
RW-09	3791.33	9/10/19							0.1	0.9		
RW-09	3791.33	10/2/19							0.1	0.9		
RW-09	3791.33	10/21/19	68.37	68.23	0.14	3723.07						
RW-09	3791.33	11/20/19							0.1	0.9		
RW-09	3791.33	1/15/20							0.3	0		
RW-09	3791.33	2/11/20	68.69	68.49	0.20	3722.80	73.29					TD Measured
RW-10	3791.16	2/27/18		66.00	2.80+	LNAPL at TD	68.8					
RW-10	3791.16	5/29/18	68.73	66.05	2.68	LNAPL at TD	68.8					
RW-10	3791.16	8/29/18		66.31	1.20+	LNAPL at TD	67.51					
RW-10	3791.16	11/27/18		66.50	2.20+		68.70					
RW-10	3791.16	2/25/19		66.68	2.02+	LNAPL at TD						
RW-10	3791.16	5/20/19		66.98	1.62+	LNAPL at TD	68.70					
RW-10	3791.16	7/23/19		67.00	1.70+	LNAPL at TD						
RW-10	3791.16	10/21/19		67.18	1.62+	LNAPL at TD	68.82					
RW-10	3791.16	2/11/20				Dry	68.68					TD Measured
RW-11	3790.82	2/27/18	70.61	66.00	4.61	3723.94	72.39	50-70 (4 in.)				
RW-11	3790.82	5/29/18	68.22	66.72	1.50	3723.82	72.39					
RW-11	3790.82	8/29/18	68.81	66.85	1.96	3723.60	72.39					
RW-11	3790.82	11/27/18	69.75	66.89	2.86	3723.39						
RW-11	3790.82	2/25/19	70.56	66.88	3.68	3723.24						
RW-11	3790.82	5/20/19	69.05	67.45	1.60	3723.07						
RW-11	3790.82	7/23/19	68.15	67.80	0.35	3722.95						
RW-11	3790.82	8/13/19							0.3	0.7		
RW-11	3790.82	8/20/19							0.2	0.5		
RW-11	3790.82	8/28/19							0.5	2.0		
RW-11	3790.82	9/10/19							0.5	1.5		
RW-11	3790.82	9/25/19							0.2	1.3		
RW-11	3790.82	10/2/19							0.4			
RW-11	3790.82	10/21/19	69.06	67.78	1.28	3722.80						
RW-11	3790.82	12/11/19							2.0	0.1		
RW-11	3790.82	12/24/19							0.4	1.0		

**Table 1**  
**Summary of Fluid Level Measurements**  
**Plains Pipeline, L.P.**  
**Darr Angell No. 1**  
**Lea County, New Mexico**

<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
RW-11	3790.82	1/15/20							0.4	1.6		
RW-11	3790.82	1/29/20							1.5	1.0		
RW-11	3790.82	2/11/20	68.70	68.18	0.52	3722.54	74.93					TD Measured
RW-12	3791.20	2/27/18	66.80		0.00	3724.40	85.81					
RW-12	3791.20	5/29/18	66.95		0.00	3724.25	85.73					
RW-12	3791.20	8/29/18	67.09		0.00	3724.11	85.81					
RW-12	3791.20	11/27/18	67.25		0.00	3723.95				8.0		
RW-12	3791.20	2/25/19	67.47		0.00	3723.73						
RW-12	3791.20	4/30/19	67.59		0.00	3723.61			0	3		
RW-12	3791.20	5/20/19	67.65		0.00	3723.55						
RW-12	3791.20	5/22/19							0	36.0		
RW-12	3791.20	7/23/19	67.74		0.00	3723.46						
RW-12	3791.20	7/24/19							0.0	27.0		
RW-12	3791.20	8/28/19							0.0	3.0		
RW-12	3791.20	9/10/19							0.0	0.5		
RW-12	3791.20	9/25/19							0.0	3.0		
RW-12	3791.20	10/2/19								1.0		
RW-12	3791.20	10/21/19	67.95		0.00	3723.25	85.81					
RW-12	3791.20	10/24/19								33.0		
RW-12	3791.20	2/11/20	68.21	-	0.00	3722.99	88.59					TD Measured
RW-13	3791.08	2/27/18	72.40	65.75	6.65	3724.07	82.05					
RW-13	3791.08	5/29/18	70.30	66.23	4.07	3724.08						
RW-13	3791.08	8/29/18	70.34	66.46	3.88	3723.88						
RW-13	3791.08	11/27/18	70.61	66.90	3.71	3723.48						
RW-13	3791.08	2/25/19	71.71	66.64	5.07	3723.48						
RW-13	3791.08	5/20/19	70.11	67.20	2.91	3723.33						
RW-13	3791.08	7/23/19	71.40	67.30	4.10	3723.00						
RW-13	3791.08	10/21/19	72.86	67.17	5.69	3722.83						
RW-13	3791.08	2/11/20	73.32	67.39	5.93	3722.56	84.33					TD Measured
RW-14	3790.92	2/27/18	71.13	65.90	5.23	3724.03	79.62					
RW-14	3790.92	5/29/18	69.05	66.59	2.46	3723.86						
RW-14	3790.92	8/29/18	71.24	66.36	4.88	3723.63						
RW-14	3790.92	11/27/18	69.51	66.95	2.56	3723.48						
RW-14	3790.92	2/25/19	70.65	66.95	3.70	3723.27						
RW-14	3790.92	5/20/19	69.55	67.65	1.90	3722.91						
RW-14	3790.92	7/23/19	73.21	67.13	6.08	3722.63						
RW-14	3790.92	7/30/19	73.41	67.05	6.36	3722.66						
RW-14	3790.92	10/21/19	73.28	67.29	5.99	3722.49						
RW-14	3790.92	2/11/20	73.69	67.48	6.21	3722.26	81.46					TD Measured



**Table 1**  
**Summary of Fluid Level Measurements**  
**Plains Pipeline, L.P.**  
**Darr Angell No. 1**  
**Lea County, New Mexico**

<i>Well ID</i>	<i>Elevation of Top of Casing (famsl)</i>	<i>Date</i>	<i>Depth to Groundwater (fbtoc)</i>	<i>Depth to LNAPL (fbtoc)</i>	<i>Thickness of LNAPL (ft.)</i>	<i>Elevation of Potentiometric Surface (famsl)</i>	<i>Measured Well Depth (fbtoc)</i>	<i>Screen Interval (fbgs) Well Diameter (in.)</i>	<i>Volume Product Removed (gal.)</i>	<i>Volume Groundwater Bailed (gal.)</i>	<i>Volume Groundwater Removed by EFR (gal.)</i>	<i>Notes</i>
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**Notes:**

1. famsl - Feet above mean sea level
2. fbtoc - Feet below top of casing
3. LNAPL - Light non-aqueous phase liquid.
4. fbgs - below ground surface.
5. Factor of 0.81 was used for density of LNAPL to calculate elevation of potentiometric surface where measureable thickness of LNAPL was present.
6. "+" entered with LNAPL thickness indicates that the base of LNAPL was below the bottom of the well.



Table 2

**Summary of Dissolved Hydrocarbons in Groundwater**  
**Plains Pipeline, L.P.**  
**Darr Angell No. 1, SRS Darr Angell #1**  
**Lea County, New Mexico**

Sample ID	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes
<b>NMWQCC Human Health Standards</b>					
		<b>0.01</b>	<b>0.75</b>	<b>0.75</b>	<b>0.62</b>
MW-2	2/27/18	<0.00200	<b>0.0101</b>	<b>0.00899</b>	<b>0.0353</b>
MW-2 (DUP-2)	2/27/18	<0.00200	<b>0.00789</b>	<b>0.00796</b>	<b>0.0308</b>
MW-2	5/31/18	<0.00200	<b>0.00259</b>	<b>0.0182</b>	<b>0.0619</b>
MW-2 (Dup1)	5/31/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-2	11/29/18	<0.000190	<0.000412	<0.000160	<b>0.0424</b>
MW-2	2/27/19	<b>0.0166</b>	<0.000412	<0.000160	<b>0.0124</b>
MW-2 (DUP-2)	2/27/19	<b>0.0177</b>	<0.000412	<0.000160	<b>0.0130</b>
MW-2	5/22/19	<b>0.0118</b>	<b>0.000966 J</b>	<b>0.00286</b>	<b>0.00667</b>
MW-2	7/24/19	<b>0.00339</b>	<0.000412	<0.000160	<b>0.00161</b>
MW-2	10/24/19	<b>0.00860</b>	<0.000412	<b>0.00187</b>	<b>0.0190</b>
MW-2 (Dup-1)	10/24/19	<b>0.0137</b>	<0.000412	<b>0.00377</b>	<b>0.0437</b>
MW-4	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-4	10/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-6	2/27/18	<b>0.109</b>	0.00278	<b>0.0114</b>	<b>0.0151</b>
MW-6 (DUP-1)	2/27/18	<b>0.141</b>	<0.0500	<0.0500	<0.0500
MW-6	5/31/18	<b>0.105</b>	<0.00200	<b>0.0105</b>	<b>0.0141</b>
MW-6	8/30/18	<b>0.0829</b>	<b>0.00274</b>	<b>0.00194</b>	<b>0.00900</b>
MW-6	11/29/18	<b>0.0781</b>	<0.000412	<b>0.00840</b>	<b>0.00944</b>
MW-6	2/27/19	<b>0.0994</b>	<b>0.00146</b>	<b>0.0115</b>	<b>0.0115</b>
MW-6	5/22/19	<b>0.0724</b>	<b>0.000675 J</b>	<b>0.00415</b>	<b>0.00905</b>
MW-6	7/24/19	<b>0.0746</b>	<0.000412	<b>0.000864</b>	<b>0.00431</b>
MW-6 (DUP-1)	7/24/19	<b>0.0691</b>	<0.000412	<b>0.000755</b>	<b>0.00394 B</b>
MW-6	10/24/19	<b>0.0590</b>	<b>0.000554 J</b>	<b>0.00156</b>	<b>0.00631</b>
MW-6 (Dup-2)	10/24/19	<b>0.0649</b>	<b>0.000664 J</b>	<b>0.00157</b>	<b>0.00622</b>
MW-7	5/31/18	<b>0.00379</b>	<0.00200	<0.00200	<0.00200
MW-7 (Dup2)	5/31/18	<b>0.00367</b>	<0.00200	<0.00200	<0.00200
MW-7	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-7	10/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-12R	2/27/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-12R	5/31/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-12R	8/30/18	<b>0.000791</b>	<b>0.000434 J</b>	<b>0.000176 J</b>	<0.000510
MW-12R (DUP-2)	8/30/18	<b>0.000416 J</b>	<0.000412	<b>0.000176 J</b>	<0.000510
MW-12R	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-12R	2/27/19	<b>0.000563</b>	<0.000412	<0.000160	<0.000510
MW-12R	5/22/19	<0.000190	<0.000412	<b>0.000507</b>	<b>0.00108 B J</b>
MW-12R	7/24/19	<b>0.000300 J</b>	<0.000412	<0.000160	<0.000510
MW-12R	10/24/19	<b>0.000236 J</b>	<0.000412	<0.000160	<b>0.000537 J</b>
MW-16R	2/27/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-16R	5/31/18	<0.00200	<0.00200	<0.00200	<0.00200

Table 2

**Summary of Dissolved Hydrocarbons in Groundwater**  
**Plains Pipeline, L.P.**  
**Darr Angell No. 1, SRS Darr Angell #1**  
**Lea County, New Mexico**

Sample ID	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes
<b>NMWQCC Human Health Standards</b>					
		<b>0.01</b>	<b>0.75</b>	<b>0.75</b>	<b>0.62</b>
MW-16R	8/30/18	<b>0.000256 J</b>	<0.000412	<0.000160	<0.000510
MW-16R	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-16R	2/27/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-16R (DUP-1)	2/27/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-16R	5/22/19	<b>0.000480 J</b>	<0.000412	<b>0.000200 J</b>	<0.000510
MW-16R	7/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-16R	10/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-17R	2/27/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-17R	5/31/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-17R	8/30/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-17R	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-17R (DUP-1)	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-17R	2/27/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-17R	5/22/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-17R (DUP-1)	5/22/19	<b>0.000250 J</b>	<0.000412	<0.000160	<0.000510
MW-17R	7/24/19	<0.000190	<0.000412	<b>0.000189 J</b>	<0.000510
MW-17R	10/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-18R	2/27/18	<0.00200	<0.00200	0.00200	<0.00200
MW-18R	5/31/18	<0.00200	<0.00200	0.00200	<0.00200
MW-18R	8/30/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-18R	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-18R	2/27/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-18R	5/22/19	<b>0.000258 J</b>	<0.000412	<0.000160	<0.000510
MW-18R	7/24/19	<b>0.000201 J</b>	<b>0.000448 J</b>	<b>0.000365 J</b>	<b>0.00101 J</b>
MW-18R	10/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-19R	2/27/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-19R	5/31/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-19R	8/30/18	<b>0.000338 J</b>	<0.000412	<0.000160	<0.000510
MW-19R	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-19R	2/27/19	<b>0.000519</b>	<0.000412	<0.000160	<0.000510
MW-19R	5/22/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-19R	7/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-19R	10/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-20R	2/27/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-20R	5/31/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-20R	8/30/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-20R	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-20R (DUP-2)	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-20R	2/27/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-20R	5/22/19	<0.000190	<0.000412	<0.000160	<0.000510

Table 2

**Summary of Dissolved Hydrocarbons in Groundwater**  
**Plains Pipeline, L.P.**  
**Darr Angell No. 1, SRS Darr Angell #1**  
**Lea County, New Mexico**

Sample ID	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes
<b>NMWQCC Human Health Standards</b>					
		<b>0.01</b>	<b>0.75</b>	<b>0.75</b>	<b>0.62</b>
MW-20R	7/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-20R	10/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-21	2/27/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-21	5/31/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-21	8/30/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-21	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-21	2/27/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-21	5/22/19	<b>0.000279 J</b>	<0.000412	<0.000160	<0.000510
MW-21	7/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-21	10/24/19	Insufficient Water to Sample			
MW-22	2/27/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-22	5/31/18	<0.00200	<0.00200	<0.00200	<0.00200
MW-22	8/30/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-22	11/29/18	<0.000190	<0.000412	<0.000160	<0.000510
MW-22	2/27/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-22	5/22/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-22	7/24/19	<0.000190	<0.000412	<0.000160	<0.000510
MW-22	10/24/19	<0.000190	<0.000412	<0.000160	<0.000510
RW-12	2/27/18	<b>0.00237</b>	<b>0.00809</b>	<b>0.00271</b>	<b>0.0170</b>
RW-12	5/31/18	<b>1.53 D</b>	<b>0.0909</b>	<b>0.202</b>	<b>0.220</b>
RW-12	8/30/18	<b>0.00161</b>	<b>0.00965</b>	<b>0.00527</b>	<b>0.0641</b>
RW-12 (DUP-1)	8/30/18	<b>0.00147</b>	<b>0.00834</b>	<b>0.00451</b>	<b>0.0562</b>
RW-12	11/29/18	<b>0.00662</b>	<b>0.0194</b>	<b>0.0145</b>	<b>0.127</b>
RW-12	2/27/19	<b>0.00739</b>	<b>0.00863</b>	<b>0.00722</b>	<b>0.0826</b>
RW-12	5/22/19	<b>0.00663</b>	<b>0.00768</b>	<b>0.00491</b>	<b>0.0564</b>
RW-12 (DUP-2)	5/22/19	<b>0.00782</b>	<b>0.0113</b>	<b>0.00920</b>	<b>0.108</b>
RW-12	7/24/19	<b>0.00869</b>	<b>0.0115</b>	<b>0.0223</b>	<b>0.162</b>
RW-12 (DUP-2)	7/24/19	<b>0.00807</b>	<b>0.0109</b>	<b>0.0210</b>	<b>0.151</b>
RW-12	10/24/19	<b>0.00505</b>	<b>0.00408</b>	<b>0.00361</b>	<b>0.104</b>
Trip Blank	8/30/18	<0.000190	<0.000412	<0.000160	<b>0.000510 J</b>
Trip Blank	2/27/19	<0.000190	<0.000412	<0.000160	<0.000510
Trip Blank	10/24/19	<0.000190	<0.000412	<0.000160	<0.000510

Table 2

**Summary of Dissolved Hydrocarbons in Groundwater**  
**Plains Pipeline, L.P.**  
**Darr Angell No. 1, SRS Darr Angell #1**  
**Lea County, New Mexico**

<i>Sample ID</i>	<i>Sample Date</i>	<i>Benzene (mg/L)</i>	<i>Toluene (mg/L)</i>	<i>Ethylbenzene (mg/L)</i>	<i>Total Xylenes</i>
<b>NMWQCC Human Health Standards</b>					
		<b>0.01</b>	<b>0.75</b>	<b>0.75</b>	<b>0.62</b>

**Notes:**

1. Shaded cells indicate concentrations exceeding New Mexico Water Quality Control Commission Human Health Standards.
2. Bold indicates detection.
3. BTEX analyses by EPA Method 8021B.
4. Samples collected during March 2011 were collected by NOVA.
5. MW-12R, MW-16R, MW-18R, MW-22, MW-23, and RW-12 were installed in February 2017.
6. D Flag—The sample was diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

Table 3  
Summary of Analytical Results of PAH Compounds in Groundwater  
Plains Pipeline, L.P.  
Darr Angell No. 1  
Lea County, New Mexico

Sample ID	Sample Date	Anthracene	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)
		NMOC Regulatory Standards																		
		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	11/24/08	<0.000183	<0.000183	0.00485	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	0.0106	<0.000183	0.0167	<0.000183	0.122	0.0205	<0.000183	0.173	0.250
MW-1	12/08/09	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	0.0164	<0.000922	0.0436	<0.000922	0.0719	<0.000922	0.350	0.106	<0.000922	0.748	1.09
MW-2	11/24/08	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	0.00174	<0.000183	0.00255	<0.000183	0.0285	0.00282	<0.000183	0.0234	0.0302
MW-2	12/07/09	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	0.00314	<0.000184	0.00482	<0.000184	0.0435	0.00625	<0.000184	0.0536	0.0528
MW-2	12/01/17	<0.000185	0.000644	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	0.000941	<0.000185	0.00133	<0.000185	0.00546	0.00128	0.000236	--	--
MW-2	11/29/18	0.000671	0.000509	<0.0000120	<0.00000410	<0.0000116	0.0000380 J	<0.00000227	<0.0000136	0.000175	<0.00000396	0.00215	<0.0000157	0.00232	<0.0000148	0.0137	0.00291	<0.0000117	0.0257	0.0109
MW-2	10/24/19	0.00120	0.000502	<0.0000120	0.000537	0.000323	0.0000671 J	0.0000552 J	<0.0000136	0.000253	<0.00000396	0.00102	0.000181	0.00182	<0.0000148	0.00140	0.00290	0.000539	0.00629	0.00159
MW-3	11/24/08	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	0.00292	<0.000184	0.00377	<0.000184	0.0601	0.0037	<0.000184	0.0455	0.0625
MW-3	12/07/09	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	0.00191	<0.000184	0.00242	<0.000184	0.0372	0.00262	<0.000184	0.0396	0.0451
MW-3	11/22/10	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	0.00579	<0.000186	0.00899	<0.000186	0.0673	0.0136	<0.000186	0.0915	0.115
MW-4	11/24/08	<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-4	12/07/09	<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-5	11/24/08	0.0424	<0.000917	0.0806	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	0.0201	<0.000917	0.0326	<0.000917	0.136	0.0427	<0.000917	0.261	0.372
MW-5	12/07/09	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	0.00262	<0.000184	0.00767	<0.000184	0.0122	<0.000184	0.0779	0.0172	<0.000184	0.137	0.194
MW-6	11/24/08	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	0.00251	<0.000184	0.00321	<0.000184	0.0217	0.00322	<0.000184	0.0339	0.015
MW-6	12/07/09	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	0.00125	<0.000184	0.00129	<0.000184	0.00437	0.00144	<0.000184	0.0133	0.00426
MW-6	12/01/11	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	0.00152	<0.000186	0.000962	<0.000186	0.00345	0.00131	<0.000186	0.00676	0.00328
MW-6	12/06/12	<0.000190	<0.000190	<0.000190	<0.000190	<0.000190	<0.000190	<0.000190	<0.000190	<0.000190	<0.000190	0.00398	<0.000190	0.00346	<0.000190	0.0126	0.00406	<0.000190	0.0206	0.0207
MW-6	12/04/15	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	96	<0.000196	<0.000196	<0.000196	<0.000196	0.00034	<0.000196
MW-6	11/04/16	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	0.000342	<0.000185	<0.000185	<0.000185	0.00219	<0.000185	0.000273	0.00141	0.00122
MW-6	12/01/17	<0.000185	0.000313	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	<0.000185	0.00047	<0.000185	0.000277	<0.000185	0.00208	0.000360	<0.000185	---	---
MW-6	11/29/18	0.000306	0.000311	<0.0000120	<0.00000410	<0.0000116	0.0000189 J	0.0000137 J	<0.0000136	<0.0000108	<0.00000396	0.000334	0.0000159 J	0.000146	<0.0000148	0.00196	0.000293	0.000141	0.00188	0.00107
MW-6	10/24/19	0.0000833	0.000313	<0.0000120	<0.00000410	<0.0000116	<0.00000212	<0.00000227	<0.0000136	<0.0000108	<0.00000396	0.000332	<0.0000157	0.0000546	<0.0000148	0.00161	0.000139	0.0000246 J	0.000970	0.000783
MW-7	11/24/08	<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-7	12/07/09	<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	11/29/18	<0.0000140	0.0000476 J	<0.0000120	<0.00000410	<0.0000116	<0.00000212	<0.00000227	<0.0000136	<0.0000108	<0.00000396	0.00028	<0.0000157	<0.00000850	<0.0000148	0.000254 B	0.0000751	<0.0000117	0.000367	0.0000983 J
MW-7	10/24/19	<0.0000140	<0.0000100	<0.0000120	<0.00000410	<0.0000116	<0.00000212	<0.00000227	<0.0000136	<0.0000108	<0.00000396	0.00000667 B J	<0.0000157	<0.0000085	<0.0000148	0.0000281 B J	<0.00000820	<0.0000117	0.0000148 B J	0.0000138 B J
MW-8	11/25/08	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	0.0861	<0.000184	0.135	<0.000184	0.529	0.188	<0.000184	1.26	1.86
MW-8	12/08/09	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	0.0165	<0.000917	0.0566	<0.000917	0.0789	<0.000917	0.359	0.113	<0.000917	0.839	1.14
MW-9	11/25/08	<0.000184	<0.000184	0.00163	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	0.00172	<0.000184	0.00578	<0.000184	0.00846	<0.000184	0.0641	0.0104	<0.000184	0.0851	0.112
MW-10	11/24/08	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	0.0286	<0.000922	0.0382	<0.000922	0.212	0.0512	<0.000922	0.382	0.537

Table 3  
Summary of Analytical Results of PAH Compounds in Groundwater  
Plains Pipeline, L.P.  
Darr Angell No. 1  
Lea County, New Mexico

Sample ID	Sample Date	Anthracene	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)
		NMOCD Regulatory Standards																		
		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-16	11/24/08	0.000888	<0.000185	<0.000185	0.000959	0.000847	0.000814	0.00102	0.000879	0.000958	<0.000185	<0.000185	0.0013	0.000417	0.0010	<0.000185	0.00076	0.0012	0.000216	0.000313
MW-16	12/07/09	<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-17	11/24/08	<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-17	12/07/09	<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-17R	12/11/14	<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-17R	12/04/15	<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-18	11/24/08	<0.000187	<0.000187	<0.000187	<0.000187	<0.000187	<0.000187	<0.000187	<0.000187	<0.000187	<0.000187	<0.000187	0.000216	0.000245	<0.000187	<0.000187	<0.000187	<0.000187	<0.000187	<0.000187
MW-18	12/07/09	<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-18R	12/01/17	<0.000184	<0.000184	<0.000184	0.000257	<0.000184	0.000252	0.000298	0.000278	0.000250	0.000348	<0.000184	0.000286	<0.000184	0.000329	<0.000368	<0.000184	0.00029	<0.000184	<0.000184
MW-18R	11/29/18	<0.0000140	<0.0000100	<0.0000120	<0.00000410	<0.0000116	<0.00000212	<0.00000227	<0.0000136	<0.0000108	<0.00000396	0.00000623 B J	<0.0000157	<0.00000850	<0.0000148	0.000134 B J	0.00000952 J	<0.0000117	0.0000439 J	0.0000423 J
MW-19	11/24/08	<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-19	12/07/09	<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-19R	12/11/14	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	0.000930	<0.000186	<0.000186	<0.000186	<0.000186	0.00180	<0.000186	0.000330	0.000326
MW-19R	12/04/15	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197	<0.000197
MW-19R	11/04/16	<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	0.000296	<0.000185	<0.000185
MW-19R	11/29/18	<0.0000140	<0.0000100	<0.0000120	<0.00000410	<0.0000116	<0.00000212	<0.00000227	<0.0000136	<0.0000108	<0.00000396	0.00000399 B J	<0.0000157	<0.00000850	<0.0000148	0.0000460 B J	<0.00000820	<0.0000117	<0.00000821	<0.00000902
MW-20	11/24/08	<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-20	12/07/09	<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-20R	12/11/14	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186
MW-20R	12/04/15	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196	<0.000196
MW-21	11/24/08	<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-21	12/07/09	<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-22	12/01/17	<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	<0.000184	<0.000368	<0.000184	<0.000184	---	---
MW-22	11/29/18	<0.0000140	<0.0000100	<0.0000120	<0.00000410	<0.0000116	<0.00000212	<0.00000227	<0.0000136	<0.0000108	<0.00000396	0.00000399 B J	<0.0000157	<0.00000850	<0.0000148	0.0000537 B J	<0.00000820	<0.0000117	<0.00000821	<0.00000902
MW-22	10/24/19	<0.0000140	<0.0000100	<0.0000120	<0.00000410	<0.0000116	<0.00000212	<0.00000227	<0.0000136	<0.0000108	<0.00000396	0.00000625 B J	<0.0000157	<0.00000850	<0.0000148	0.0000362 B J	<0.00000820	<0.0000117	0.0000126 B J	0.0000132 B J
RW-2	12/08/09	<0.00184	<0.00184	<0.00184	<0.00184	<0.00184	<0.00184	<0.00184	<0.00184	0.0379	<0.00184	0.0964	<0.00184	0.162	<0.00184	0.798	0.256	<0.00184	1.74	2.60
RW-3	11/25/08	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	0.0218	<0.000917	0.0633	<0.000917	0.0966	<0.000917	0.400	0.129	<0.000917	0.888	1.31
RW-3	12/08/09	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	0.0506	<0.00183	0.130	<0.00183	0.210	<0.00183	1.02	0.321	<0.00183	2.27	3.29
RW-4	12/08/09	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	0.00224	<0.000183	0.00772	<0.000183	0.011	<0.000183	0.0801	0.0161	<0.000183	0.134	0.184
RW-5	11/25/08	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	0.013	<0.000917	0.0218	<0.000917	0.132	0.0273	<0.000917	0.17	0.254
RW-5	12/08/09	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	0.0166	<0.000917	0.0426	<0.000917	0.0726	<0.000917	0.338	0.105	<0.000917	0.726	1.07
RW-6	11/25/08	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	0.0286	<0.000917	0.0751	<0.000917	0.126	<0.000917	0.564	0.167	<0.000917	1.33	1.93
RW-6	12/08/09	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	0.0110	<0.000922	0.0180	<0.000922	0.0330	<0.000922	0.175	0.0456	<0.000922	0.327	0.462
RW-7	11/25/08	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	<0.000922	0.0254	<0.000922	0.0709	<0.000922	0.106	<0.000922	0.477	0.143	<0.000922	1.07	1.55
RW-7	12/08/09	<0.00862	<0.00862	<0.00862	<0.00862	<0.00862	<0.00862	<0.00862	<0.00862	0.191	<0.00862	0.0531	<0.00862	0.844	<0.00862	3.95	1.28	<0.00862	9.15	13.1
RW-8	11/25/08	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	<0.00459	0.214	<0.00459	0.342	<0.00459	1.17	0.436	<0.00459	2.87	4.15
RW-8	12/08/09	<0.00461	<0.00461	<0.00461	<0.00461	<0.00461	<0.00461	<0.00461	<0.00461	0.116	<0.00461	0.294	<0.00461	0.480	<0.00461	2.16	0.704	<0.00461	5.04	7.19
RW-9	11/25/08	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	0.0488	<0.000917	0.064	<0.000917	0.294	0.0838	<0.000917	0.587	0.841



Table 3  
Summary of Analytical Results of PAH Compounds in Groundwater  
Plains Pipeline, L.P.  
Darr Angell No. 1  
Lea County, New Mexico

Sample ID	Sample Date	Anthracene	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)
		NMOCD Regulatory Standards																		
		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
RW-9	12/08/09	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	<0.00183	0.0186	<0.00183	0.0576	<0.00183	0.0795	<0.00183	0.402	0.117	<0.00183	0.890	1.24
RW-10	12/08/09	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	0.00344	<0.000183	0.00496	<0.000183	0.0478	0.00643	<0.000183	0.0674	0.0898
RW-11	11/25/08	<0.000917	0.0062	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	<0.000917	0.0105	<0.000917	0.0269	<0.000917	0.0426	<0.000917	0.145	0.0571	<0.000917	0.322	0.441
RW-12	12/01/17	<0.000182	<0.000182	<0.000182	<0.000182	<0.000182	<0.000182	<0.000182	<0.000182	<0.000182	<0.000182	<0.000182	<0.000182	<0.000182	<0.000182	<0.000364	<0.000182	<0.000182	---	---
RW-12	11/29/18	<0.0000140	<0.0000100	<0.0000120	<0.00000410	<0.0000116	<0.00000212	<0.00000227	<0.0000136	<0.0000108	<0.00000396	0.00000538 B J	<0.0000157	<0.00000850	<0.0000148	0.000138 B J	<0.00000820	<0.0000117	0.0000167 J	<0.00000902
RW-12	11/12/19	<0.00000800	<0.0000100	<0.00000700	0.0000120 J	<0.0000158	0.00000573 J	0.00000505 J	<0.0000255	<0.0000144	<0.00000454	0.00000221 J	<0.0000165	<0.00000898	<0.00000739	0.0000393 B J	<0.0000184	<0.0000155	<0.0000189	<0.0000155

**Notes:**  
1. PAH analyses by EPA Method 8270D.  
2. Shaded cells indicate NMWQCC Drinking Water Standards Section 1-101.UU and 3-103.A exceedance.  
3. **Bold** indicates detection.  
4. Nova Training and Environmental collected samples from 2008 through 2010.  
5. Flag J indicates the identification of the analyte is acceptable and the reported result is an estimate.  
6. Flag B indicates the same analyte is found in the associated blank.  
7. Regulaotry standards of 0.001 mg/L noted above are requirements of the NMOCD. Other standards are required by NMAC 20.6.2.3103 Section A..

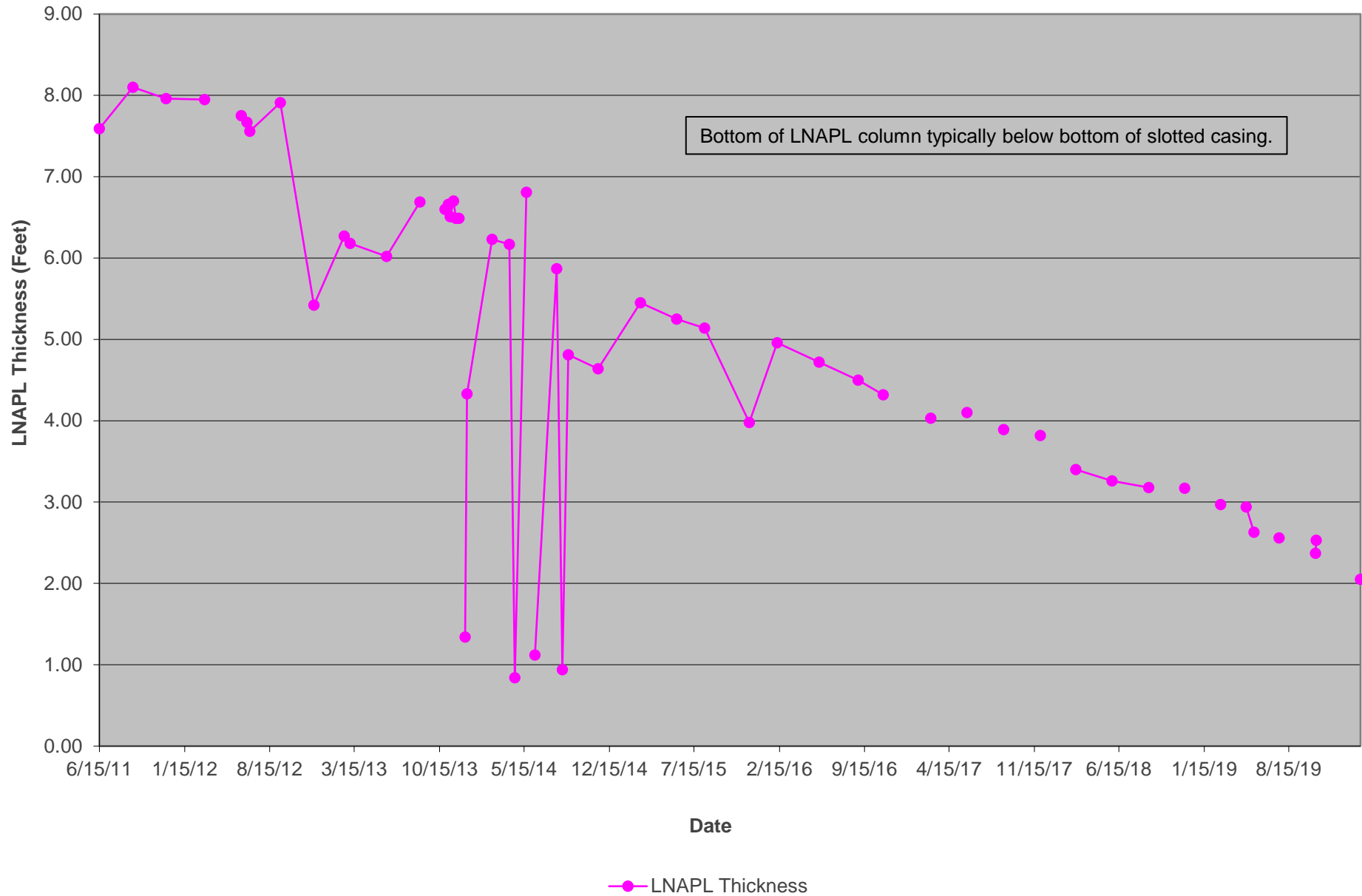
## Appendices



# Appendix A

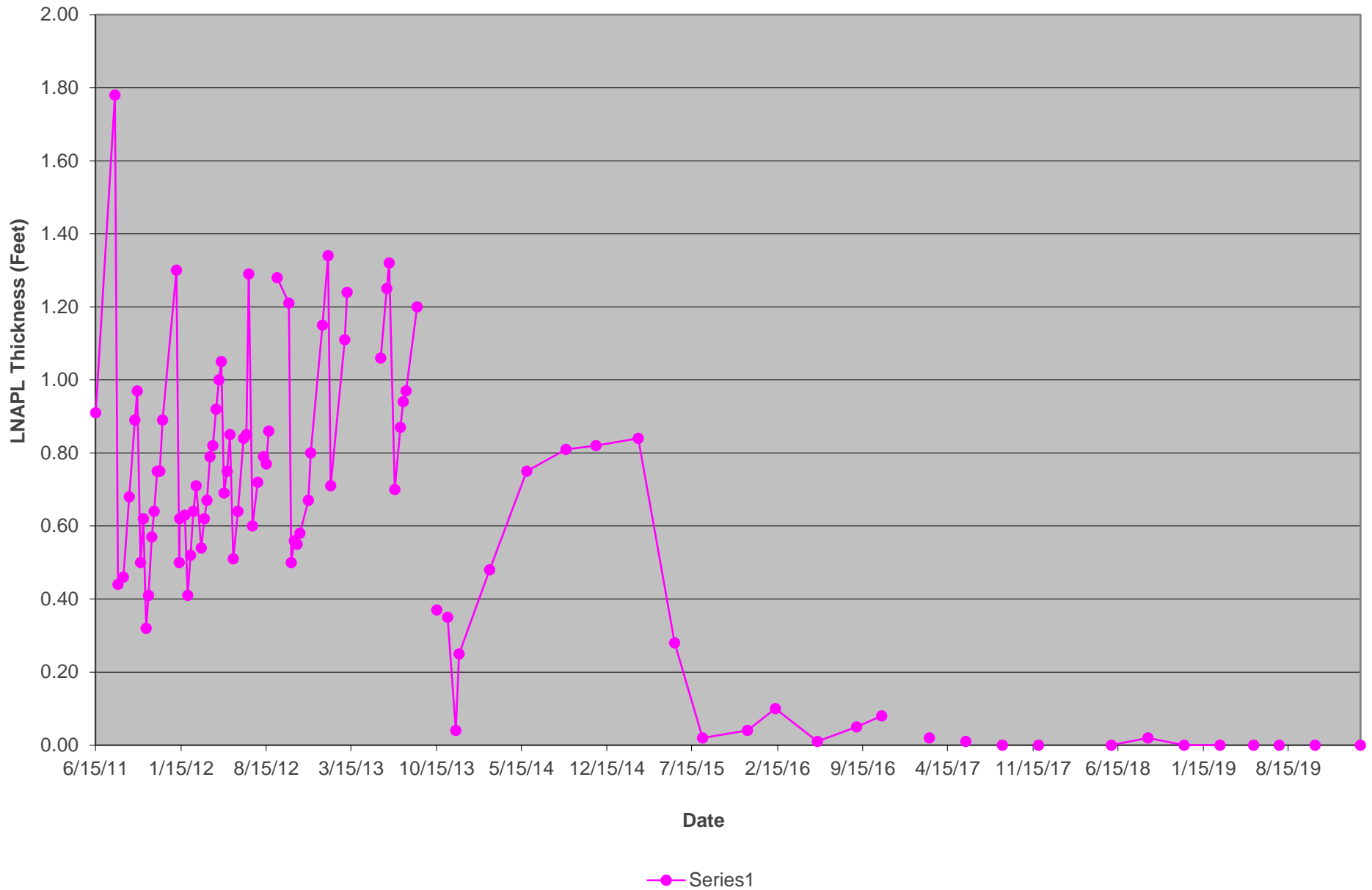
## Charts of LNAPL Thicknesses in Monitor and Recovery Wells vs. Time

DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
MW-1

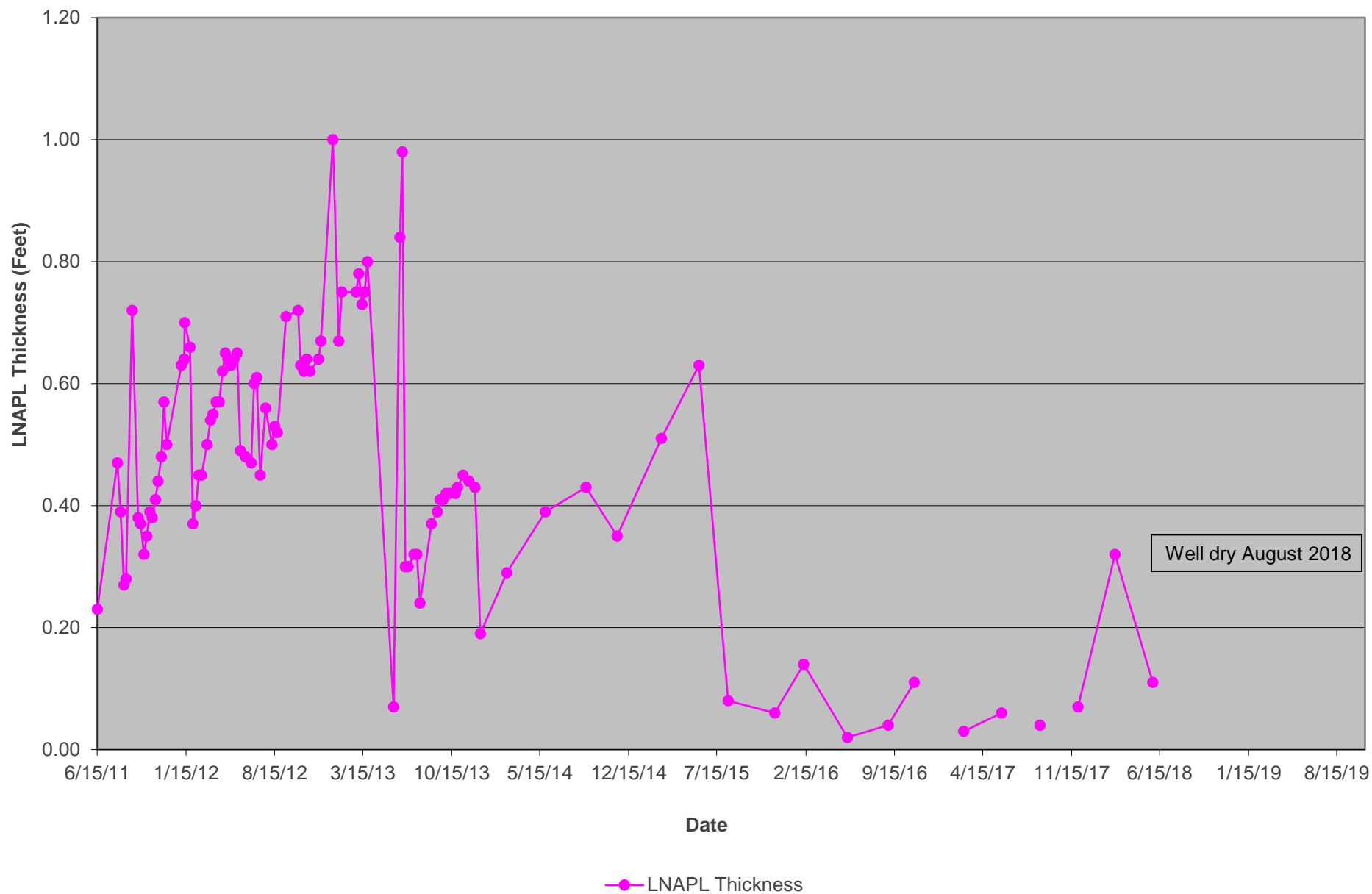




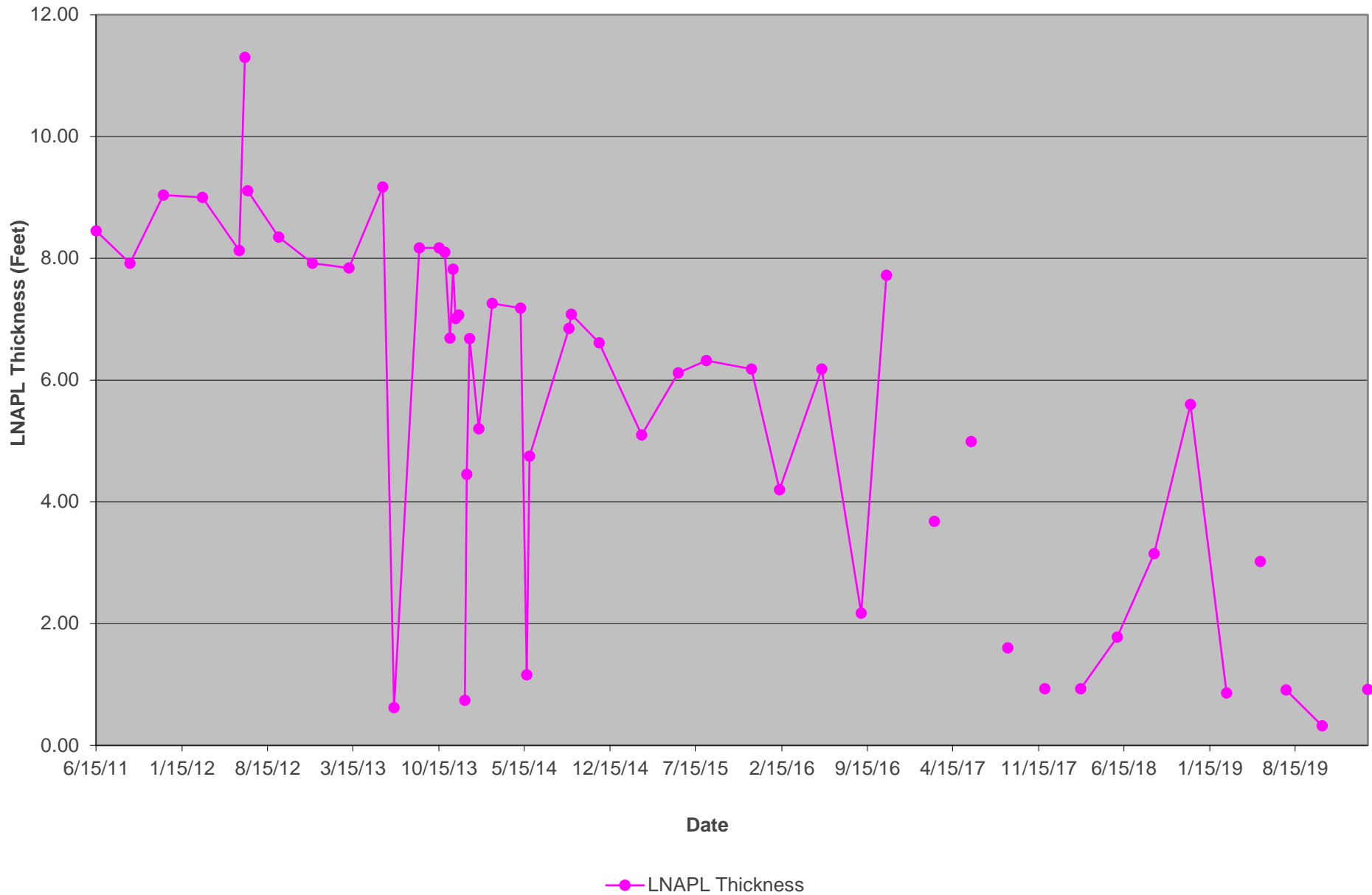
DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
MW-2



DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
MW-3

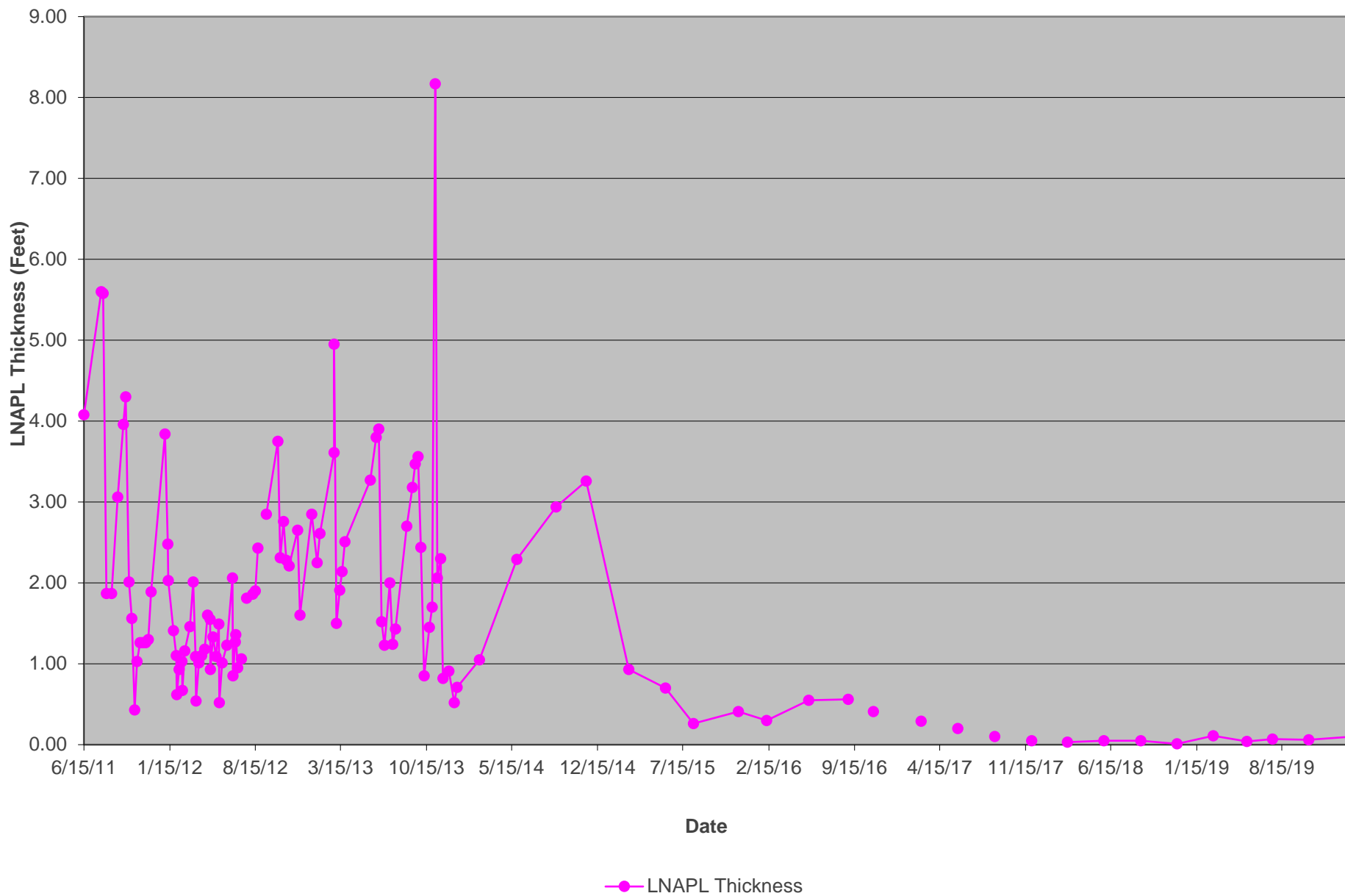


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LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
MW-5

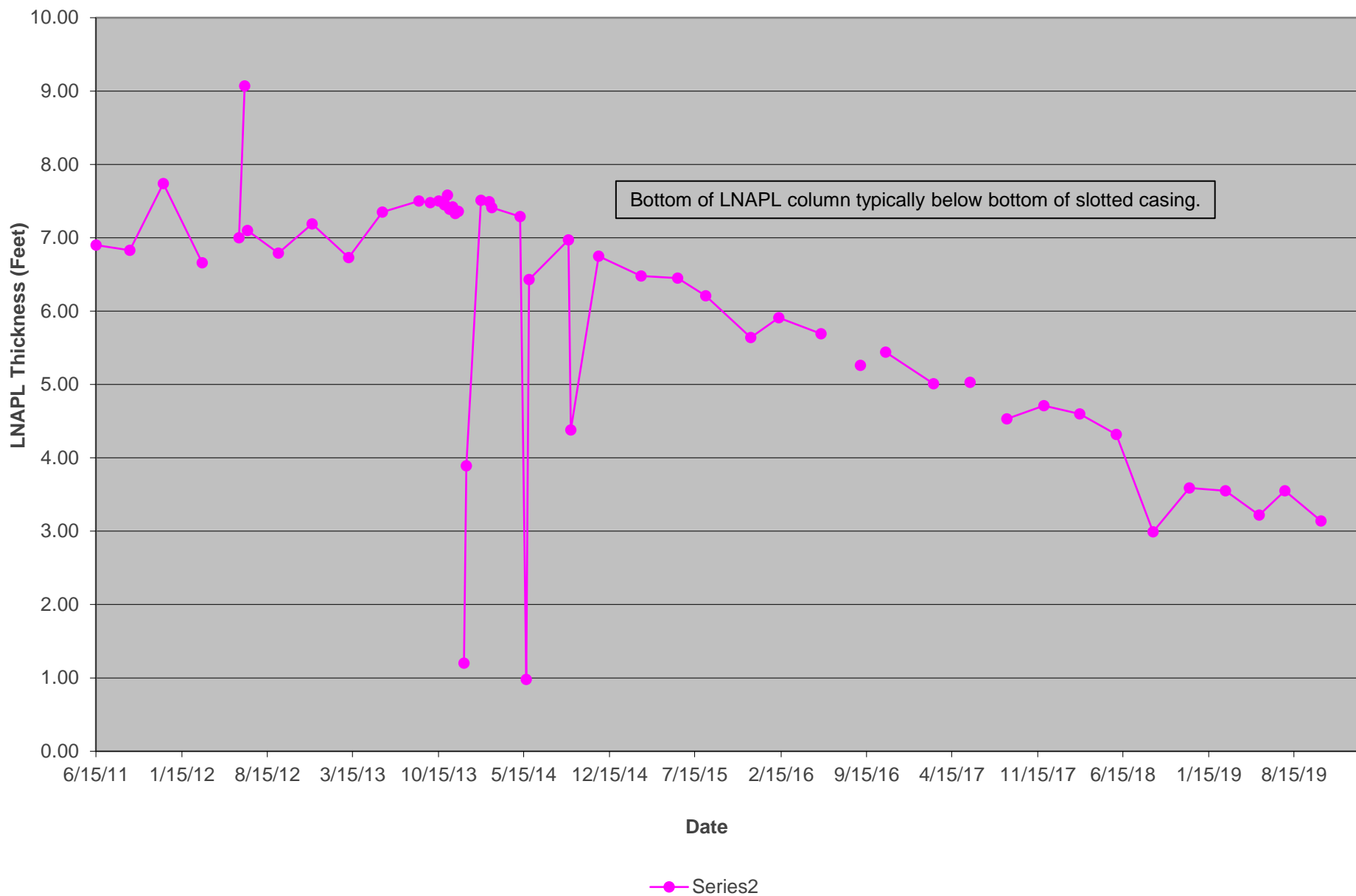




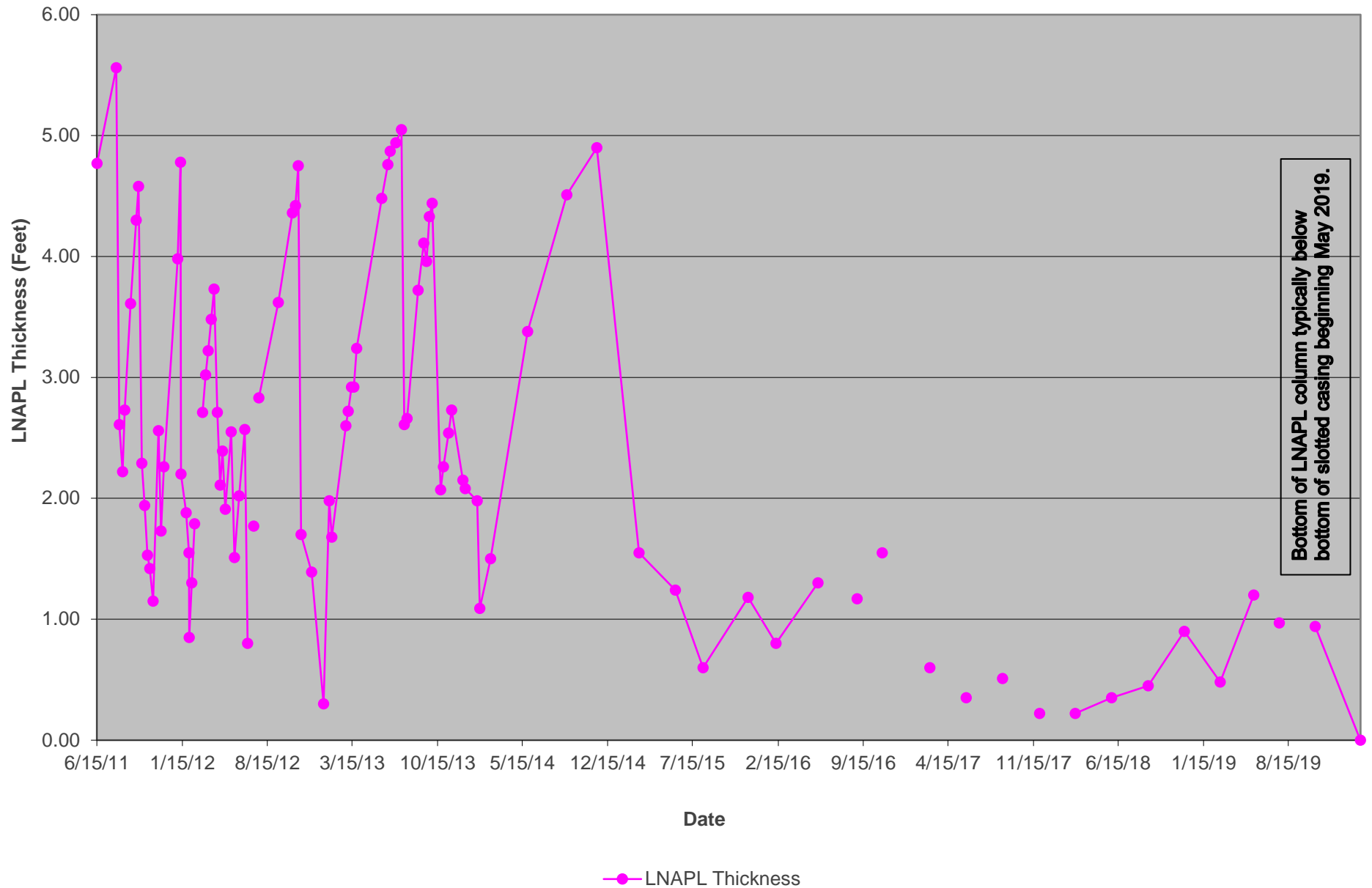
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LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
MW-8



DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
MW-9

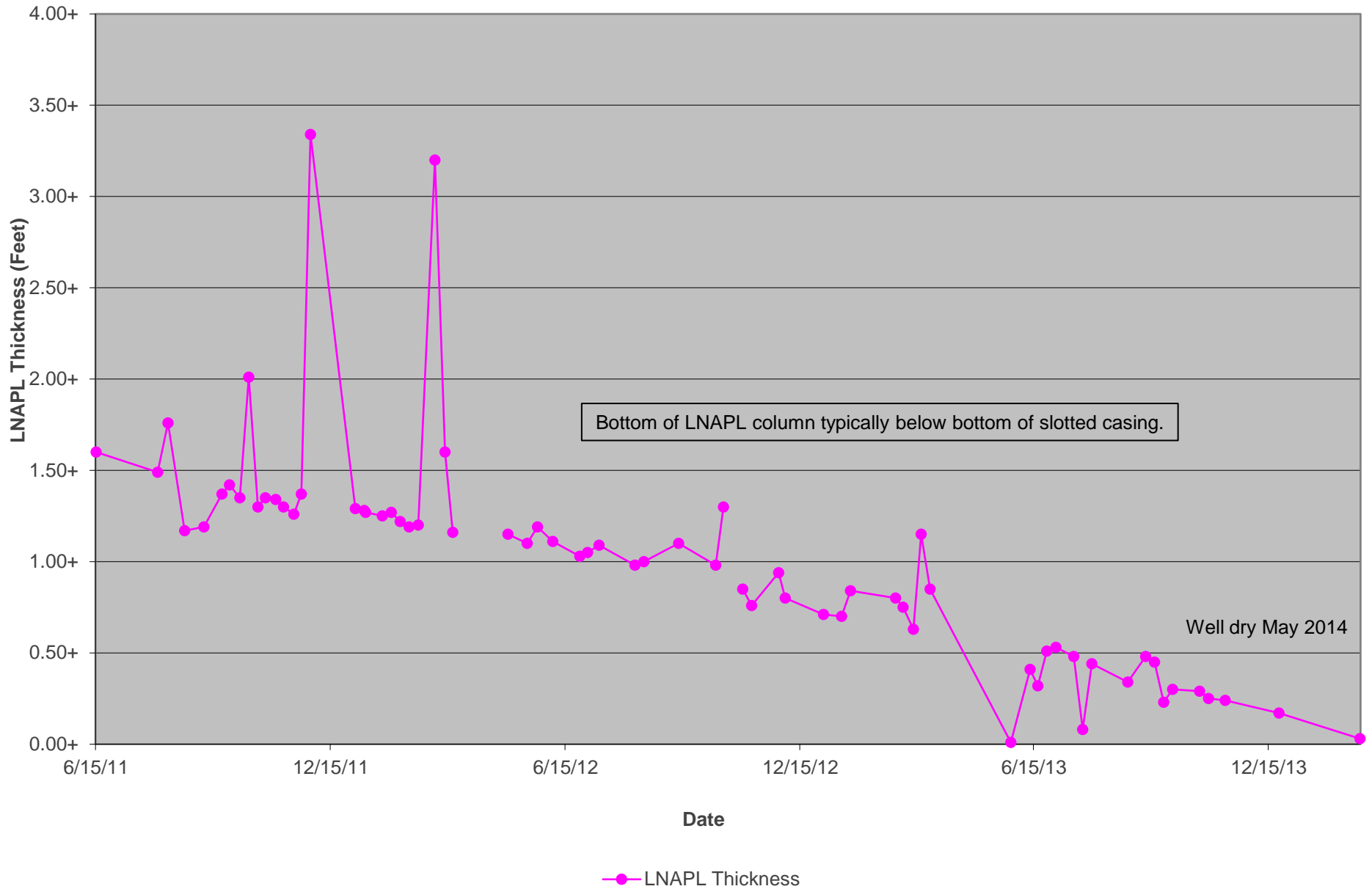


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LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
MW-10

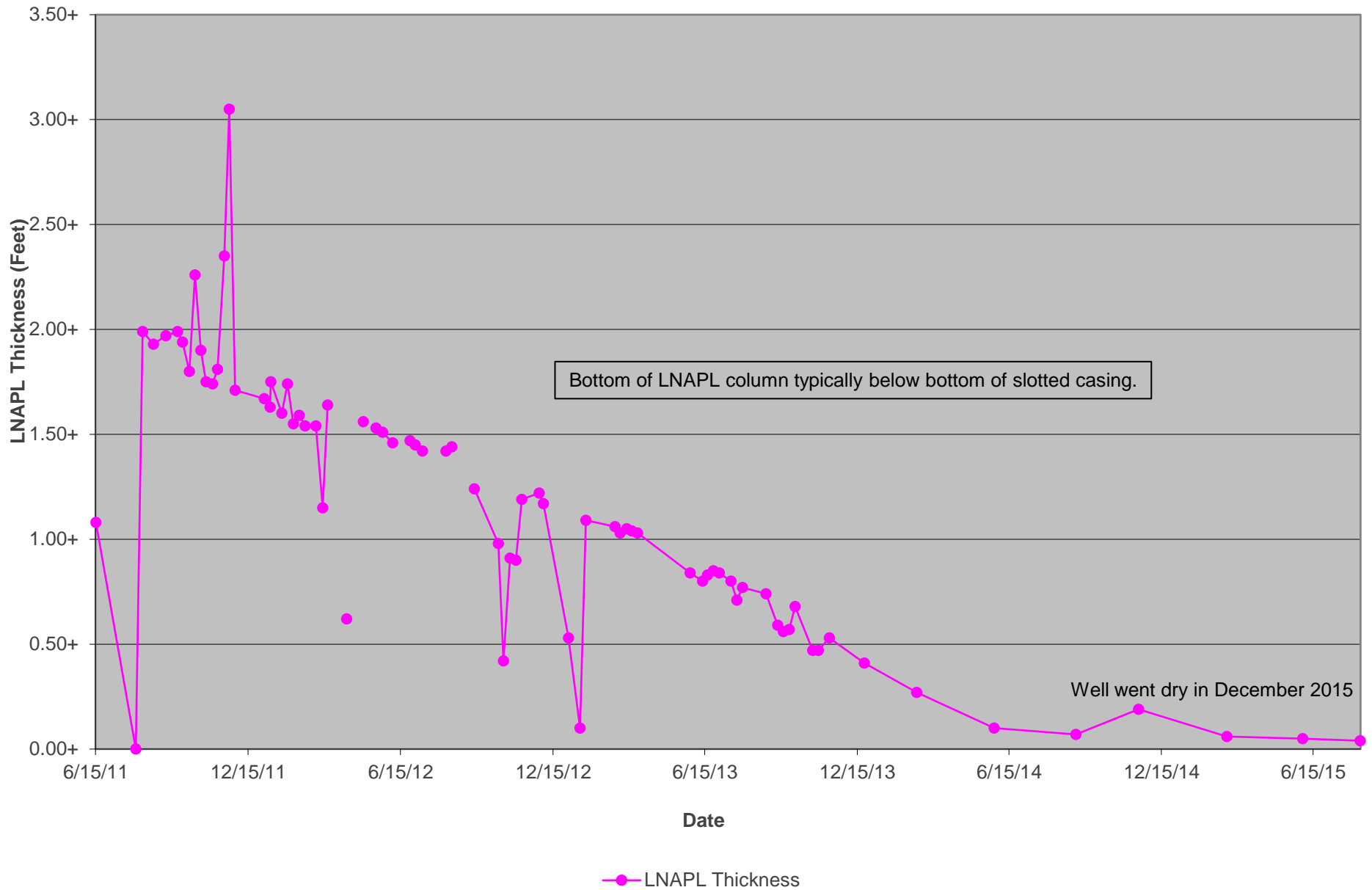




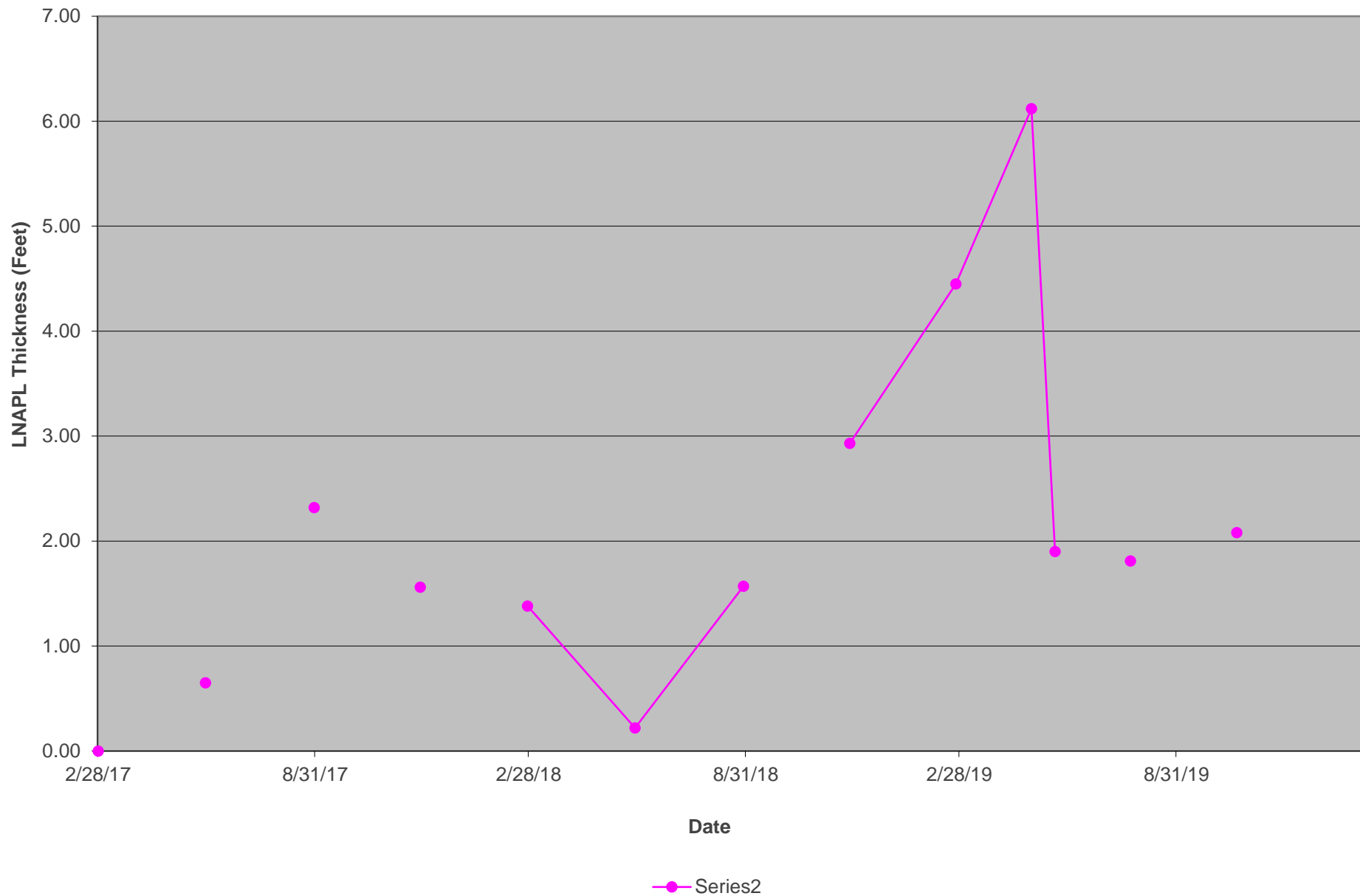
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LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
MW-13



DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
MW-14

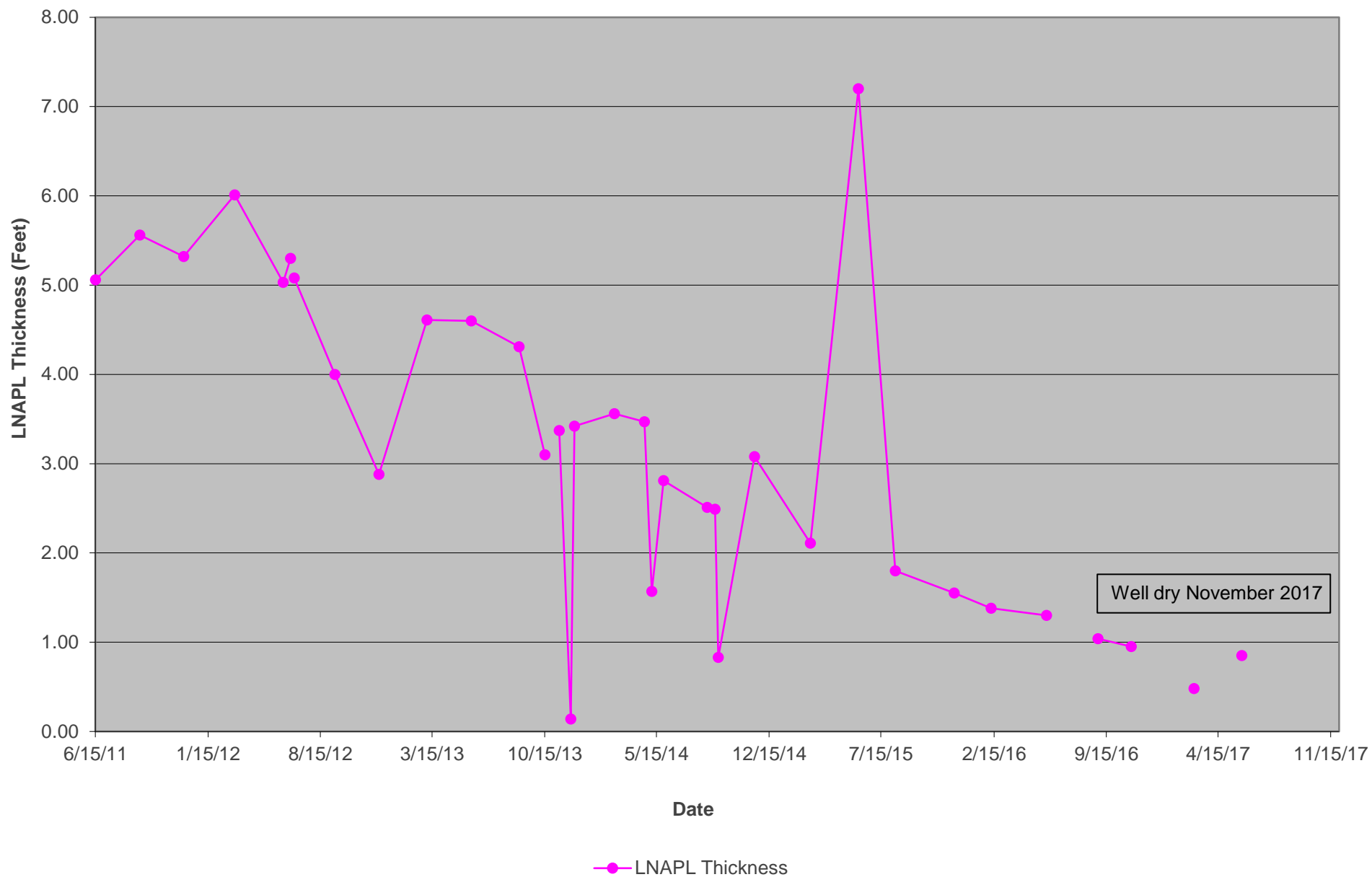


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LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
MW-23

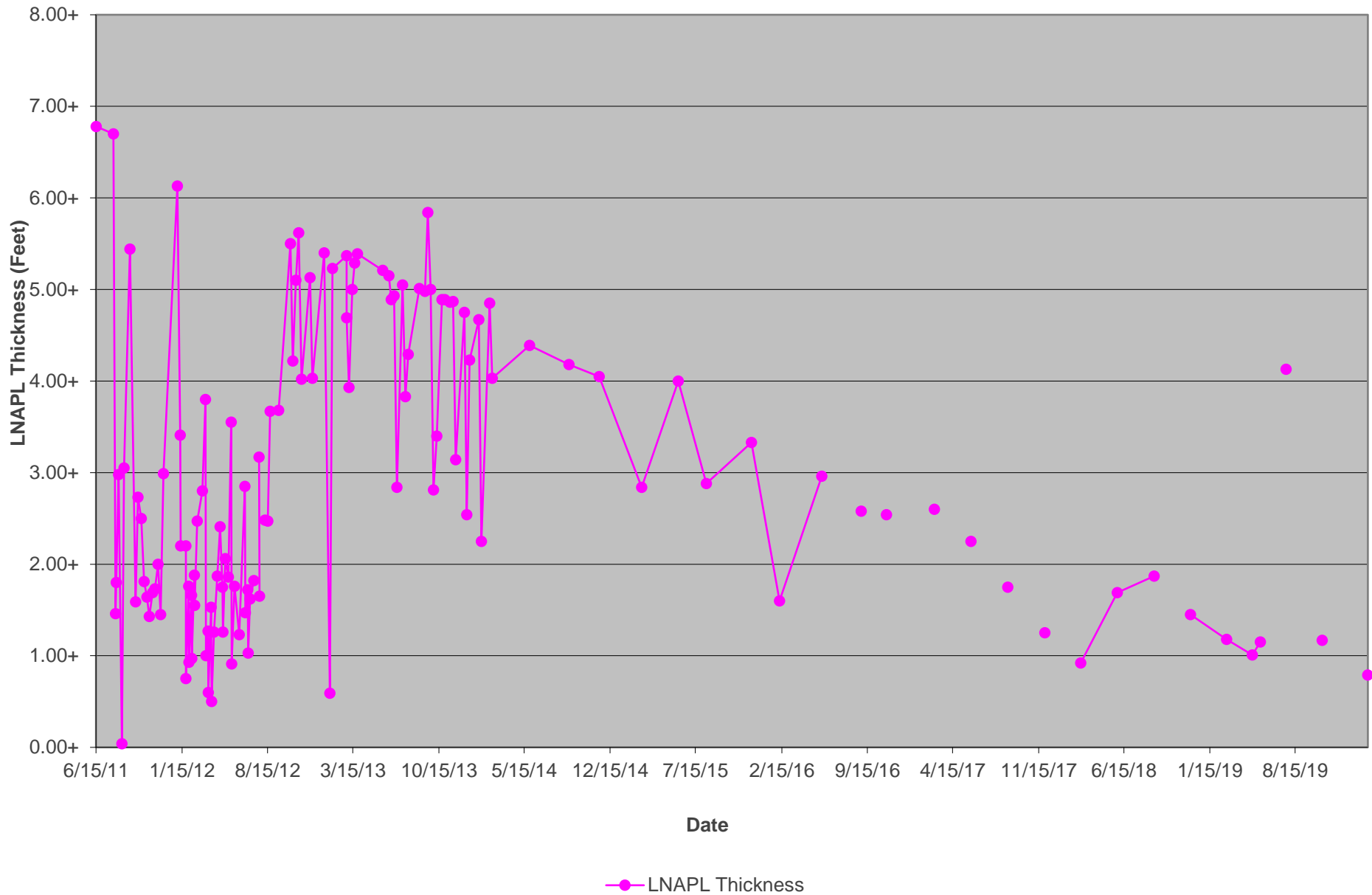




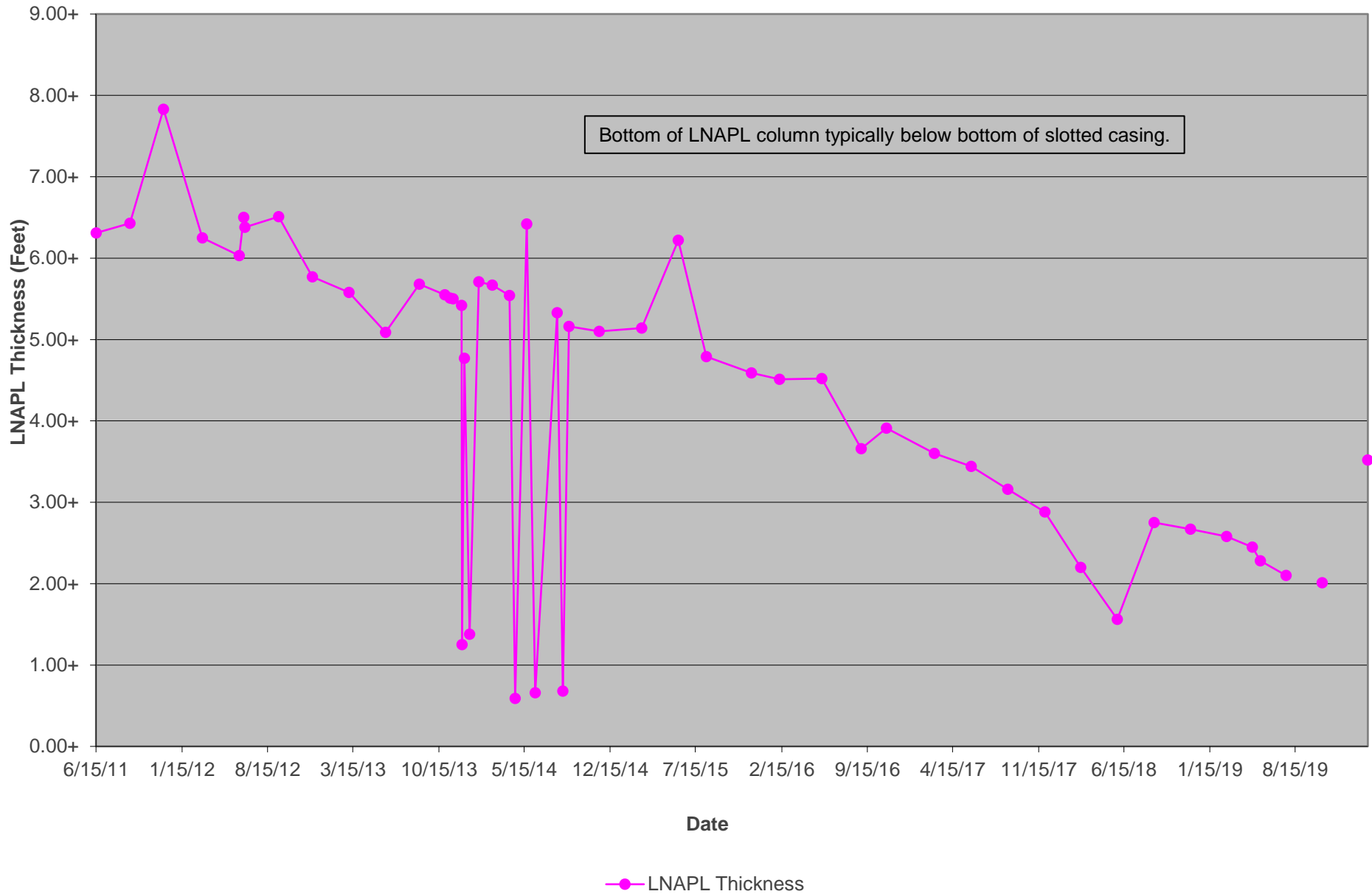
DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-2



DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-3

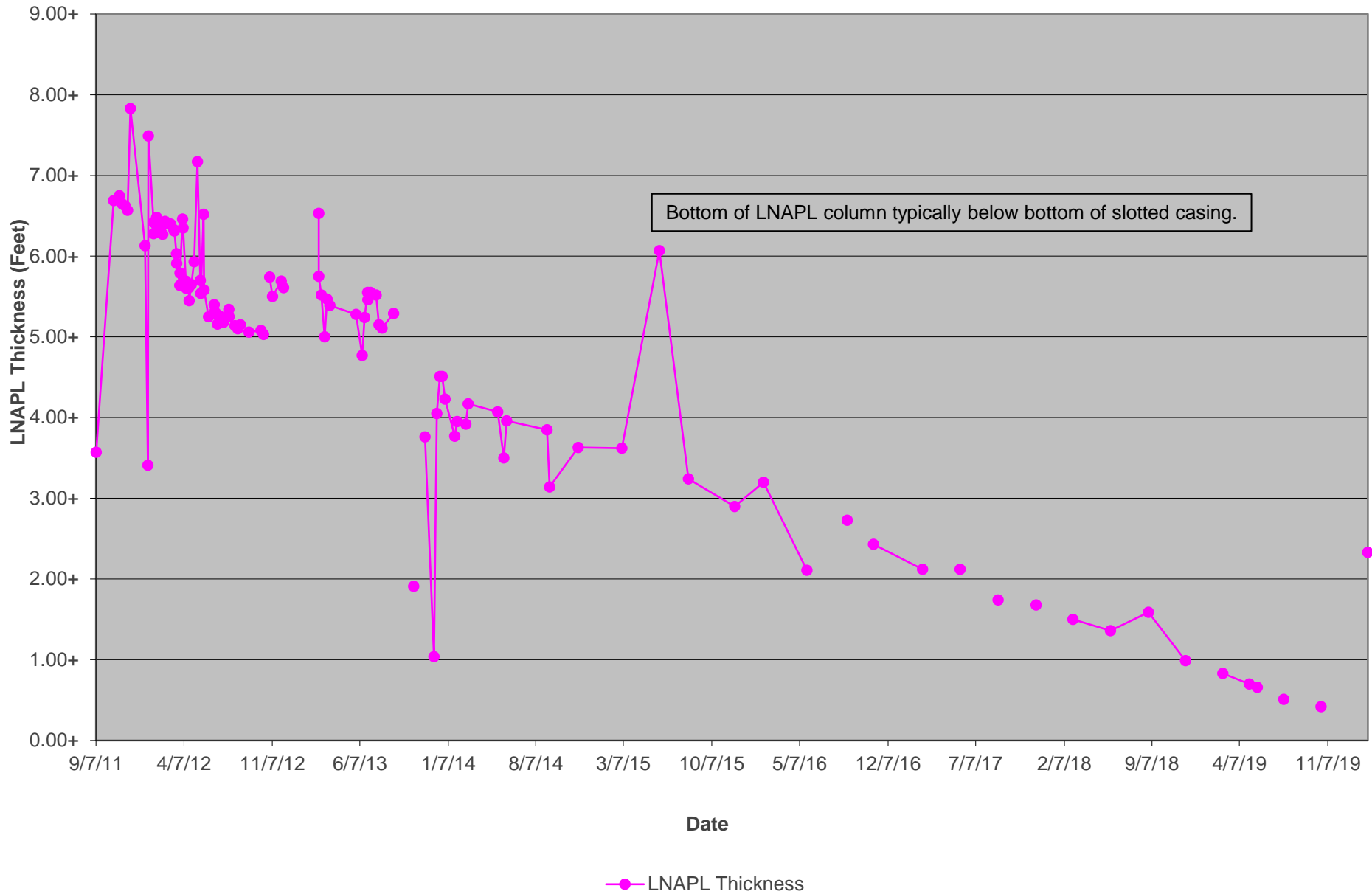


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LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-4

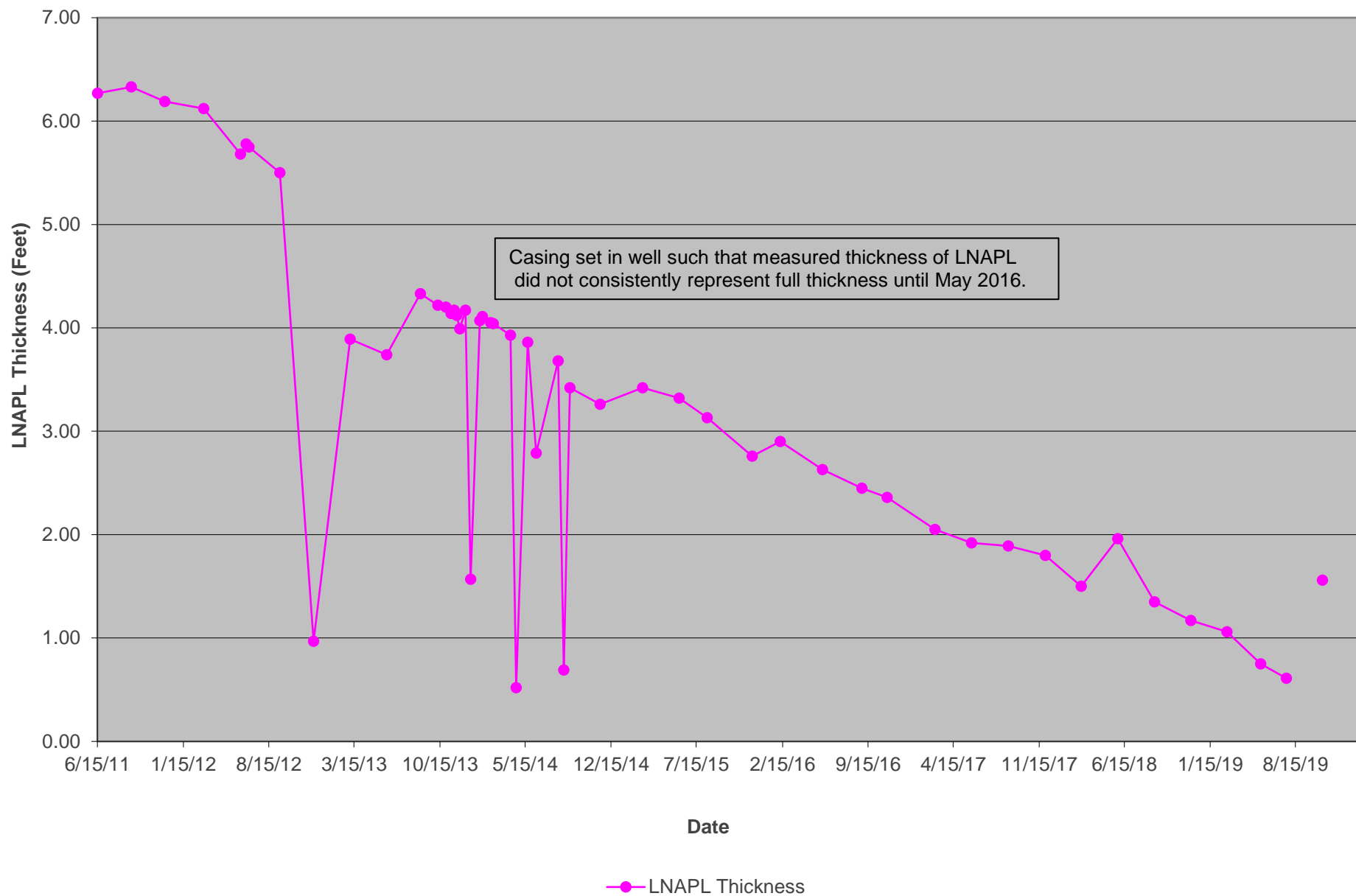




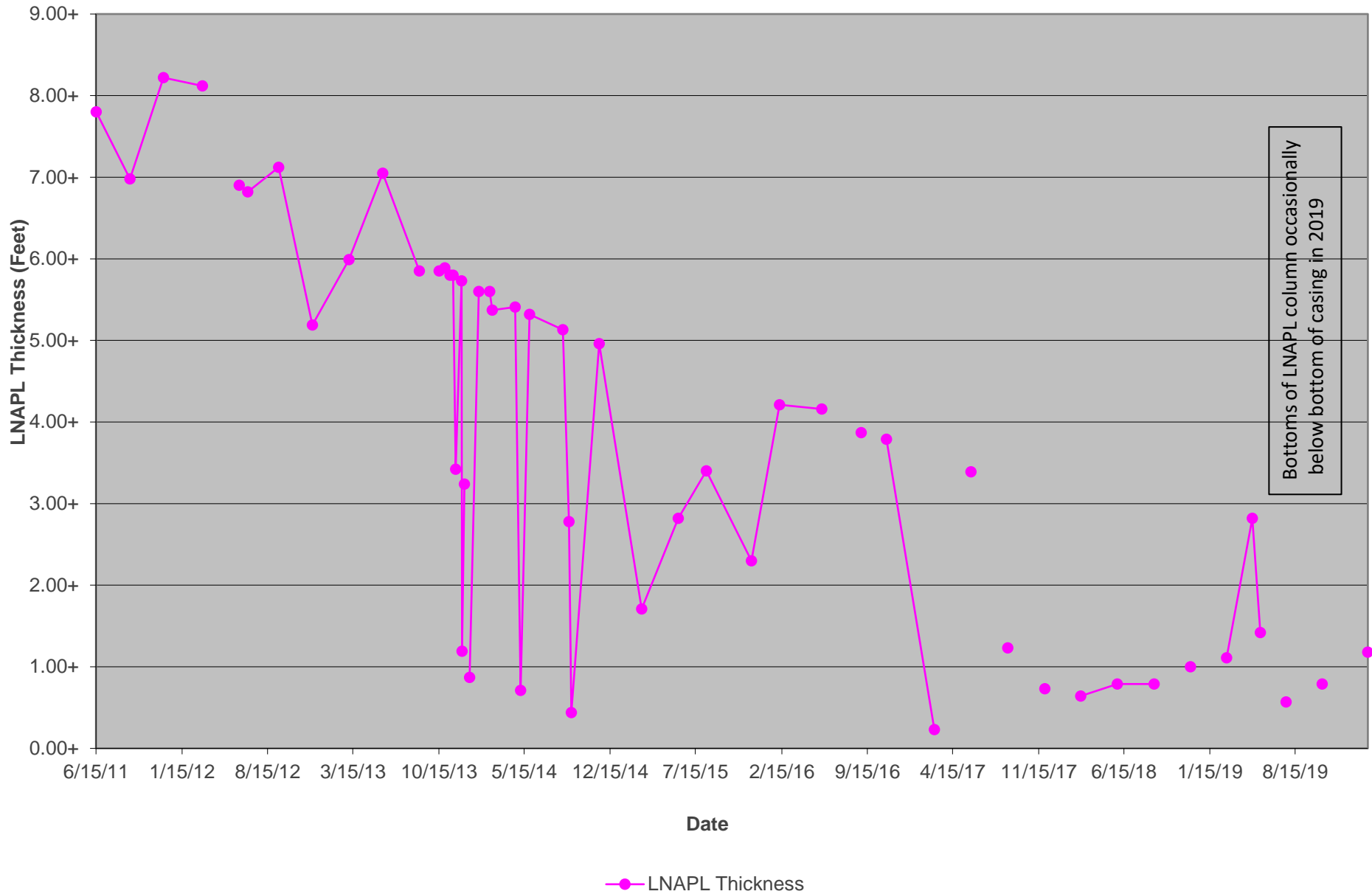
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LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-5



DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-6

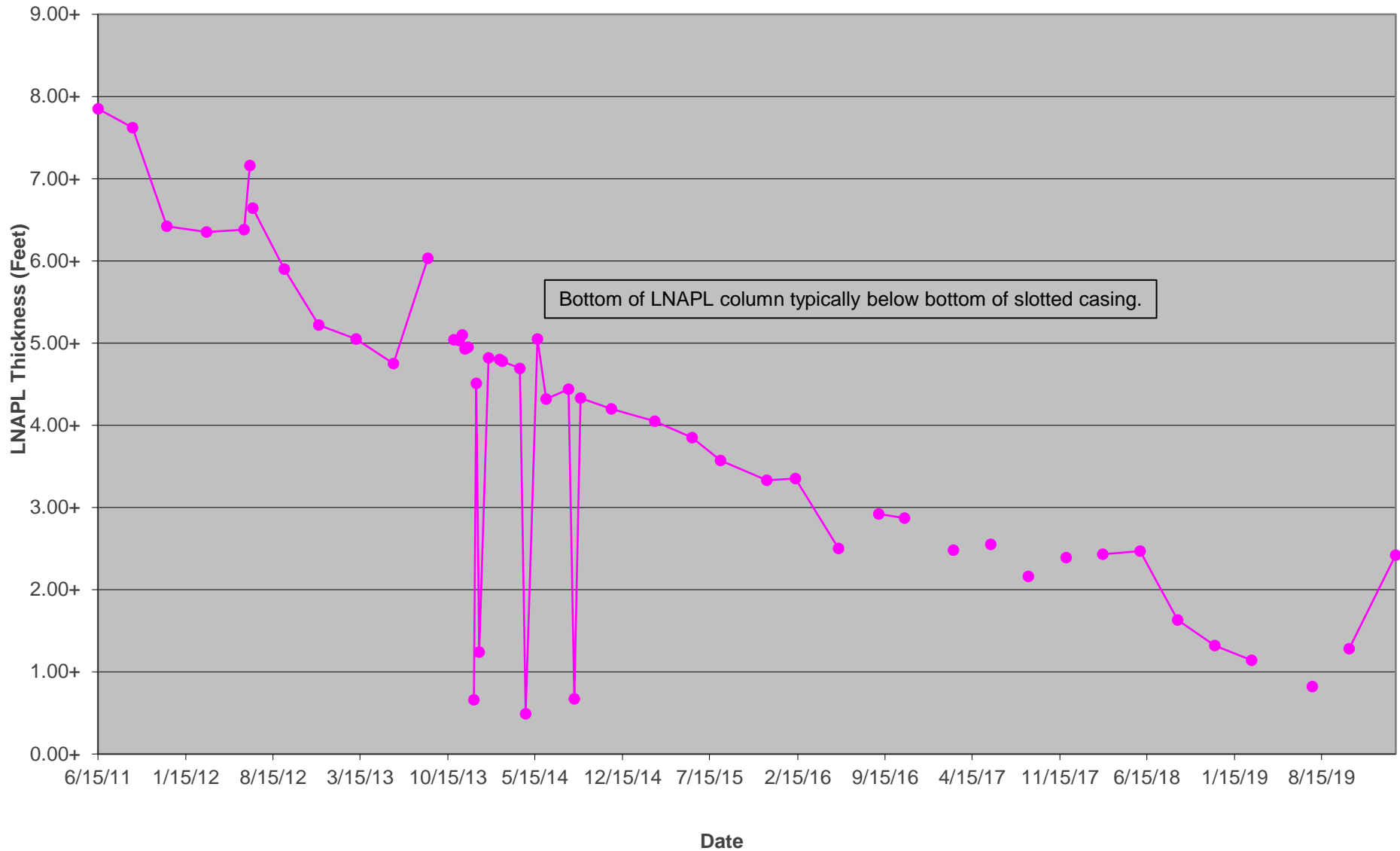


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LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-7



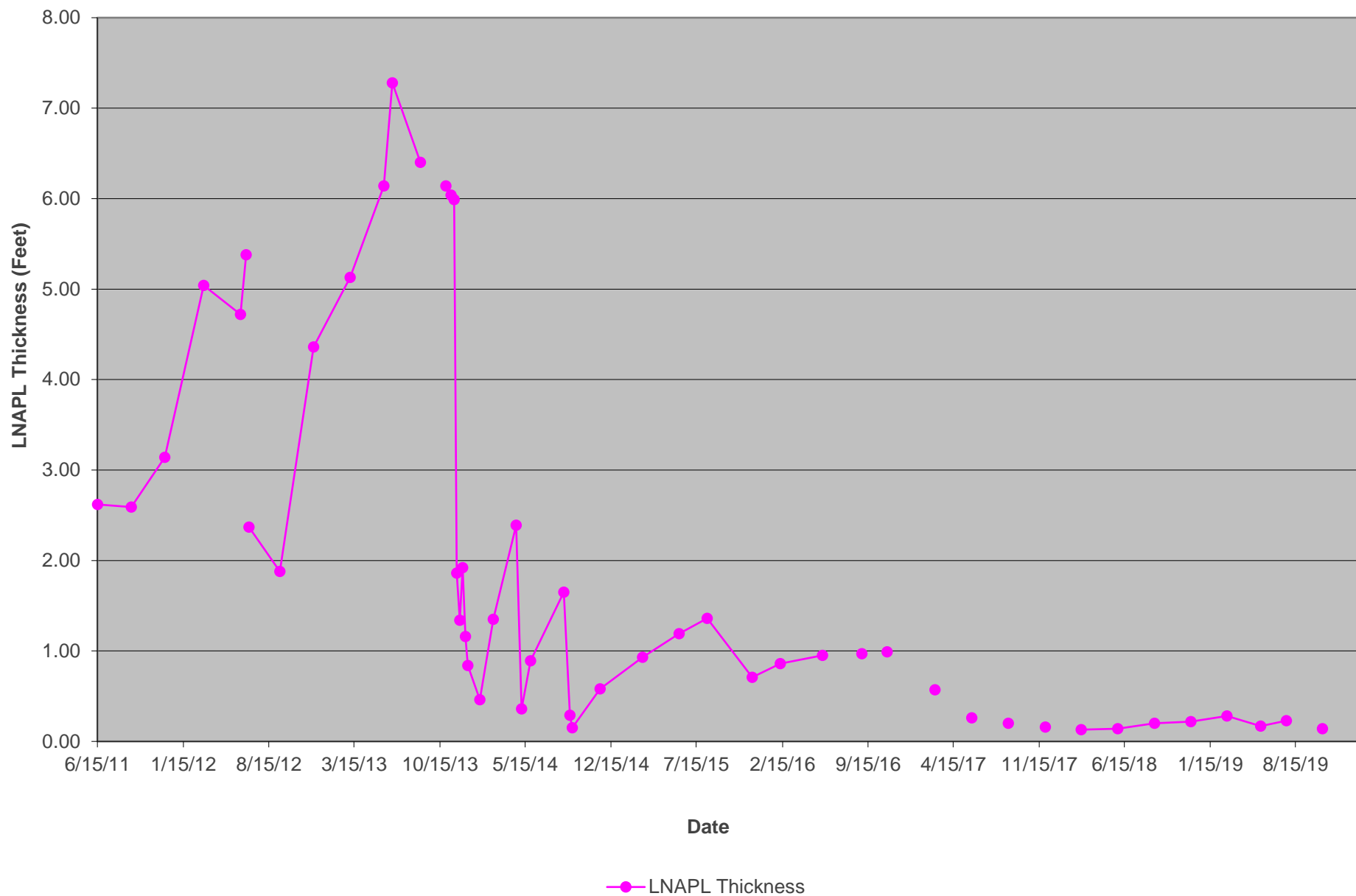


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LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-8

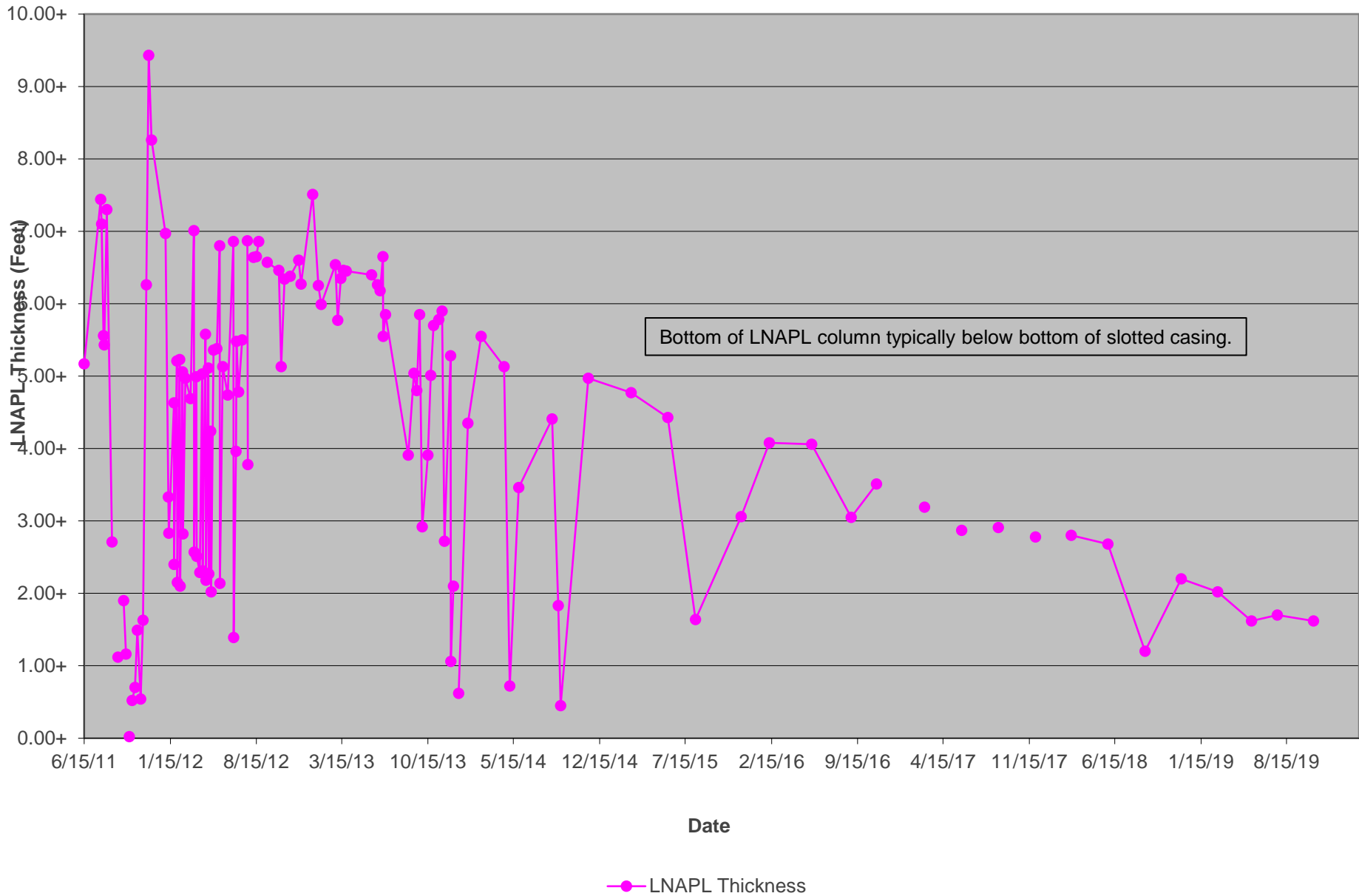


—●— LNAPL Thickness

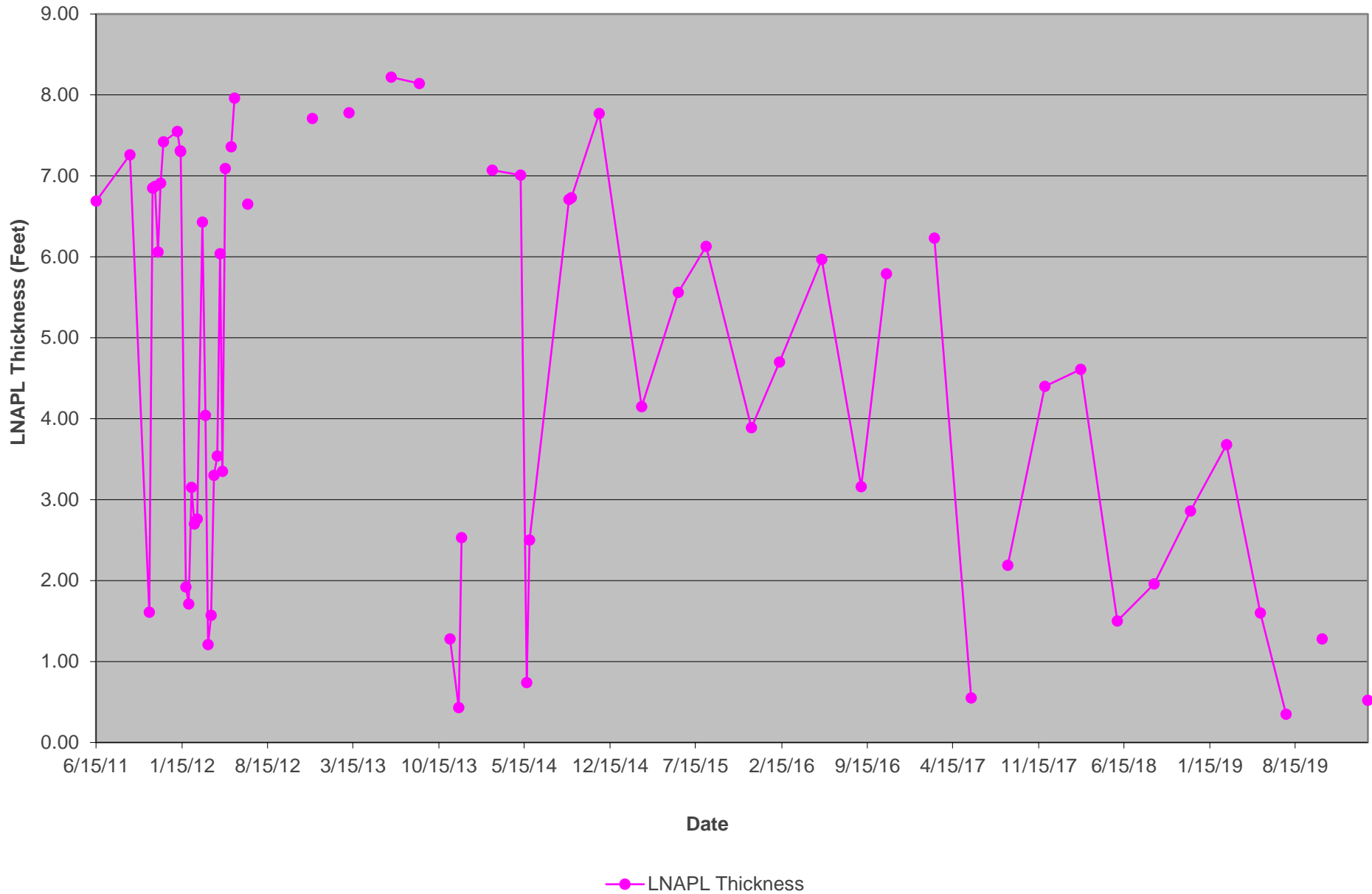
DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-9



DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-10

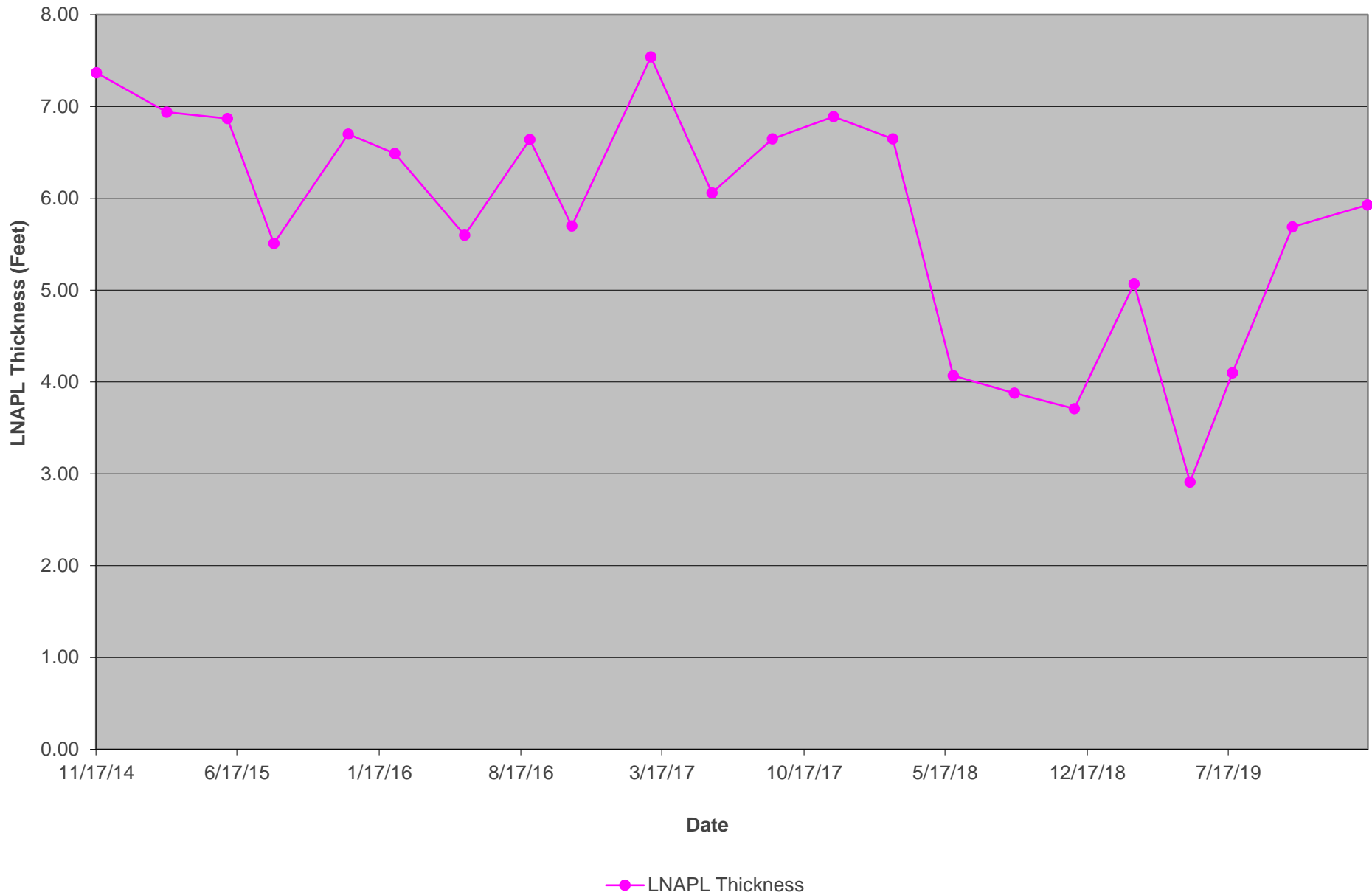


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LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-11

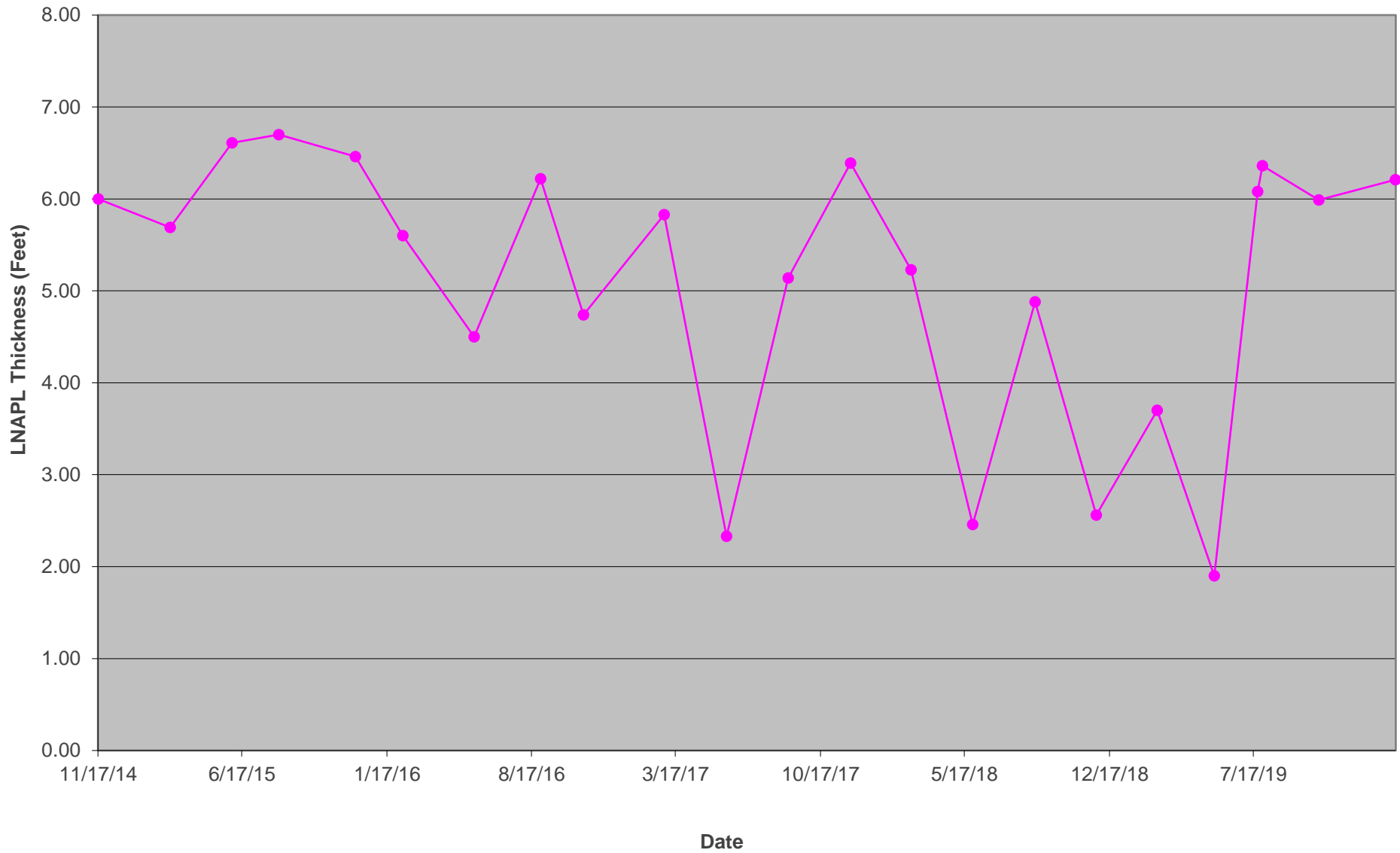




DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-13



DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
LNAPL THICKNESS vs. TIME  
RW-14

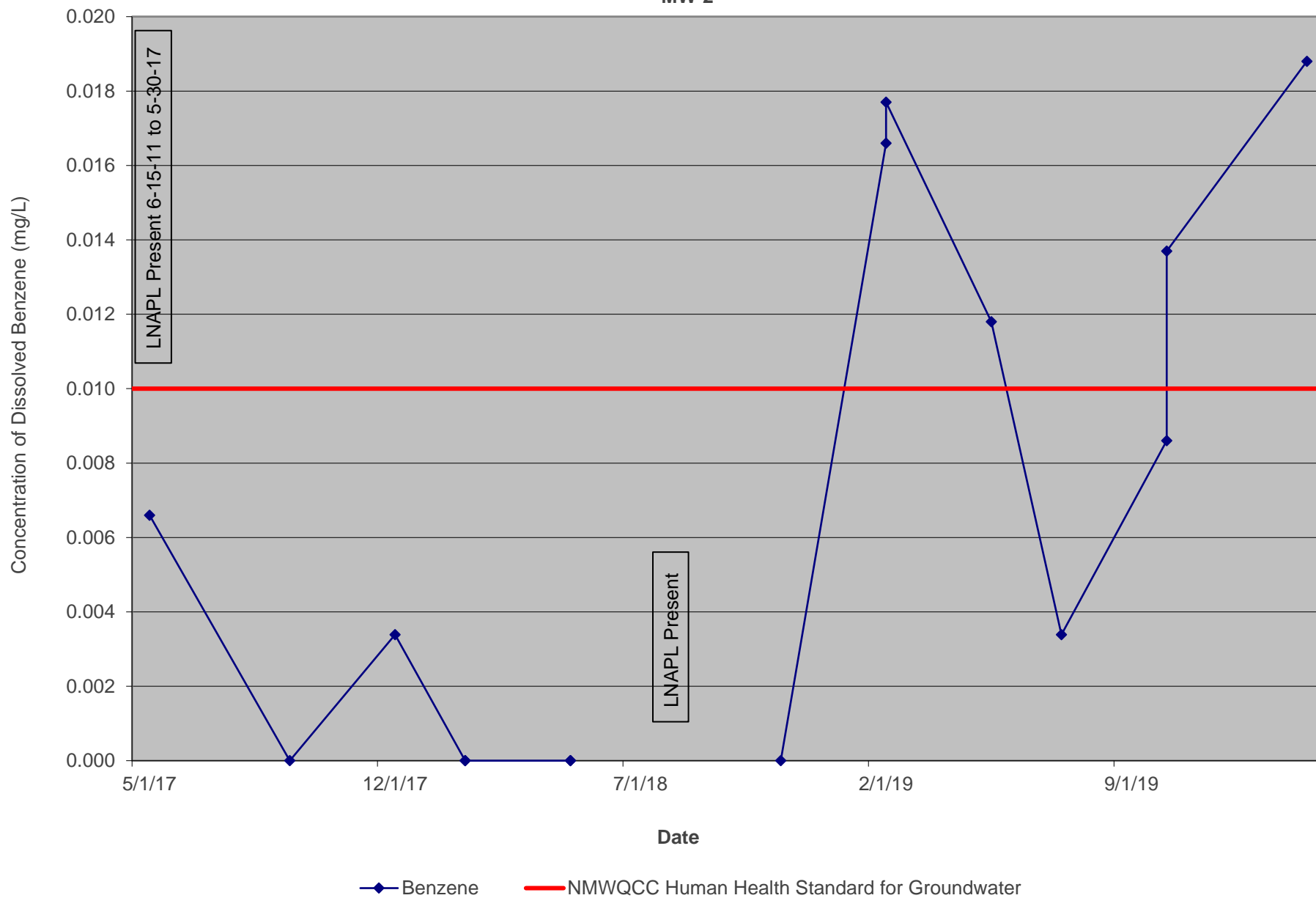


—●— LNAPL Thickness

## Appendix B

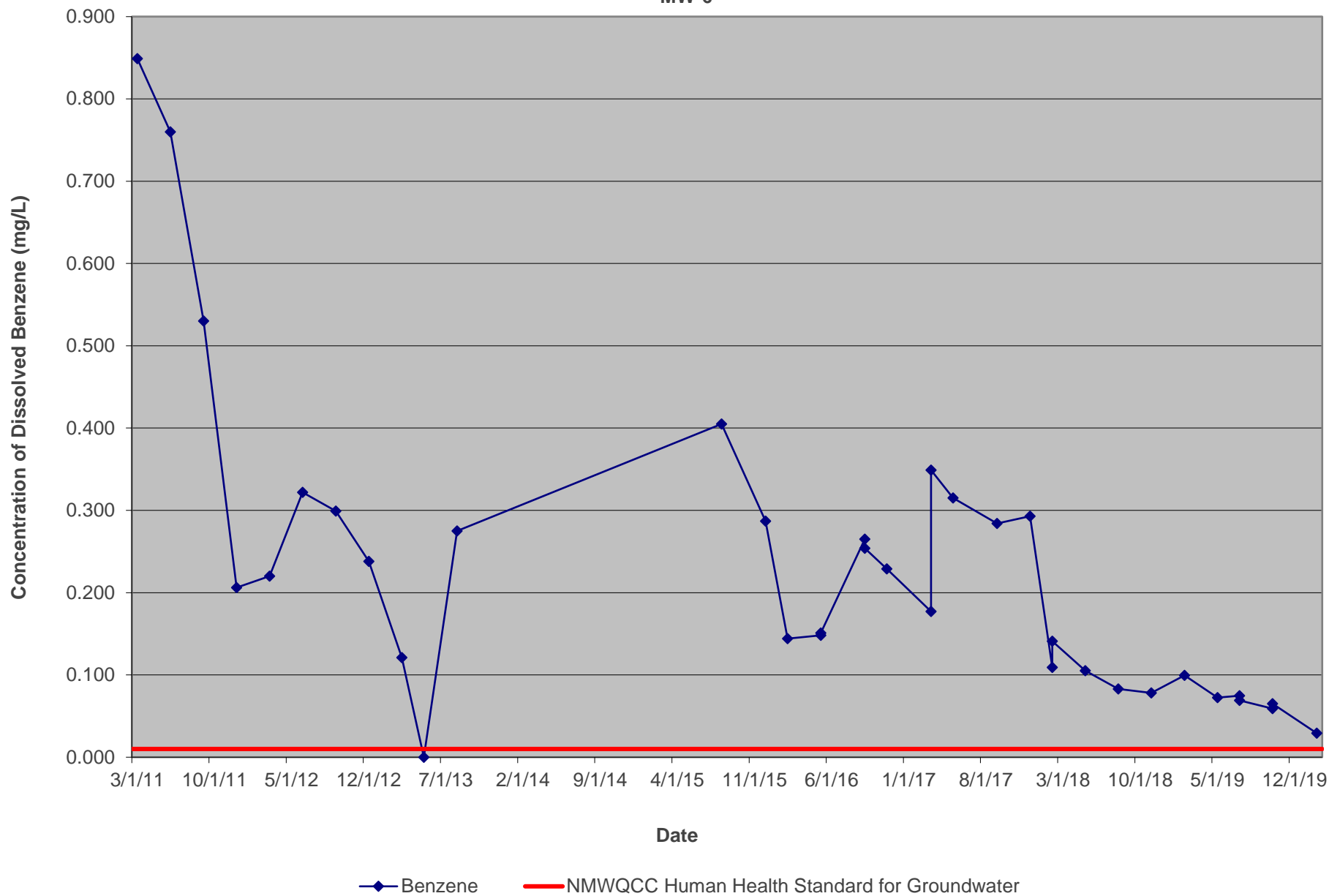
# Charts of Concentrations of Dissolved Benzene in Monitor and Recovery Wells vs. Time

DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
CONCENTRATION OF DISSOLVED BENZENE vs. TIME  
MW-2

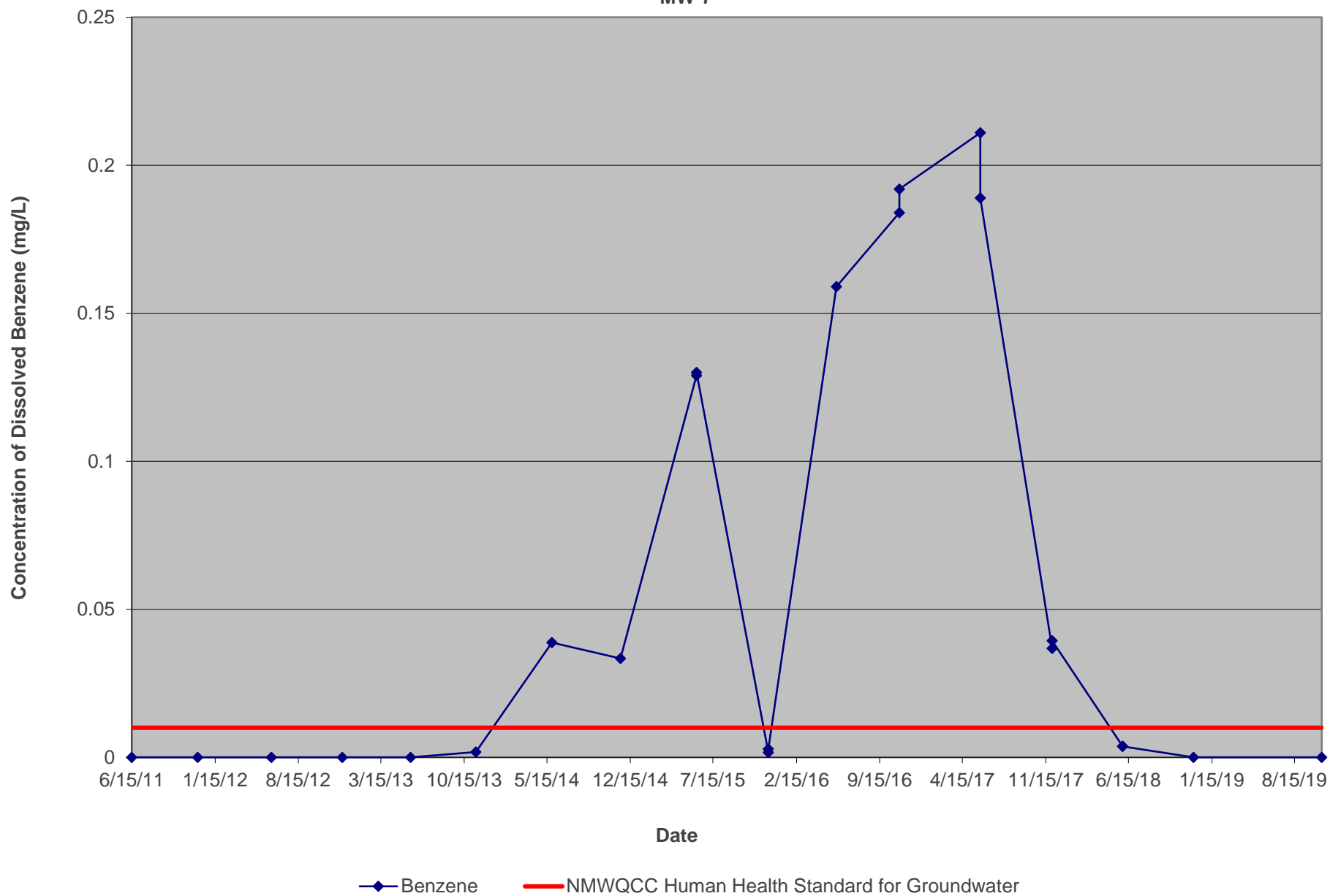




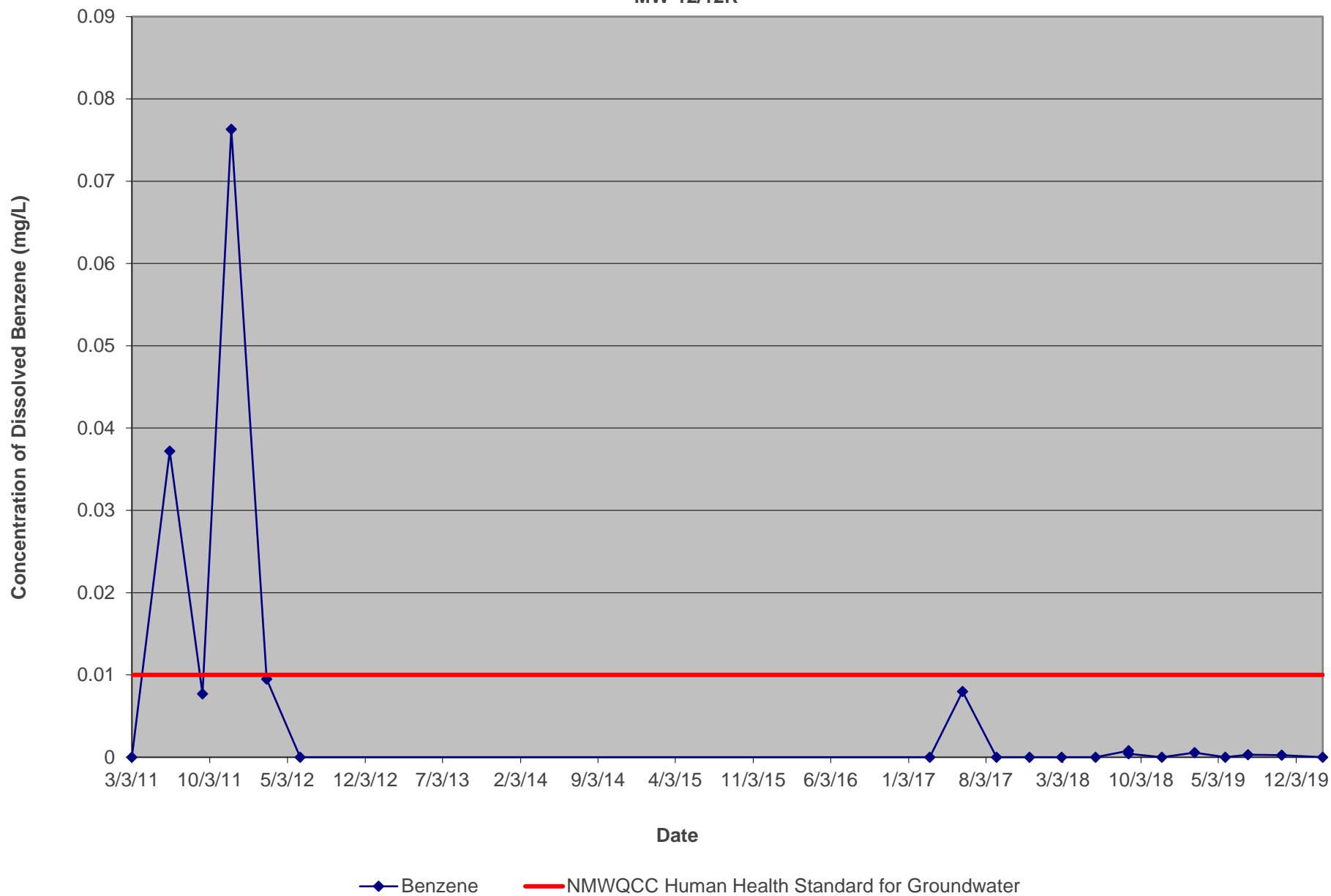
DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
CONCENTRATION OF DISSOLVED BENZENE vs. TIME  
MW-6



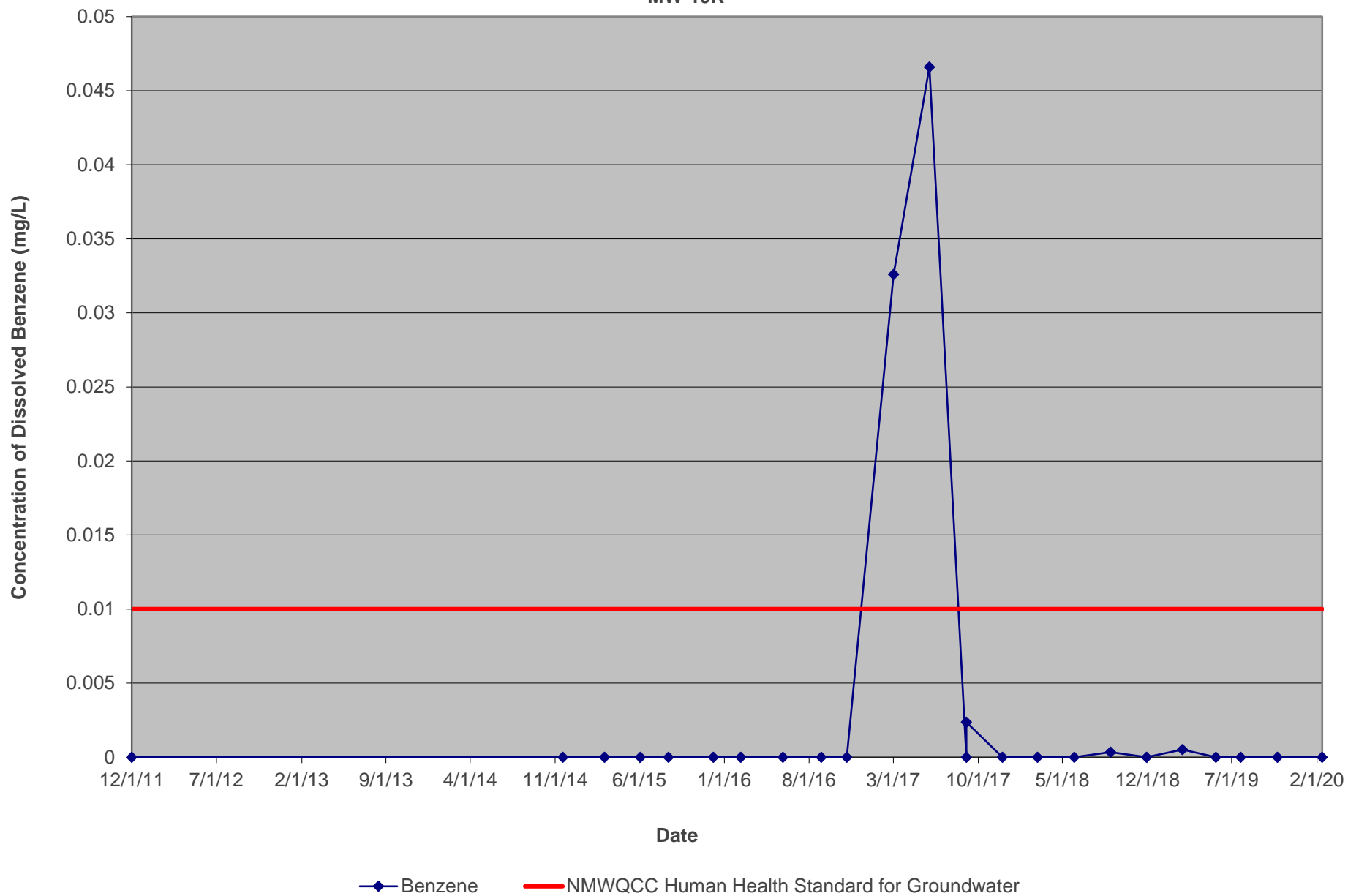
DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
CONCENTRATION OF DISSOLVED BENZENE vs. TIME  
MW-7



DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
CONCENTRATION OF DISSOLVED BENZENE vs. TIME  
MW-12/12R

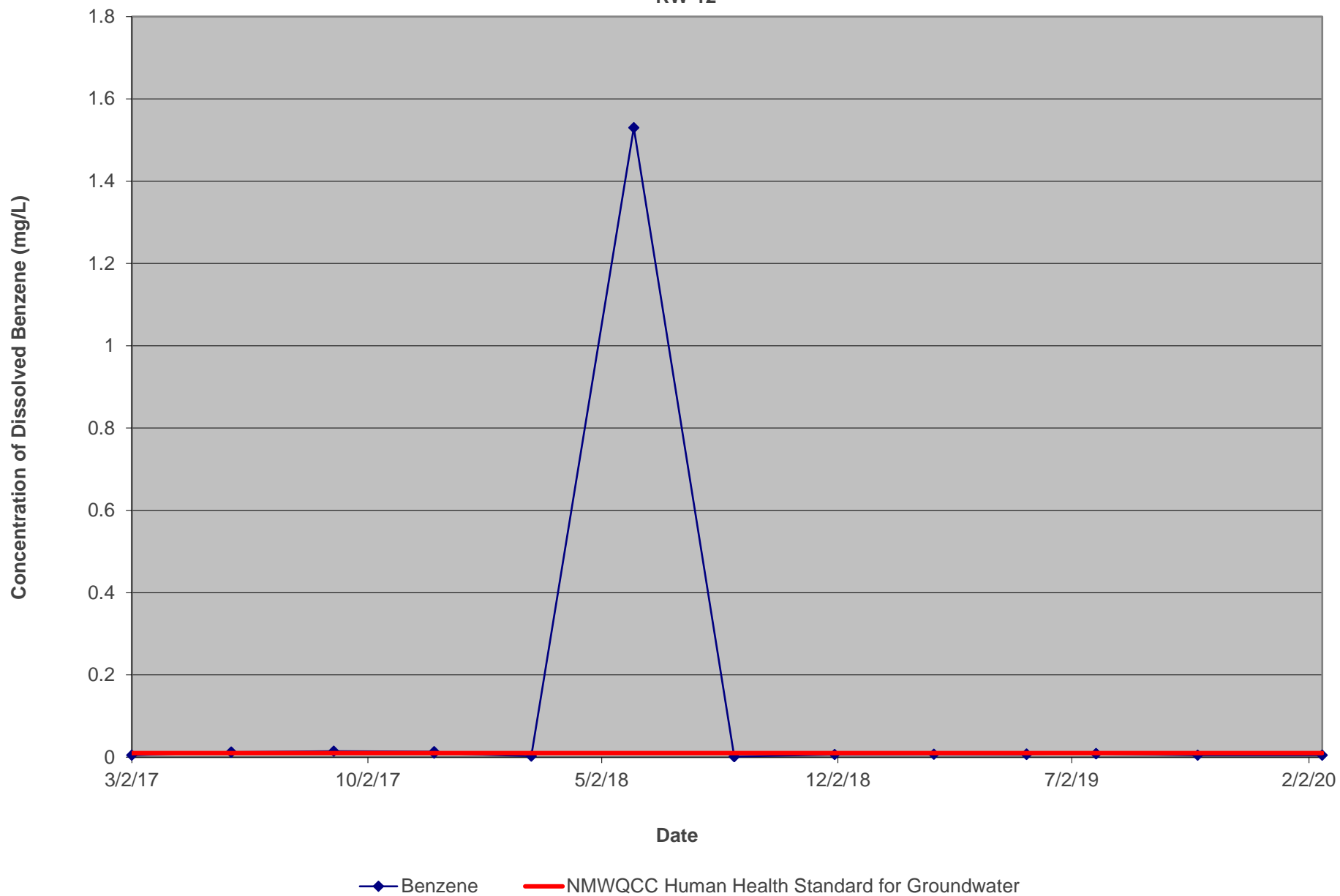


DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
CONCENTRATION OF DISSOLVED BENZENE vs. TIME  
MW-19R





DARR ANGELL #1, SRS DARR ANGELL #1  
LEA COUNTY, NEW MEXICO  
NMOCD AP-007  
CONCENTRATION OF DISSOLVED BENZENE vs. TIME  
RW-12



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

March 12, 2019

## Plains All American, LP - GHD

Sample Delivery Group: L1075029  
Samples Received: 03/02/2019  
Project Number: 074683  
Description: Darr Angell #1- Lea County, New Mexico  
Site: SRS DARR ANGELL #1  
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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1
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Ss: Sample Summary	3
Cn: Case Narrative	5
Tr: TRRP Summary	6
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TRRP form S	8
TRRP Exception Reports	9
Sr: Sample Results	10
MW-18R-022719 L1075029-01	10
MW-17R-022719 L1075029-02	11
MW-12R-022719 L1075029-03	12
MW-19R-022719 L1075029-04	13
MW-22-022719 L1075029-05	14
MW-6-022719 L1075029-06	15
MW-21-022719 L1075029-07	16
MW-20R-022719 L1075029-08	17
MW-16R-022719 L1075029-09	18
RW-12-022719 L1075029-10	19
MW-2-022719 L1075029-11	20
DUP-01-022719 L1075029-12	21
DUP-02-022719 L1075029-13	22
TRIP BLANK L1075029-14	23
Qc: Quality Control Summary	24
Volatile Organic Compounds (GC) by Method 8021B	24
Gl: Glossary of Terms	28
Al: Accreditations & Locations	29
Sc: Sample Chain of Custody	30

<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



# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## MW-18R-022719 L1075029-01 GW

				Collected by	Collected date/time	Received date/time
					02/27/19 09:30	03/02/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1244788	1	03/05/19 00:12	03/05/19 00:12	BMB	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

## MW-17R-022719 L1075029-02 GW

				Collected by	Collected date/time	Received date/time
					02/27/19 09:55	03/02/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1244788	1	03/05/19 00:33	03/05/19 00:33	BMB	Mt. Juliet, TN

<sup>4</sup> Cn

<sup>5</sup> Tr

<sup>6</sup> Sr

## MW-12R-022719 L1075029-03 GW

				Collected by	Collected date/time	Received date/time
					02/27/19 10:30	03/02/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1244788	1	03/05/19 00:53	03/05/19 00:53	BMB	Mt. Juliet, TN

<sup>7</sup> Qc

<sup>8</sup> Gl

## MW-19R-022719 L1075029-04 GW

				Collected by	Collected date/time	Received date/time
					02/27/19 10:55	03/02/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1244728	1	03/04/19 19:14	03/04/19 19:14	DWR	Mt. Juliet, TN

<sup>9</sup> Al

<sup>10</sup> Sc

## MW-22-022719 L1075029-05 GW

				Collected by	Collected date/time	Received date/time
					02/27/19 11:35	03/02/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1244728	1	03/04/19 19:39	03/04/19 19:39	DWR	Mt. Juliet, TN

## MW-6-022719 L1075029-06 GW

				Collected by	Collected date/time	Received date/time
					02/27/19 12:00	03/02/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1244728	1	03/04/19 20:03	03/04/19 20:03	DWR	Mt. Juliet, TN

## MW-21-022719 L1075029-07 GW

				Collected by	Collected date/time	Received date/time
					02/27/19 12:25	03/02/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1248274	1	03/11/19 16:20	03/11/19 16:20	ACG	Mt. Juliet, TN

## MW-20R-022719 L1075029-08 GW

				Collected by	Collected date/time	Received date/time
					02/27/19 12:55	03/02/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1245022	1	03/04/19 22:56	03/04/19 22:56	DWR	Mt. Juliet, TN

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



MW-16R-022719 L1075029-09 GW				Collected by	Collected date/time	Received date/time	<div>1 Cp</div> <div>2 Tc</div> <div>3 Ss</div> <div>4 Cn</div> <div>5 Tr</div> <div>6 Sr</div> <div>7 Qc</div> <div>8 Gl</div> <div>9 Al</div> <div>10 Sc</div>
					02/27/19 13:45	03/02/19 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1245022	1	03/04/19 23:17	03/04/19 23:17	DWR	Mt. Juliet, TN	
RW-12-022719 L1075029-10 GW				Collected by	Collected date/time	Received date/time	
					02/27/19 14:40	03/02/19 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1245022	1	03/04/19 23:38	03/04/19 23:38	DWR	Mt. Juliet, TN	
MW-2-022719 L1075029-11 GW				Collected by	Collected date/time	Received date/time	
					02/27/19 15:35	03/02/19 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1245022	1	03/04/19 23:59	03/04/19 23:59	DWR	Mt. Juliet, TN	
DUP-01-022719 L1075029-12 GW				Collected by	Collected date/time	Received date/time	
					02/27/19 00:00	03/02/19 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1245022	1	03/05/19 00:21	03/05/19 00:21	DWR	Mt. Juliet, TN	
DUP-02-022719 L1075029-13 GW				Collected by	Collected date/time	Received date/time	
					02/27/19 00:00	03/02/19 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1245022	1	03/05/19 00:42	03/05/19 00:42	DWR	Mt. Juliet, TN	
TRIP BLANK L1075029-14 GW				Collected by	Collected date/time	Received date/time	
					02/27/19 00:00	03/02/19 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1245022	1	03/04/19 22:34	03/04/19 22:34	DWR	Mt. Juliet, TN	



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

<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



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



Laboratory Name: Pace Analytical National			LRC Date: 03/12/2019 09:52				
Project Name: Darr Angell #1- Lea County, New Mexico			Laboratory Job Number: L1075029-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13 and 14				
Reviewer Name: Mark W. Beasley			Prep Batch Number(s): WG1244728, WG1244788, WG1245022 and WG1248274				
# <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?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	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 analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	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 the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	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 lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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; I = 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).



# Laboratory Review Checklist: Supporting Data



Laboratory Name: Pace Analytical National		LRC Date: 03/12/2019 09:52					
Project Name: Darr Angell #1- Lea County, New Mexico		Laboratory Job Number: L1075029-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13 and 14					
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1244728, WG1244788, WG1245022 and WG1248274					
# <sup>1</sup>	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 factors for each analyte within QC limits?			X		
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports



Laboratory Name: Pace Analytical National		LRC Date: 03/12/2019 09:52	
Project Name: Darr Angell #1- Lea County, New Mexico		Laboratory Job Number: L1075029-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13 and 14	
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1244728, WG1244788, WG1245022 and WG1248274	
<b>ER #<sup>1</sup></b>	<b>Description</b>		
The Exception Report intentionally left blank, there are no exceptions applied to this SDG.			
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>			



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	03/05/2019 00:12	<a href="#">WG1244788</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/05/2019 00:12	<a href="#">WG1244788</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/05/2019 00:12	<a href="#">WG1244788</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	03/05/2019 00:12	<a href="#">WG1244788</a>
(S) a,a,a-Trifluorotoluene(PID)	98.4				79.0-125		03/05/2019 00:12	<a href="#">WG1244788</a>

<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

Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	03/05/2019 00:33	<a href="#">WG1244788</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/05/2019 00:33	<a href="#">WG1244788</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/05/2019 00:33	<a href="#">WG1244788</a>
Total Xylene (S) a,a,a-Trifluorotoluene(PID)	U 98.7		0.000510	0.00150	0.00150 79.0-125	1	03/05/2019 00:33 03/05/2019 00:33	<a href="#">WG1244788</a> <a href="#">WG1244788</a>

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000563		0.000190	0.000500	0.000500	1	03/05/2019 00:53	<a href="#">WG1244788</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/05/2019 00:53	<a href="#">WG1244788</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/05/2019 00:53	<a href="#">WG1244788</a>
Total Xylene (S) a,a,a-Trifluorotoluene(PID)	U 96.6		0.000510	0.00150	0.00150 79.0-125	1	03/05/2019 00:53 03/05/2019 00:53	<a href="#">WG1244788</a> <a href="#">WG1244788</a>

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000519		0.000190	0.000500	0.000500	1	03/04/2019 19:14	<a href="#">WG1244728</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/04/2019 19:14	<a href="#">WG1244728</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/04/2019 19:14	<a href="#">WG1244728</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	03/04/2019 19:14	<a href="#">WG1244728</a>
(S) a,a,a-Trifluorotoluene(PID)	96.3				79.0-125		03/04/2019 19:14	<a href="#">WG1244728</a>

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	03/04/2019 19:39	<a href="#">WG1244728</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/04/2019 19:39	<a href="#">WG1244728</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/04/2019 19:39	<a href="#">WG1244728</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	03/04/2019 19:39	<a href="#">WG1244728</a>
(S) a,a,a-Trifluorotoluene(PID)	96.1				79.0-125		03/04/2019 19:39	<a href="#">WG1244728</a>

1

Cp

2

Tc

3

Ss

4

Cn

5

Tr

6

Sr

7

Qc

8

Gl

9

Al

10

Sc

Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0994		0.000190	0.000500	0.000500	1	03/04/2019 20:03	<a href="#">WG1244728</a>
Toluene	0.00146		0.000412	0.00100	0.00100	1	03/04/2019 20:03	<a href="#">WG1244728</a>
Ethylbenzene	0.0115		0.000160	0.000500	0.000500	1	03/04/2019 20:03	<a href="#">WG1244728</a>
Total Xylene	0.0115		0.000510	0.00150	0.00150	1	03/04/2019 20:03	<a href="#">WG1244728</a>
(S) a,a,a-Trifluorotoluene(PID)	95.2				79.0-125		03/04/2019 20:03	<a href="#">WG1244728</a>

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	03/11/2019 16:20	<a href="#">WG1248274</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/11/2019 16:20	<a href="#">WG1248274</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/11/2019 16:20	<a href="#">WG1248274</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	03/11/2019 16:20	<a href="#">WG1248274</a>
(S) a,a,a-Trifluorotoluene(PID)	96.6				79.0-125		03/11/2019 16:20	<a href="#">WG1248274</a>

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	03/04/2019 22:56	<a href="#">WG1245022</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/04/2019 22:56	<a href="#">WG1245022</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/04/2019 22:56	<a href="#">WG1245022</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	03/04/2019 22:56	<a href="#">WG1245022</a>
(S) a,a,a-Trifluorotoluene(PID)	98.7				79.0-125		03/04/2019 22:56	<a href="#">WG1245022</a>

1

Cp

2

Tc

3

Ss

4

Cn

5

Tr

6

Sr

7

Qc

8

Gl

9

Al

10

Sc



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	03/04/2019 23:17	<a href="#">WG1245022</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/04/2019 23:17	<a href="#">WG1245022</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/04/2019 23:17	<a href="#">WG1245022</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	03/04/2019 23:17	<a href="#">WG1245022</a>
(S) a,a,a-Trifluorotoluene(PID)	99.6				79.0-125		03/04/2019 23:17	<a href="#">WG1245022</a>

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00739		0.000190	0.000500	0.000500	1	03/04/2019 23:38	<a href="#">WG1245022</a>
Toluene	0.00863		0.000412	0.00100	0.00100	1	03/04/2019 23:38	<a href="#">WG1245022</a>
Ethylbenzene	0.00722		0.000160	0.000500	0.000500	1	03/04/2019 23:38	<a href="#">WG1245022</a>
Total Xylene	0.0826		0.000510	0.00150	0.00150	1	03/04/2019 23:38	<a href="#">WG1245022</a>
(S) a,a,a-Trifluorotoluene(PID)	96.2				79.0-125		03/04/2019 23:38	<a href="#">WG1245022</a>

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0166		0.000190	0.000500	0.000500	1	03/04/2019 23:59	<a href="#">WG1245022</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/04/2019 23:59	<a href="#">WG1245022</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/04/2019 23:59	<a href="#">WG1245022</a>
Total Xylene	0.0124		0.000510	0.00150	0.00150	1	03/04/2019 23:59	<a href="#">WG1245022</a>
(S) o,a,a-Trifluorotoluene(PID)	94.3				79.0-125		03/04/2019 23:59	<a href="#">WG1245022</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	03/05/2019 00:21	<a href="#">WG1245022</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/05/2019 00:21	<a href="#">WG1245022</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/05/2019 00:21	<a href="#">WG1245022</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	03/05/2019 00:21	<a href="#">WG1245022</a>
(S) a,a,a-Trifluorotoluene(PID)	97.9				79.0-125		03/05/2019 00:21	<a href="#">WG1245022</a>

<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



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0177		0.000190	0.000500	0.000500	1	03/05/2019 00:42	<a href="#">WG1245022</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/05/2019 00:42	<a href="#">WG1245022</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/05/2019 00:42	<a href="#">WG1245022</a>
Total Xylene	0.0130		0.000510	0.00150	0.00150	1	03/05/2019 00:42	<a href="#">WG1245022</a>
(S) a,a,a-Trifluorotoluene(PID)	96.5				79.0-125		03/05/2019 00:42	<a href="#">WG1245022</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	03/04/2019 22:34	<a href="#">WG1245022</a>
Toluene	U		0.000412	0.00100	0.00100	1	03/04/2019 22:34	<a href="#">WG1245022</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	03/04/2019 22:34	<a href="#">WG1245022</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	03/04/2019 22:34	<a href="#">WG1245022</a>
(S) a,a,a-Trifluorotoluene(PID)	98.6				79.0-125		03/04/2019 22:34	<a href="#">WG1245022</a>

<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





Method Blank (MB)

(MB) R3389451-3 03/04/19 11:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
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	

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



Method Blank (MB)

(MB) R3389731-3 03/04/19 18:09

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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)	98.4			79.0-125

<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

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

(LCS) R3389731-1 03/04/19 17:08 • (LCSD) R3389731-2 03/04/19 17:28

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0528	0.0536	106	107	77.0-122			1.45	20
Toluene	0.0500	0.0496	0.0504	99.2	101	80.0-121			1.52	20
Ethylbenzene	0.0500	0.0527	0.0535	105	107	80.0-123			1.48	20
Total Xylene	0.150	0.156	0.159	104	106	47.0-154			1.97	20
(S) a,a,a-Trifluorotoluene(PID)				99.8	99.6	79.0-125				

L1074965-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1074965-01 03/05/19 01:14 • (MS) R3389731-4 03/05/19 01:35 • (MSD) R3389731-5 03/05/19 01:56

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	ND	0.0478	0.0554	95.7	111	1	10.0-160			14.7	21
Toluene	0.0500	ND	0.0451	0.0516	90.1	103	1	12.0-148			13.5	21
Ethylbenzene	0.0500	ND	0.0472	0.0537	94.4	107	1	22.0-149			12.9	21
Total Xylene	0.150	ND	0.145	0.163	96.8	109	1	13.0-155			11.7	21
(S) a,a,a-Trifluorotoluene(PID)					99.0	98.9		79.0-125				

Method Blank (MB)

(MB) R3390216-2 03/04/19 21:40

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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)	99.9			79.0-125

1

Cp

2

Tc

3

Ss

4

Cn

5

Tr

6

Sr

7

Qc

8

Gl

9

Al

10

Sc

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

(LCS) R3390216-1 03/04/19 20:14 • (LCSD) R3390216-3 03/05/19 06:45

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0446	0.0431	89.2	86.1	77.0-122			3.48	20
Toluene	0.0500	0.0433	0.0405	86.7	81.1	80.0-121			6.68	20
Ethylbenzene	0.0500	0.0450	0.0409	90.0	81.8	80.0-123			9.51	20
Total Xylene	0.150	0.129	0.115	85.9	76.9	47.0-154			11.1	20
(S) a,a,a-Trifluorotoluene(PID)				97.1	97.4	79.0-125				



Method Blank (MB)

(MB) R3390564-2 03/11/19 12:37

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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)	96.2			79.0-125

Laboratory Control Sample (LCS)

(LCS) R3390564-1 03/11/19 11:49

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0520	104	77.0-122	
Toluene	0.0500	0.0475	95.0	80.0-121	
Ethylbenzene	0.0500	0.0480	96.0	80.0-123	
Total Xylene	0.150	0.146	97.5	47.0-154	
(S) a,a,a-Trifluorotoluene(PID)			96.9	79.0-125	

<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



## 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.
ND	Not detected at the 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 remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.





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	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	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		


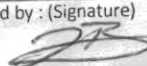
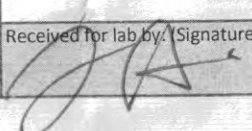
<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

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.





<b>Plains All American, LP - GHD</b>  2135 S Loop 250 W Midland, TX 79703		Billing Information: <b>Accounts Payable</b> 505 N. Big Spring, Ste. 600 Midland, TX 79701		Pres Chk	Analysis / Container / Preservative										Chain of Custody Page ____ of ____					
		Report to: <b>John Schnable</b>			Email To: <b>Christopher.Knight@ghd.com;</b> <b>John.Schnable@ghd.com</b>												 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859			
Project Description: <b>Darr Angell #1 - Lea County, NM</b>		City/State Collected:		BTEX 40miAmb-HCl											L# <b>1075029</b> <b>A028</b>					
Phone: <b>512-506-8803</b> Fax:		Client Project # <b>074683</b>													Acctnum: <b>PLAINSGHD</b> Template: <b>T139782</b> Prelogin: <b>P695141</b> TSR: <b>134 - Mark W. Beasley</b> PB:					
Collected by (print):		Site/Facility ID # <b>SRS DARR ANGELL #1</b>													Shipped Via:					
Collected by (signature):		Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day													Date Results Needed					
Immediately Packed on Ice N <input type="checkbox"/> Y <input type="checkbox"/>		Quote #													No. of Cntrs					
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time															
MW-18R-022719	Grab	GW	DTW	2/27/19	0930	3	3													-01
MW-17R-022719	Grab	GW	DTW	2/27/19	0955	3	3													-02
MW-12R-022719	Grab	GW	DTW	2/27/19	1030	3	3													-03
MW-19R-022719	Grab	GW	DTW	2/27/19	1055	3	3													-04
MW-22-022719	Grab	GW	DTW	2/27/19	1135	3	3													-05
MW-6-022719	Grab	GW	DTW	2/27/19	1200	3	3													-06
MW-21-022719	Grab	GW	DTW	2/27/19	1225	3	3													-07
MW-20R-022719	Grab	GW	DTW	2/27/19	1255	3	3													-08
MW-16R-022719	Grab	GW	DTW	2/27/19	1345	3	3													-09
RW-12-022719	Grab	GW	DTW	2/27/19	1440	3	3													-10
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other		Remarks:		pH _____ Temp _____ Flow _____ Other _____										Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N						
Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier		Tracking # <b>4430 3429 3005</b>												RAD SCREEN: <0.5 mR/hr						
Relinquished by: (Signature) 		Date:		Time:		Received by: (Signature)		Trip Blank Received: Yes/No <input checked="" type="checkbox"/> HCL/MeOH <input type="checkbox"/> TBR												
Relinquished by: (Signature)		Date:		Time:		Received by: (Signature)		Temp: °C <b>3.2-2-30</b>		Bottles Received: <b>39+13</b>		If preservation required by Login: Date/Time								
Relinquished by: (Signature)		Date:		Time:		Received for lab by: (Signature) 		Date: <b>3/2/19</b> Time: <b>8:45</b>		Hold:		Condition: NCF / <input checked="" type="checkbox"/> OK								

# Plains All American, LP - GHD

2135 S Loop 250 W  
Midland, TX 79703

## Billing Information:

Accounts Payable  
505 N. Big Spring, Ste. 600  
Midland, TX 79701

Email To: Christopher.Knight@ghd.com;  
John.Schnable@ghd.com

Report to:  
John Schnable

Project  
Description: Darr Angell #1 - Lea County, NM

Phone: 512-506-8803  
Fax:

Client Project #  
074683

City/State  
Collected:

Lab Project #  
PLAINSGHD-074683

Collected by (print):

Site/Facility ID #  
SRS DARR ANGELL #1

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Same Day Five Day  
Next Day 5 Day (Rad Only)  
Two Day 10 Day (Rad Only)  
Three Day

Quote #

Date Results Needed

Immediately  
Packed on Ice N Y

No.  
of  
Cntrs

Sample ID

Comp/Grab

Matrix \*

Depth

Date

Time

BTEX 40ml/Amb-HCI

MW-2-022719

Grab

GW

DTW

2/19/19 1535

3

3

Dup-01-022719

Grab

GW

DTW

2/27/19 -

3

3

Dup-02-022719

Grab

GW

DTW

2/27/19 -

3

3

GW

GW

GW

GW

TRIP BLANK

GW

1

\*

\* Matrix:  
SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks:

pH Temp

Flow Other

Samples returned via:  
UPS FedEx Courier

Tracking #

4430 3429 3005

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes No

HCL MeOH  
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received:

32-23.0 39+1

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 3/2/19 Time: 8:15

## Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N  
COC Signed/Accurate: ☒ Y ☐ N  
Bottles arrive intact: ☒ Y ☐ N  
Correct bottles used: ☒ Y ☐ N  
Sufficient volume sent: ☒ Y ☐ N  
If Applicable  
VOA Zero Headspace: ☒ Y ☐ N  
Preservation Correct/Checked: ☒ Y ☐ N

PAD SCREEN: <0.5 MPa

If preservation required by Login: Date/Time

Hold:

Condition:  
NCF / OK

Analysis / Container / Preservative

Chain of Custody Page of



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



L# 1075029

Table #

Acctnum: PLAINSGHD

Template: T139782

Prelogin: P695141

TSR: 134 - Mark W. Beasley

PB:

Shipped Via:

Remarks

Sample # (lab only)

-11

-12

-13

-14



June 05, 2019

## Plains All American, LP - GHD

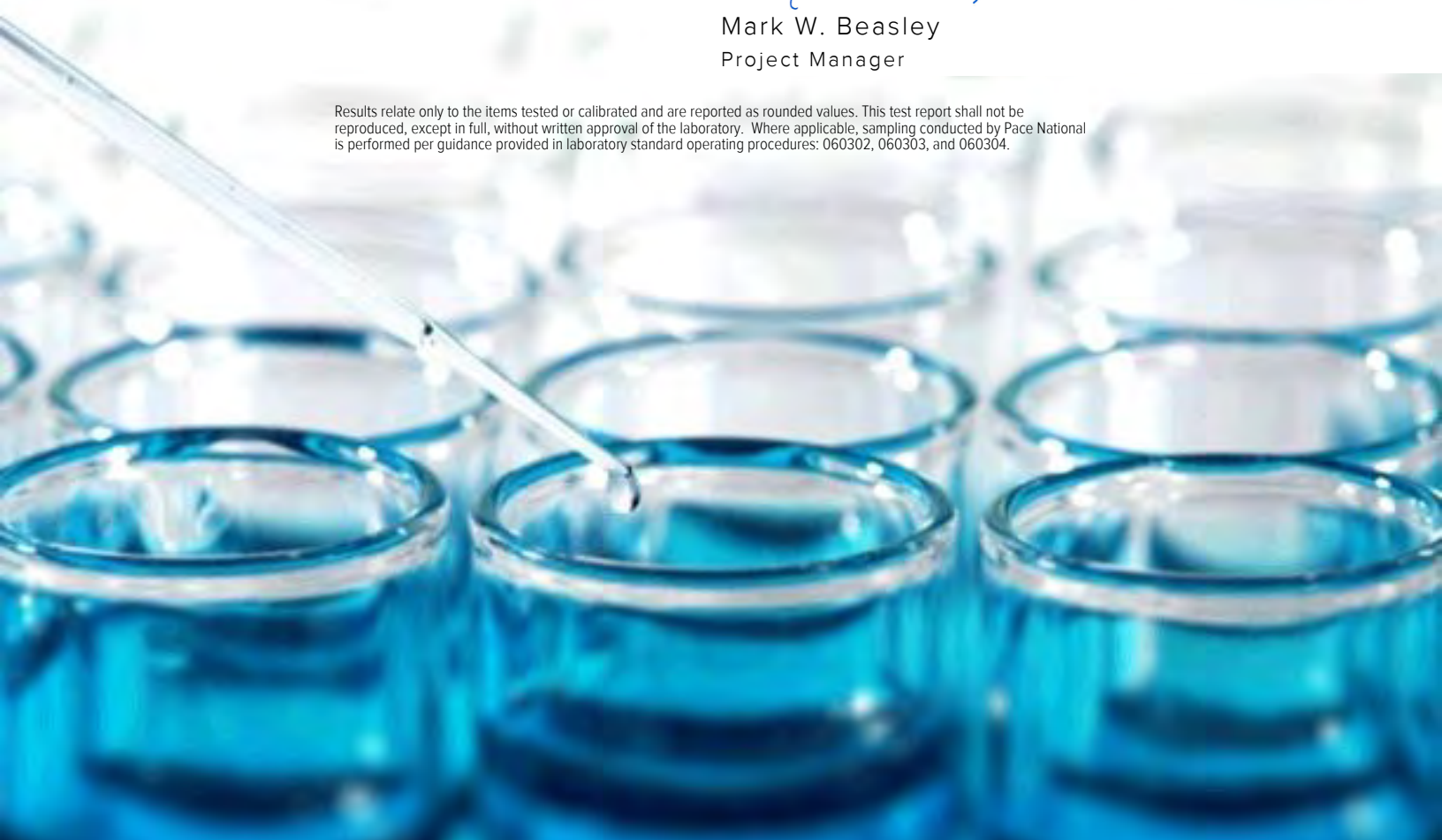
Sample Delivery Group: L1102366  
Samples Received: 05/24/2019  
Project Number: 074683  
Description: Darr Angell #1- Lea County, New Mexico  
Site: SRS DARR ANGELL #1  
Report To: James Ornelas  
2135 S Loop 250 W  
Midland, TX 79703

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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.





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<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

## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## MW-2-052219 L1102366-01 GW

				Collected by Justin Nixon	Collected date/time 05/22/19 07:35	Received date/time 05/24/19 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288289	1	05/30/19 08:19	05/30/19 08:19	ACE	Mt. Juliet, TN

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss

## MW-12R-052219 L1102366-02 GW

				Collected by Justin Nixon	Collected date/time 05/22/19 08:20	Received date/time 05/24/19 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288289	1	05/30/19 06:30	05/30/19 06:30	ACE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8021B	WG1290327	1	06/04/19 14:13	06/04/19 14:13	JAH	Mt. Juliet, TN

<sup>4</sup> Cn<sup>5</sup> Tr<sup>6</sup> Sr

## MW-16R-052219 L1102366-03 GW

				Collected by Justin Nixon	Collected date/time 05/22/19 08:45	Received date/time 05/24/19 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288289	1	05/30/19 06:51	05/30/19 06:51	ACE	Mt. Juliet, TN

<sup>7</sup> Qc<sup>8</sup> Gl

## MW-17R-052219 L1102366-04 GW

				Collected by Justin Nixon	Collected date/time 05/22/19 09:15	Received date/time 05/24/19 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288289	1	05/30/19 07:11	05/30/19 07:11	ACE	Mt. Juliet, TN

<sup>9</sup> Al<sup>10</sup> Sc

## MW-18R-052219 L1102366-05 GW

				Collected by Justin Nixon	Collected date/time 05/22/19 09:45	Received date/time 05/24/19 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288289	1	05/30/19 07:32	05/30/19 07:32	ACE	Mt. Juliet, TN

## MW-19R-052219 L1102366-06 GW

				Collected by Justin Nixon	Collected date/time 05/22/19 10:05	Received date/time 05/24/19 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288848	1	05/30/19 19:06	05/30/19 19:06	ACE	Mt. Juliet, TN

## MW-20R-052219 L1102366-07 GW

				Collected by Justin Nixon	Collected date/time 05/22/19 10:25	Received date/time 05/24/19 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288848	1	05/30/19 19:30	05/30/19 19:30	ACE	Mt. Juliet, TN

## MW-21-052219 L1102366-08 GW

				Collected by Justin Nixon	Collected date/time 05/22/19 10:45	Received date/time 05/24/19 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288848	1	05/30/19 19:53	05/30/19 19:53	ACE	Mt. Juliet, TN

ACCOUNT:

Plains All American, LP - GHD

PROJECT:

074683

SDG:

L1102366

DATE/TIME:

06/05/19 09:26

PAGE:

3 of 30



## MW-22-052219 L1102366-09 GW

Collected by  
Justin NixonCollected date/time  
05/22/19 11:20Received date/time  
05/24/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288848	1	05/30/19 20:17	05/30/19 20:17	ACE	Mt. Juliet, TN

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss

## RW-12-052219 L1102366-10 GW

Collected by  
Justin NixonCollected date/time  
05/22/19 12:15Received date/time  
05/24/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288848	1	05/30/19 20:40	05/30/19 20:40	ACE	Mt. Juliet, TN

<sup>4</sup> Cn<sup>5</sup> Tr<sup>6</sup> Sr

## MW-6-052219 L1102366-11 GW

Collected by  
Justin NixonCollected date/time  
05/22/19 12:45Received date/time  
05/24/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288848	1	05/30/19 21:04	05/30/19 21:04	ACE	Mt. Juliet, TN

<sup>7</sup> Qc<sup>8</sup> Gl

## DUP-1-052219 L1102366-12 GW

Collected by  
Justin NixonCollected date/time  
05/22/19 00:00Received date/time  
05/24/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288848	1	05/30/19 21:28	05/30/19 21:28	ACE	Mt. Juliet, TN

<sup>9</sup> Al<sup>10</sup> Sc

## DUP-2-052219 L1102366-13 GW

Collected by  
Justin NixonCollected date/time  
05/22/19 00:00Received date/time  
05/24/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8021B	WG1288848	1	05/30/19 21:52	05/30/19 21:52	ACE	Mt. Juliet, TN





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

<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



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



Laboratory Name: Pace Analytical National			LRC Date: 06/05/2019 09:26				
Project Name: Darr Angell #1- Lea County, New Mexico			Laboratory Job Number: L1102366-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12 and 13				
Reviewer Name: Mark W. Beasley			Prep Batch Number(s): WG1288848, WG1288289 and WG1290327				
# <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?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	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 analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?		X			1
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	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 the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	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 lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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; I = 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).

# Laboratory Review Checklist: Supporting Data



Laboratory Name: Pace Analytical National		LRC Date: 06/05/2019 09:26					
Project Name: Darr Angell #1- Lea County, New Mexico		Laboratory Job Number: L1102366-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12 and 13					
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1288848, WG1288289 and WG1290327					
# <sup>1</sup>	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 factors for each analyte within QC limits?			X		
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports



Laboratory Name: Pace Analytical National		LRC Date: 06/05/2019 09:26	
Project Name: Darr Angell #1- Lea County, New Mexico		Laboratory Job Number: L1102366-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12 and 13	
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1288848, WG1288289 and WG1290327	
<b>ER #<sup>1</sup></b>	<b>Description</b>		
1	8021B WG1288289 Total Xylene L1102366-02: Concentration in the Blank >MQL.		
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>			



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0118		0.000190	0.000500	0.000500	1	05/30/2019 08:19	<a href="#">WG1288289</a>
Toluene	0.000966	J	0.000412	0.00100	0.00100	1	05/30/2019 08:19	<a href="#">WG1288289</a>
Ethylbenzene	0.00286		0.000160	0.000500	0.000500	1	05/30/2019 08:19	<a href="#">WG1288289</a>
Total Xylene (S) o,a,a-Trifluorotoluene(PID)	0.00667 94.5		0.000510	0.00150	0.00150 79.0-125	1	05/30/2019 08:19 05/30/2019 08:19	<a href="#">WG1288289</a> <a href="#">WG1288289</a>

1  
Cp2  
Tc3  
Ss4  
Cn5  
Tr6  
Sr7  
Qc8  
Gl9  
Al10  
Sc





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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	06/04/2019 14:13	<a href="#">WG1290327</a>
Toluene	U		0.000412	0.00100	0.00100	1	05/30/2019 06:30	<a href="#">WG1288289</a>
Ethylbenzene	0.000507		0.000160	0.000500	0.000500	1	05/30/2019 06:30	<a href="#">WG1288289</a>
Total Xylene	0.00108	<a href="#">B J</a>	0.000510	0.00150	0.00150	1	05/30/2019 06:30	<a href="#">WG1288289</a>
(S) a,a,a-Trifluorotoluene(PID)	94.1				79.0-125		05/30/2019 06:30	<a href="#">WG1288289</a>
(S) a,a,a-Trifluorotoluene(PID)	99.9				79.0-125		06/04/2019 14:13	<a href="#">WG1290327</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000480	J	0.000190	0.000500	0.000500	1	05/30/2019 06:51	<a href="#">WG1288289</a>
Toluene	U		0.000412	0.00100	0.00100	1	05/30/2019 06:51	<a href="#">WG1288289</a>
Ethylbenzene	0.000200	J	0.000160	0.000500	0.000500	1	05/30/2019 06:51	<a href="#">WG1288289</a>
Total Xylene (S) o,a,a-Trifluorotoluene(PID)	U 96.2		0.000510	0.00150	0.00150 79.0-125	1	05/30/2019 06:51 05/30/2019 06:51	<a href="#">WG1288289</a> <a href="#">WG1288289</a>

1  
Cp2  
Tc3  
Ss4  
Cn5  
Tr6  
Sr7  
Qc8  
Gl9  
Al10  
Sc



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	05/30/2019 07:11	<a href="#">WG1288289</a>
Toluene	U		0.000412	0.00100	0.00100	1	05/30/2019 07:11	<a href="#">WG1288289</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	05/30/2019 07:11	<a href="#">WG1288289</a>
Total Xylene (S) o,a,a-Trifluorotoluene(PID)	U 96.4		0.000510	0.00150	0.00150 79.0-125	1	05/30/2019 07:11 05/30/2019 07:11	<a href="#">WG1288289</a> <a href="#">WG1288289</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000258	J	0.000190	0.000500	0.000500	1	05/30/2019 07:32	<a href="#">WG1288289</a>
Toluene	U		0.000412	0.00100	0.00100	1	05/30/2019 07:32	<a href="#">WG1288289</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	05/30/2019 07:32	<a href="#">WG1288289</a>
Total Xylene (S) o,a,a-Trifluorotoluene(PID)	U 96.6		0.000510	0.00150	0.00150 79.0-125	1	05/30/2019 07:32 05/30/2019 07:32	<a href="#">WG1288289</a> <a href="#">WG1288289</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	05/30/2019 19:06	<a href="#">WG1288848</a>
Toluene	U		0.000412	0.00100	0.00100	1	05/30/2019 19:06	<a href="#">WG1288848</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	05/30/2019 19:06	<a href="#">WG1288848</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	05/30/2019 19:06	<a href="#">WG1288848</a>
(S) a,a,a-Trifluorotoluene(PID)	101				79.0-125		05/30/2019 19:06	<a href="#">WG1288848</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	05/30/2019 19:30	<a href="#">WG1288848</a>
Toluene	U		0.000412	0.00100	0.00100	1	05/30/2019 19:30	<a href="#">WG1288848</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	05/30/2019 19:30	<a href="#">WG1288848</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	05/30/2019 19:30	<a href="#">WG1288848</a>
(S) a,a,a-Trifluorotoluene(PID)	100				79.0-125		05/30/2019 19:30	<a href="#">WG1288848</a>

<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





Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000279	J	0.000190	0.000500	0.000500	1	05/30/2019 19:53	<a href="#">WG1288848</a>
Toluene	U		0.000412	0.00100	0.00100	1	05/30/2019 19:53	<a href="#">WG1288848</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	05/30/2019 19:53	<a href="#">WG1288848</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	05/30/2019 19:53	<a href="#">WG1288848</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		05/30/2019 19:53	<a href="#">WG1288848</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	05/30/2019 20:17	<a href="#">WG1288848</a>
Toluene	U		0.000412	0.00100	0.00100	1	05/30/2019 20:17	<a href="#">WG1288848</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	05/30/2019 20:17	<a href="#">WG1288848</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	05/30/2019 20:17	<a href="#">WG1288848</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		05/30/2019 20:17	<a href="#">WG1288848</a>

<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



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

Analyte	Result mg/l	<u>Qualifier</u>	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Benzene	0.00663		0.000190	0.000500	0.000500	1	05/30/2019 20:40	<a href="#">WG1288848</a>
Toluene	0.00768		0.000412	0.00100	0.00100	1	05/30/2019 20:40	<a href="#">WG1288848</a>
Ethylbenzene	0.00491		0.000160	0.000500	0.000500	1	05/30/2019 20:40	<a href="#">WG1288848</a>
Total Xylene	0.0564		0.000510	0.00150	0.00150	1	05/30/2019 20:40	<a href="#">WG1288848</a>
(S) a,a,a-Trifluorotoluene(PID)	96.6				79.0-125		05/30/2019 20:40	<a href="#">WG1288848</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0724		0.000190	0.000500	0.000500	1	05/30/2019 21:04	<a href="#">WG1288848</a>
Toluene	0.000675	J	0.000412	0.00100	0.00100	1	05/30/2019 21:04	<a href="#">WG1288848</a>
Ethylbenzene	0.00415		0.000160	0.000500	0.000500	1	05/30/2019 21:04	<a href="#">WG1288848</a>
Total Xylene	0.00905		0.000510	0.00150	0.00150	1	05/30/2019 21:04	<a href="#">WG1288848</a>
(S) o,a,a-Trifluorotoluene(PID)	99.4				79.0-125		05/30/2019 21:04	<a href="#">WG1288848</a>

<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



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000250	J	0.000190	0.000500	0.000500	1	05/30/2019 21:28	<a href="#">WG1288848</a>
Toluene	U		0.000412	0.00100	0.00100	1	05/30/2019 21:28	<a href="#">WG1288848</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	05/30/2019 21:28	<a href="#">WG1288848</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	05/30/2019 21:28	<a href="#">WG1288848</a>
(S) a,a,a-Trifluorotoluene(PID)	101				79.0-125		05/30/2019 21:28	<a href="#">WG1288848</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00782		0.000190	0.000500	0.000500	1	05/30/2019 21:52	<a href="#">WG1288848</a>
Toluene	0.0113		0.000412	0.00100	0.00100	1	05/30/2019 21:52	<a href="#">WG1288848</a>
Ethylbenzene	0.00920		0.000160	0.000500	0.000500	1	05/30/2019 21:52	<a href="#">WG1288848</a>
Total Xylene	0.108		0.000510	0.00150	0.00150	1	05/30/2019 21:52	<a href="#">WG1288848</a>
(S) a,a,a-Trifluorotoluene(PID)	99.6				79.0-125		05/30/2019 21:52	<a href="#">WG1288848</a>

<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





Method Blank (MB)

(MB) R3417366-2 05/30/19 01:01

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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)	95.5			79.0-125

<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

Laboratory Control Sample (LCS)

(LCS) R3417366-1 05/30/19 00:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0475	94.9	77.0-122	
Toluene	0.0500	0.0470	94.0	80.0-121	
Ethylbenzene	0.0500	0.0480	96.0	80.0-123	
Total Xylene	0.150	0.150	99.9	47.0-154	
(S) a,a,a-Trifluorotoluene(PID)			95.9	79.0-125	

L1102353-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1102353-01 05/30/19 01:21 • (MS) R3417366-3 05/30/19 08:40 • (MSD) R3417366-4 05/30/19 09:00

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	U	0.0494	0.0452	98.7	90.4	1	10.0-160			8.81	21
Toluene	0.0500	U	0.0560	0.0471	112	94.2	1	12.0-148			17.2	21
Ethylbenzene	0.0500	U	0.0494	0.0459	98.9	91.8	1	22.0-149			7.42	21
Total Xylene	0.150	U	0.158	0.143	105	95.3	1	13.0-155			9.97	21
(S) a,a,a-Trifluorotoluene(PID)					94.7	93.8		79.0-125				



Method Blank (MB)

(MB) R3417359-2 05/30/19 18:19

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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)	104			79.0-125

Laboratory Control Sample (LCS)

(LCS) R3417359-1 05/30/19 12:23

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0484	96.9	77.0-122	
Toluene	0.0500	0.0495	98.9	80.0-121	
Ethylbenzene	0.0500	0.0510	102	80.0-123	
Total Xylene	0.150	0.150	99.9	47.0-154	
(S) a,a,a-Trifluorotoluene(PID)			99.3	79.0-125	

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



Method Blank (MB)

(MB) R3417675-5 06/04/19 11:52

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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) R3417675-1 06/04/19 09:52 • (LCSD) R3417675-2 06/04/19 10:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0443	0.0488	88.7	97.7	77.0-122			9.65	20
(S) a,a,a-Trifluorotoluene(PID)				102	101	79.0-125				

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



## 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.
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

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

<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



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	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	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

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.



<b>Plains All American, LP - GHD</b>  2135 S Loop 250 W Midland, TX 79703				Billing Information:				Analysis / Container / Preservative				Chain of Custody Page <u>1</u> of <u>2</u>																																																																				
				Accounts Payable 505 N. Big Spring, Ste. 600 Midland, TX 79701				Pres Chk				 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859																																																																				
Report to: <b>John Schnable</b>				Email To: Christopher.Knight@ghd.com; John.Schnable@ghd.com				<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>L# 1102366</b>  <b>B062</b> </div> Acctnum: PLAINSGHD Template: T139782 Prelogin: P708912 TSR: 134 - Mark W. Beasley PB: Shipped Via:																																																																								
Project Description: <b>Darr Angell #1 - Lea County, NM</b>				City/State Collected:																																																																												
Phone: <b>512-506-8803</b>		Client Project # <b>074683</b>		Lab Project # <b>PLAINSGHD-074683</b>																																																																												
Fax:																																																																																
Collected by (print): <i>John M. Xun</i>		Site/Facility ID # <b>SRS DARR ANGELL #1</b>		P.O. #																																																																												
Collected by (signature): <i>[Signature]</i>		<b>Rush?</b> (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		Quote #																																																																												
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>		Date Results Needed		No. of Cntrs																																																																												
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time																																																																										
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:20%;">mw-2-052219</td> <td style="width:10%;">G</td> <td style="width:10%;">GW</td> <td style="width:10%;">5-22-19</td> <td style="width:10%;">735</td> <td style="width:10%;">3</td> <td style="width:10%;">X</td> </tr> <tr> <td>mw-12R-052219</td> <td></td> <td>GW</td> <td></td> <td>820</td> <td></td> <td></td> </tr> <tr> <td>mw-16R-052219</td> <td></td> <td>GW</td> <td></td> <td>845</td> <td></td> <td></td> </tr> <tr> <td>mw-17R-052219</td> <td></td> <td>GW</td> <td></td> <td>915</td> <td></td> <td></td> </tr> <tr> <td>mw-18R-052219</td> <td></td> <td>GW</td> <td></td> <td>945</td> <td></td> <td></td> </tr> <tr> <td>mw-19R-052219</td> <td></td> <td>GW</td> <td></td> <td>1005</td> <td></td> <td></td> </tr> <tr> <td>mw-20R-052219</td> <td></td> <td>GW</td> <td></td> <td>1025</td> <td></td> <td></td> </tr> <tr> <td>mw-21-052219</td> <td></td> <td>GW</td> <td></td> <td>1045</td> <td></td> <td></td> </tr> <tr> <td>mw-22-052219</td> <td></td> <td>GW</td> <td></td> <td>1120</td> <td></td> <td></td> </tr> <tr> <td>mw-12-052219</td> <td></td> <td>GW</td> <td></td> <td>1215</td> <td></td> <td></td> </tr> </table>							mw-2-052219					G	GW	5-22-19	735	3	X	mw-12R-052219		GW		820			mw-16R-052219		GW		845			mw-17R-052219		GW		915			mw-18R-052219		GW		945			mw-19R-052219		GW		1005			mw-20R-052219		GW		1025			mw-21-052219		GW		1045			mw-22-052219		GW		1120			mw-12-052219		GW		1215		
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* Matrix: SS - Soil   AIR - Air   F - Filter GW - Groundwater   B - Bioassay WW - WasteWater DW - Drinking Water OT - Other				Remarks: <i>Report SOLS</i> <i>Flag estimated concentrations</i> Samples returned via: UPS   FedEx   Courier				RAD SCREEN: <0.5 mR/hr pH _____ Temp _____ Flow _____ Other _____																																																																								
Relinquished by: (Signature) <i>[Signature]</i>				Date: 5-23-19		Time: 1400		Received by: (Signature) Trip Blank Received: Yes / No HCL / MeOH TBR																																																																								
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)																																																																								
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature) <i>[Signature]</i>																																																																								
				Date:		Time:		Hold:																																																																								
				Date:		Time:		Condition: NCF / OK																																																																								



[illegible]



**Troy Dunlap**



Login #: L1102366	Client: PLAINSGHD	Date: 05/24/19	Evaluated by: PN
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**Non-Conformance (check applicable items)**

Sample Integrity	Chain of Custody Clarification	If Broken Container:
Parameter(s) past holding time	X Login Clarification Needed	
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 / Courier)
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.	Trip Blank not received.	<b>If no Chain of Custody:</b>
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: Din not receive a trip blank**

Client informed by:	Call	Email	Voice Mail	Date: 5/24/19	Time: 1830
TSR Initials: MB	Client Contact:				

**Login Instructions:**

Client notified

June 25, 2019

<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

## Plains All American, LP - GHD

Sample Delivery Group: L1110886  
Samples Received: 06/20/2019  
Project Number: 074683-2018.1  
Description: Darr Angell #1 - Lea County, NM

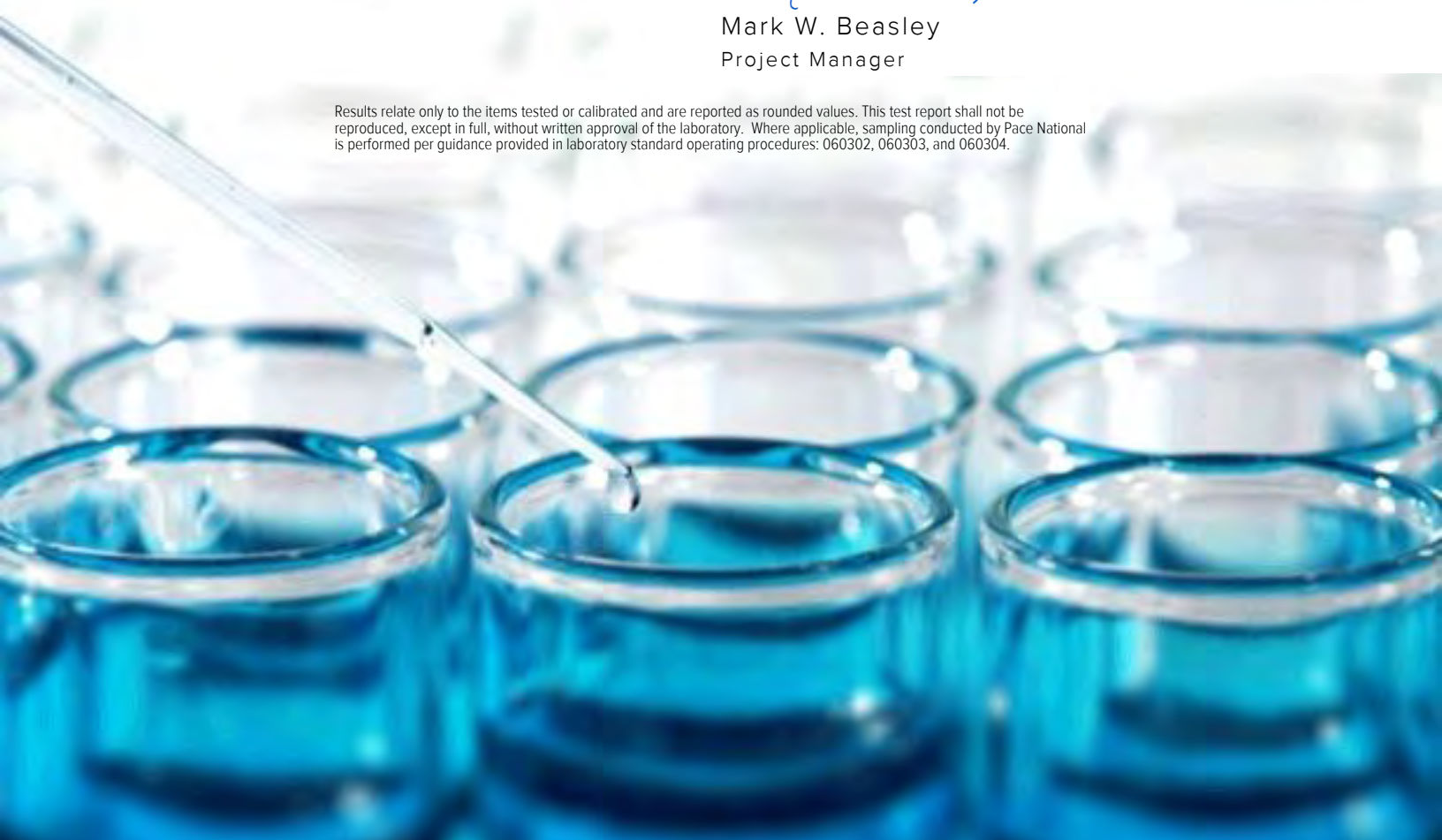
Report To: James Ornelas  
2135 S Loop 250 W  
Midland, TX 79703

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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.





Cp: Cover Page	1	<sup>1</sup> Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	<sup>2</sup> Tc
Cn: Case Narrative	4	
Tr: TRRP Summary	5	<sup>3</sup> Ss
TRRP form R	6	
TRRP form S	7	<sup>4</sup> Cn
TRRP Exception Reports	8	<sup>5</sup> Tr
Sr: Sample Results	9	<sup>6</sup> Sr
DARR1-PUMP OFF-061919 L1110886-01	9	
DARR1-PUMP ON-061919 L1110886-02	10	
Qc: Quality Control Summary	11	<sup>7</sup> Qc
Volatile Organic Compounds (MS) by Method M18-Mod	11	
Gl: Glossary of Terms	13	<sup>8</sup> Gl
Al: Accreditations & Locations	14	<sup>9</sup> Al
Sc: Sample Chain of Custody	15	<sup>10</sup> Sc



## DARR1-PUMP OFF-061919 L1110886-01 Air

Collected by  
Justin NixonCollected date/time  
06/19/19 11:45Received date/time  
06/20/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method M18-Mod	WG1299139	80	06/20/19 22:40	06/20/19 22:40	MBF	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method M18-Mod	WG1299904	4000	06/21/19 23:17	06/21/19 23:17	AMC	Mt. Juliet, TN

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss

## DARR1-PUMP ON-061919 L1110886-02 Air

Collected by  
Justin NixonCollected date/time  
06/19/19 12:10Received date/time  
06/20/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method M18-Mod	WG1299139	80	06/20/19 23:22	06/20/19 23:22	MBF	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method M18-Mod	WG1299904	4000	06/21/19 23:59	06/21/19 23:59	AMC	Mt. Juliet, TN

<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



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

<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



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



Laboratory Name: Pace Analytical National			LRC Date: 06/25/2019 09:18				
Project Name: Darr Angell #1 - Lea County, NM			Laboratory Job Number: L1110886-01 and 02				
Reviewer 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# <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 in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	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 analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	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 the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	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 lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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; I = 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).



# Laboratory Review Checklist: Supporting Data



Laboratory Name: Pace Analytical National		LRC Date: 06/25/2019 09:18					
Project Name: Darr Angell #1 - Lea County, NM		Laboratory Job Number: L1110886-01 and 02					
Reviewer 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# <sup>5</sup>
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							



Laboratory Name: Pace Analytical National		LRC Date: 06/25/2019 09:18	
Project Name: Darr Angell #1 - Lea County, NM		Laboratory Job Number: L1110886-01 and 02	
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1299139 and WG1299904	
<b>ER #<sup>1</sup></b>	<b>Description</b>		
1	M18-Mod WG1299139 1,4-Bromofluorobenzene L1110886-01 and 02: Percent Recovery is outside of established control limits.		
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>			



Collected date/time: 06/19/19 11:45

L1110886

Volatile Organic Compounds (MS) by Method M18-Mod

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	800	2560	44300	142000		4000	<a href="#">WG1299904</a>
Toluene	108-88-3	92.10	800	3010	52500	198000		4000	<a href="#">WG1299904</a>
Ethylbenzene	100-41-4	106	800	3470	10700	46200		4000	<a href="#">WG1299904</a>
m&p-Xylene	1330-20-7	106	1600	6940	28500	123000		4000	<a href="#">WG1299904</a>
o-Xylene	95-47-6	106	800	3470	7270	31500		4000	<a href="#">WG1299904</a>
Methyl tert-butyl ether	1634-04-4	88.10	16.0	57.7	ND	ND		80	<a href="#">WG1299139</a>
TPH (GC/MS) Low Fraction	8006-61-9	101	200000	826000	5520000	22800000		4000	<a href="#">WG1299904</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		319		J1		<a href="#">WG1299139</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		101				<a href="#">WG1299904</a>

Sample Narrative:

L1110886-01 WG1299139: Surrogate failure due to matrix interference.

<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



Volatile Organic Compounds (MS) by Method M18-Mod

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	800	2560	52100	166000		4000	<a href="#">WG1299904</a>
Toluene	108-88-3	92.10	800	3010	60700	229000		4000	<a href="#">WG1299904</a>
Ethylbenzene	100-41-4	106	800	3470	11100	48200		4000	<a href="#">WG1299904</a>
m&p-Xylene	1330-20-7	106	1600	6940	26600	115000		4000	<a href="#">WG1299904</a>
o-Xylene	95-47-6	106	800	3470	7580	32900		4000	<a href="#">WG1299904</a>
Methyl tert-butyl ether	1634-04-4	88.10	16.0	57.7	ND	ND		80	<a href="#">WG1299139</a>
TPH (GC/MS) Low Fraction	8006-61-9	101	200000	826000	5980000	24700000		4000	<a href="#">WG1299904</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		317		J1		<a href="#">WG1299139</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		99.3				<a href="#">WG1299904</a>

Sample Narrative:

L1110886-02 WG1299139: Surrogate failure due to matrix interference.

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

Method Blank (MB)

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

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	ppbv		ppbv	ppbv
MTBE	U		0.0505	0.200
(S) 1,4-Bromofluorobenzene	96.2			60.0-140

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

(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
(S) 1,4-Bromofluorobenzene				99.0	99.5	60.0-140				

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

Method Blank (MB)

(MB) R3423605-3 06/21/19 10:24

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ppbv		ppbv	ppbv
Benzene	U		0.0460	0.200
Ethylbenzene	U		0.0506	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	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

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ppbv	ppbv	ppbv	%	%	%			%	%
Benzene	3.75	4.73	4.72	126	126	70.0-130			0.168	25
Toluene	3.75	4.61	4.59	123	123	70.0-130			0.384	25
Ethylbenzene	3.75	4.60	4.57	123	122	70.0-130			0.645	25
m&p-Xylene	7.50	8.91	8.95	119	119	70.0-130			0.499	25
o-Xylene	3.75	4.50	4.54	120	121	70.0-130			0.909	25
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				

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



## 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

J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
----	--

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc





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	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	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

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.



[illegible]

## Plains All American, LP - GHD

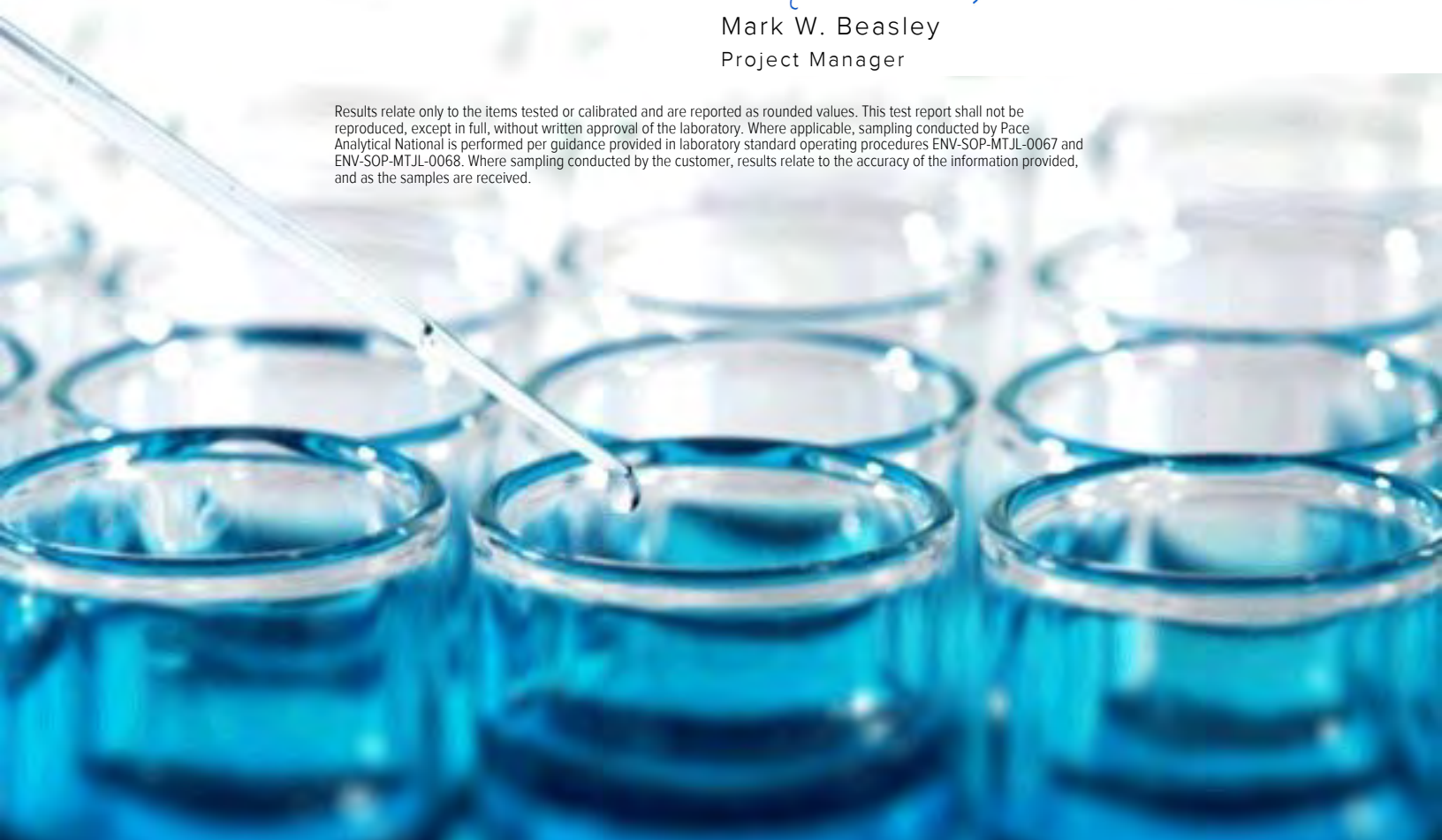
Sample Delivery Group: L1122864  
Samples Received: 07/26/2019  
Project Number: 074683  
Description: Darr Angell #1- Lea County, New Mexico  
Site: SRS DARR ANGELL #1  
Report To: James Ornelas  
2135 S Loop 250 W  
Midland, TX 79703

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.





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<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

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## MW-18R-072419 L1122864-01 GW

				Collected by Justin Nixon	Collected date/time 07/24/19 10:25	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 13:25	07/30/19 13:25	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8021B	WG1320778	1	08/01/19 01:12	08/01/19 01:12	ADM	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

## MW-17R-072419 L1122864-02 GW

				Collected by Justin Nixon	Collected date/time 07/24/19 11:05	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 13:49	07/30/19 13:49	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8021B	WG1320778	1	08/01/19 01:36	08/01/19 01:36	ADM	Mt. Juliet, TN

<sup>4</sup> Cn

<sup>5</sup> Tr

<sup>6</sup> Sr

## MW-19R-072419 L1122864-03 GW

				Collected by Justin Nixon	Collected date/time 07/24/19 11:30	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 14:13	07/30/19 14:13	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8021B	WG1320778	1	08/01/19 02:00	08/01/19 02:00	ADM	Mt. Juliet, TN

<sup>7</sup> Qc

<sup>8</sup> Gl

<sup>9</sup> Al

## MW-12R-072419 L1122864-04 GW

				Collected by Justin Nixon	Collected date/time 07/24/19 12:15	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 14:37	07/30/19 14:37	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8021B	WG1320778	1	08/01/19 02:24	08/01/19 02:24	ADM	Mt. Juliet, TN

<sup>10</sup> Sc

## MW-22-072419 L1122864-05 GW

				Collected by Justin Nixon	Collected date/time 07/24/19 12:55	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 15:01	07/30/19 15:01	DWR	Mt. Juliet, TN

## MW-6-072419 L1122864-06 GW

				Collected by Justin Nixon	Collected date/time 07/24/19 13:25	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 17:50	07/30/19 17:50	DWR	Mt. Juliet, TN

## MW-21-072419 L1122864-07 GW

				Collected by Justin Nixon	Collected date/time 07/24/19 13:45	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	WG1319881	1	07/30/19 18:14	07/30/19 18:14	DWR	Mt. Juliet, TN

## MW-20R-072419 L1122864-08 GW

				Collected by Justin Nixon	Collected date/time 07/24/19 14:10	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 18:38	07/30/19 18:38	DWR	Mt. Juliet, TN

ACCOUNT:

Plains All American, LP - GHD

PROJECT:

074683

SDG:

L1122864

DATE/TIME:

08/02/19 19:29

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## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



MW-16R-072419 L1122864-09 GW

Collected by  
Justin NixonCollected date/time  
07/24/19 14:35Received 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 19:01	07/30/19 19:01	DWR	Mt. Juliet, TN

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss

RW-12-072419 L1122864-10 GW

Collected by  
Justin NixonCollected date/time  
07/24/19 15:30Received 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 19:25	07/30/19 19:25	DWR	Mt. Juliet, TN

<sup>4</sup> Cn<sup>5</sup> Tr<sup>6</sup> Sr

MW-2-072419 L1122864-11 GW

Collected by  
Justin NixonCollected date/time  
07/24/19 16:05Received 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 19:49	07/30/19 19:49	DWR	Mt. Juliet, TN

<sup>7</sup> Qc<sup>8</sup> Gl

DUP-1-072419 L1122864-12 GW

Collected by  
Justin NixonCollected date/time  
07/24/19 00:00Received 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	WG1320900	1	08/01/19 14:14	08/01/19 14:14	JAH	Mt. Juliet, TN

<sup>9</sup> Al<sup>10</sup> Sc

DUP-2-072419 L1122864-13 GW

Collected by  
Justin NixonCollected date/time  
07/24/19 00:00Received 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	WG1320900	1	08/01/19 14:44	08/01/19 14:44	JAH	Mt. Juliet, TN

ACCOUNT:

Plains All American, LP - GHD

PROJECT:

074683

SDG:

L1122864

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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

<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





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



Laboratory Name: Pace Analytical National			LRC Date: 08/02/2019 19:29				
Project Name: Darr Angell #1- Lea County, New Mexico			Laboratory Job Number: L1122864-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12 and 13				
Reviewer Name: Mark W. Beasley			Prep Batch Number(s): WG1319881, WG1320778 and WG1320900				
# <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?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	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 analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?		X			1
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	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 the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	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 lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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; I = 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).

# Laboratory Review Checklist: Supporting Data



Laboratory Name: Pace Analytical National		LRC Date: 08/02/2019 19:29					
Project Name: Darr Angell #1- Lea County, New Mexico		Laboratory Job Number: L1122864-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12 and 13					
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1319881, WG1320778 and WG1320900					
# <sup>1</sup>	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 factors for each analyte within QC limits?			X		
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							



Laboratory Name: Pace Analytical National		LRC Date: 08/02/2019 19:29	
Project Name: Darr Angell #1- Lea County, New Mexico		Laboratory Job Number: L1122864-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12 and 13	
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1319881, WG1320778 and WG1320900	
<b>ER #<sup>1</sup></b>	<b>Description</b>		
1	8021B WG1320900 Total Xylene L1122864-12: Concentration in the Blank >MQL.		
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>			



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000201	J	0.000190	0.000500	0.000500	1	08/01/2019 01:12	<a href="#">WG1320778</a>
Toluene	0.000448	J	0.000412	0.00100	0.00100	1	07/30/2019 13:25	<a href="#">WG1319881</a>
Ethylbenzene	0.000365	J	0.000160	0.000500	0.000500	1	07/30/2019 13:25	<a href="#">WG1319881</a>
Total Xylene	0.00101	J	0.000510	0.00150	0.00150	1	07/30/2019 13:25	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	103				79.0-125		07/30/2019 13:25	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	103				79.0-125		08/01/2019 01:12	<a href="#">WG1320778</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	08/01/2019 01:36	<a href="#">WG1320778</a>
Toluene	U		0.000412	0.00100	0.00100	1	07/30/2019 13:49	<a href="#">WG1319881</a>
Ethylbenzene	0.000189	J	0.000160	0.000500	0.000500	1	07/30/2019 13:49	<a href="#">WG1319881</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	07/30/2019 13:49	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		07/30/2019 13:49	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	103				79.0-125		08/01/2019 01:36	<a href="#">WG1320778</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	08/01/2019 02:00	<a href="#">WG1320778</a>
Toluene	U		0.000412	0.00100	0.00100	1	07/30/2019 14:13	<a href="#">WG1319881</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	07/30/2019 14:13	<a href="#">WG1319881</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	07/30/2019 14:13	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	103				79.0-125		07/30/2019 14:13	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	103				79.0-125		08/01/2019 02:00	<a href="#">WG1320778</a>

<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





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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000300	J	0.000190	0.000500	0.000500	1	08/01/2019 02:24	<a href="#">WG1320778</a>
Toluene	U		0.000412	0.00100	0.00100	1	07/30/2019 14:37	<a href="#">WG1319881</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	07/30/2019 14:37	<a href="#">WG1319881</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	07/30/2019 14:37	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		07/30/2019 14:37	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	103				79.0-125		08/01/2019 02:24	<a href="#">WG1320778</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	07/30/2019 15:01	<a href="#">WG1319881</a>
Toluene	U		0.000412	0.00100	0.00100	1	07/30/2019 15:01	<a href="#">WG1319881</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	07/30/2019 15:01	<a href="#">WG1319881</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	07/30/2019 15:01	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		07/30/2019 15:01	<a href="#">WG1319881</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0746		0.000190	0.000500	0.000500	1	07/30/2019 17:50	<a href="#">WG1319881</a>
Toluene	U		0.000412	0.00100	0.00100	1	07/30/2019 17:50	<a href="#">WG1319881</a>
Ethylbenzene	0.000864		0.000160	0.000500	0.000500	1	07/30/2019 17:50	<a href="#">WG1319881</a>
Total Xylene	0.00431		0.000510	0.00150	0.00150	1	07/30/2019 17:50	<a href="#">WG1319881</a>
(S) o,a,a-Trifluorotoluene(PID)	102				79.0-125		07/30/2019 17:50	<a href="#">WG1319881</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	07/30/2019 18:14	<a href="#">WG1319881</a>
Toluene	U		0.000412	0.00100	0.00100	1	07/30/2019 18:14	<a href="#">WG1319881</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	07/30/2019 18:14	<a href="#">WG1319881</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	07/30/2019 18:14	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	103				79.0-125		07/30/2019 18:14	<a href="#">WG1319881</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	07/30/2019 18:38	<a href="#">WG1319881</a>
Toluene	U		0.000412	0.00100	0.00100	1	07/30/2019 18:38	<a href="#">WG1319881</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	07/30/2019 18:38	<a href="#">WG1319881</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	07/30/2019 18:38	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		07/30/2019 18:38	<a href="#">WG1319881</a>

<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

Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000190	0.000500	0.000500	1	07/30/2019 19:01	<a href="#">WG1319881</a>
Toluene	U		0.000412	0.00100	0.00100	1	07/30/2019 19:01	<a href="#">WG1319881</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	07/30/2019 19:01	<a href="#">WG1319881</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	07/30/2019 19:01	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		07/30/2019 19:01	<a href="#">WG1319881</a>

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00869		0.000190	0.000500	0.000500	1	07/30/2019 19:25	<a href="#">WG1319881</a>
Toluene	0.0115		0.000412	0.00100	0.00100	1	07/30/2019 19:25	<a href="#">WG1319881</a>
Ethylbenzene	0.0223		0.000160	0.000500	0.000500	1	07/30/2019 19:25	<a href="#">WG1319881</a>
Total Xylene	0.162		0.000510	0.00150	0.00150	1	07/30/2019 19:25	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	101				79.0-125		07/30/2019 19:25	<a href="#">WG1319881</a>

<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





Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00339		0.000190	0.000500	0.000500	1	07/30/2019 19:49	<a href="#">WG1319881</a>
Toluene	U		0.000412	0.00100	0.00100	1	07/30/2019 19:49	<a href="#">WG1319881</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	07/30/2019 19:49	<a href="#">WG1319881</a>
Total Xylene	0.00161		0.000510	0.00150	0.00150	1	07/30/2019 19:49	<a href="#">WG1319881</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		07/30/2019 19:49	<a href="#">WG1319881</a>

<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



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0691		0.000190	0.000500	0.000500	1	08/01/2019 14:14	<a href="#">WG1320900</a>
Toluene	U		0.000412	0.00100	0.00100	1	08/01/2019 14:14	<a href="#">WG1320900</a>
Ethylbenzene	0.000755		0.000160	0.000500	0.000500	1	08/01/2019 14:14	<a href="#">WG1320900</a>
Total Xylene	0.00394	<u>B</u>	0.000510	0.00150	0.00150	1	08/01/2019 14:14	<a href="#">WG1320900</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		08/01/2019 14:14	<a href="#">WG1320900</a>

<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



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00807		0.000190	0.000500	0.000500	1	08/01/2019 14:44	<a href="#">WG1320900</a>
Toluene	0.0109		0.000412	0.00100	0.00100	1	08/01/2019 14:44	<a href="#">WG1320900</a>
Ethylbenzene	0.0210		0.000160	0.000500	0.000500	1	08/01/2019 14:44	<a href="#">WG1320900</a>
Total Xylene	0.151		0.000510	0.00150	0.00150	1	08/01/2019 14:44	<a href="#">WG1320900</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		08/01/2019 14:44	<a href="#">WG1320900</a>

<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



Method Blank (MB)

(MB) R3436079-3 07/30/19 11:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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)

(LCS) R3436079-1 07/30/19 10:31

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0456	91.1	77.0-122	
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	

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

L1122864-01,02,03,04

Method Blank (MB)

(MB) R3436592-2 08/01/19 00:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0517	103	77.0-122	
(S) a,a,a-Trifluorotoluene(PID)			102	79.0-125	

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



Method Blank (MB)

(MB) R3436739-3 08/01/19 13:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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)	103			79.0-125

Laboratory Control Sample (LCS)

(LCS) R3436739-1 08/01/19 10:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0448	89.7	77.0-122	
Toluene	0.0500	0.0438	87.5	80.0-121	
Ethylbenzene	0.0500	0.0476	95.2	80.0-123	
Total Xylene	0.150	0.141	93.9	47.0-154	
(S) a,a,a-Trifluorotoluene(PID)			102	79.0-125	

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



## 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

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







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	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	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

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.



# Plains All American, LP - GHD

2135 S Loop 250 W  
Midland, TX 79703

## Billing Information:

Accounts Payable  
505 N. Big Spring, Ste. 600  
Midland, TX 79701

Pres  
Chk

## Analysis / Container / Preservative

Chain of Custody Page 1 of 2



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



L# 11122864  
1244

Acctnum: PLAINSGHD

Template: T139782

Prelogin: P719647

TSR: 134 - Mark W. Beasley

PB:

Shipped Via:

Report to:  
James Ornelas

Email To: Christopher.Knight@ghd.com;  
james.ornelas@ghd.com

Project  
Description: Darr Angell #1- Lea County, New Mexico

City/State  
Collected:

Phone: 512-506-8803  
Fax:

Client Project #  
074683

Lab Project #  
PLAINSGHD-074683

Collected by (print):

Site/Facility ID #  
SRS DARR ANGELL #1

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day  
Next Day 5 Day (Rad Only)  
Two Day 10 Day (Rad Only)  
Three Day

Date Results Needed

Immediately  
Packed on Ice N Y X

No.  
of  
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts
Mw-18R-072419	6	GW		7-24-19	1025	3
Mw-17R-072419		GW			1105	1
Mw-19R-072419		GW			1130	1
Mw-12R-072419		GW			1215	1
Mw-22-072419		GW			1255	1
Mw-6-072419		GW			1325	1
Mw-21-072419		GW			1345	1
Mw-20R-072419		GW			1410	1
Mw-16R-072419		GW			1435	1
Rw-12-072419		GW			1530	1

BTEX 40ml/Amb-HCl

\* Matrix:  
SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks: Report to SDGs  
Flag Estimated Concentrations

Samples returned via:  
UPS X FedEx Courier

Tracking # 4510 1659 5174

pH Temp

Flow Other

## Sample Receipt Checklist

COC Seal Present/Intact: Y N  
COC Signed/Accurate: Y N  
Bottles arrive intact: Y N  
Correct bottles used: Y N  
Sufficient volume sent: Y N  
If Applicable  
VOA Zero Headspace: Y N  
Preservation Correct/Checked: Y N

RAD SCREEN: <0.5 mR/hr

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes (No)  
HCL / MeOH  
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received: 5.3 to 5.33 59

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 7/24/19 Time: 8:45

Hold:

Condition:  
NCF 100

[illegible]



August 23, 2019

## Plains All American, LP - GHD

Sample Delivery Group: L1131596  
Samples Received: 08/15/2019  
Project Number: 074683-2018.1  
Description: Darr Angell #1 - Lea County, NM

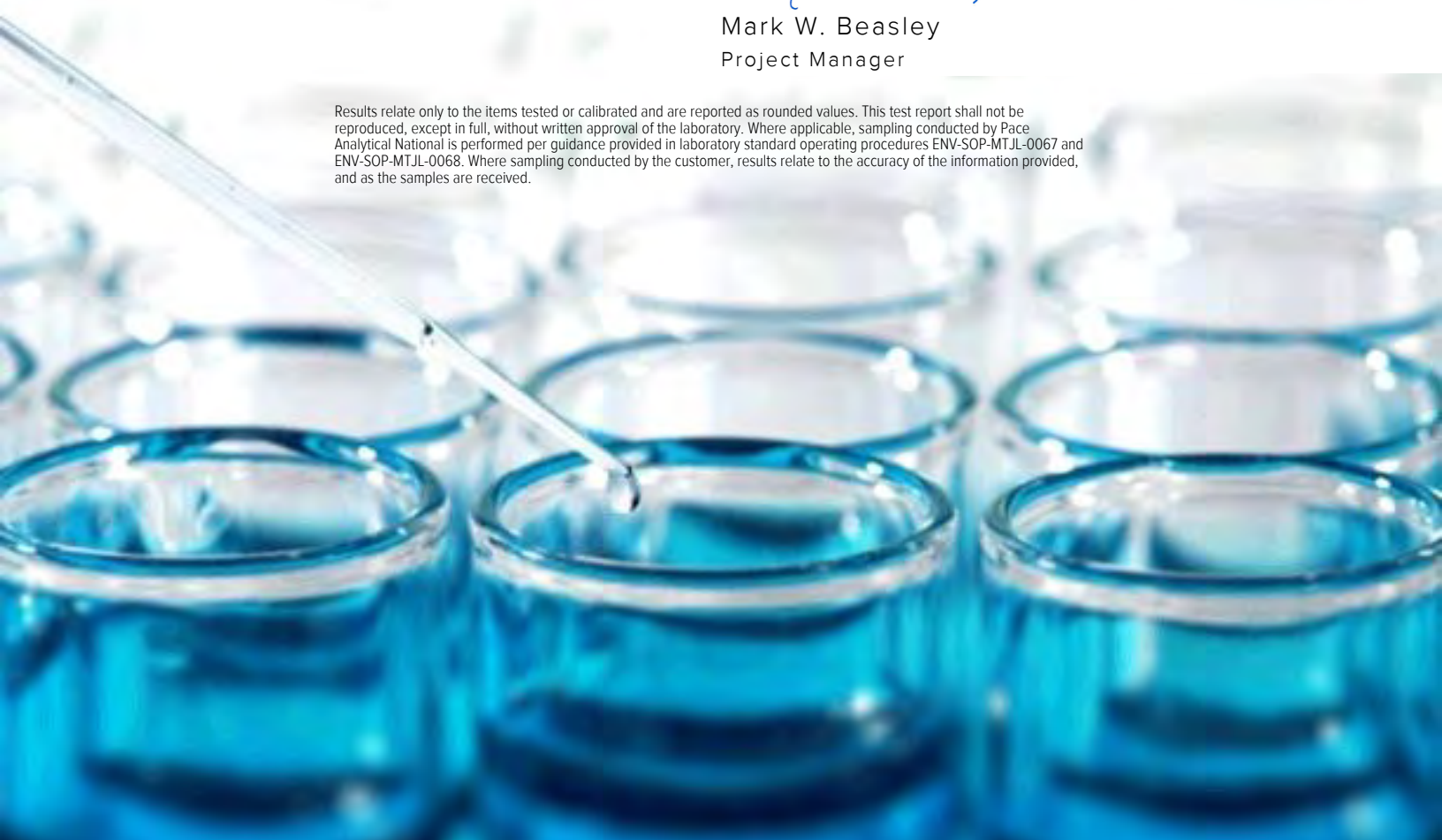
Report To: James Ornelas  
2135 S Loop 250 W  
Midland, TX 79703

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.





Cp: Cover Page	1	<sup>1</sup> Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	<sup>2</sup> Tc
Cn: Case Narrative	4	
Tr: TRRP Summary	5	<sup>3</sup> Ss
TRRP form R	6	
TRRP form S	7	<sup>4</sup> Cn
TRRP Exception Reports	8	<sup>5</sup> Tr
Sr: Sample Results	9	
DARR-1-EXHAUST-PUMPOFF-081419 L1131596-01	9	<sup>6</sup> Sr
Qc: Quality Control Summary	10	
Volatile Organic Compounds (MS) by Method M18-Mod	10	<sup>7</sup> Qc
Gl: Glossary of Terms	11	<sup>8</sup> Gl
Al: Accreditations & Locations	12	
Sc: Sample Chain of Custody	13	<sup>9</sup> Al
		<sup>10</sup> Sc

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



DARR-1-EXHAUST-PUMPOFF-081419 L1131596-01 Air

Collected by

Collected date/time

Received date/time

08/14/19 12:30

08/15/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method M18-Mod	WG1333153	2000	08/23/19 01:05	08/23/19 01:05	MBF	Mt. Juliet, TN

<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:

074683-2018.1

SDG:

L1131596

DATE/TIME:

08/23/19 17:32

PAGE:

3 of 14



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







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



Laboratory Name: Pace Analytical National			LRC Date: 08/23/2019 17:32				
Project Name: Darr Angell #1 - Lea County, NM			Laboratory Job Number: L1131596-01				
Reviewer Name: Mark W. Beasley			Prep Batch Number(s): WG1333153				
# <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?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	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 analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	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 the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	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 lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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; I = 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).

# Laboratory Review Checklist: Supporting Data



Laboratory Name: Pace Analytical National		LRC Date: 08/23/2019 17:32					
Project Name: Darr Angell #1 - Lea County, NM		Laboratory Job Number: L1131596-01					
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1333153					
# <sup>1</sup>	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 factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports



Laboratory Name: Pace Analytical National		LRC Date: 08/23/2019 17:32	
Project Name: Darr Angell #1 - Lea County, NM		Laboratory Job Number: L1131596-01	
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1333153	
<b>ER #<sup>1</sup></b>	<b>Description</b>		
The Exception Report intentionally left blank, there are no exceptions applied to this SDG.			
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>			

Volatile Organic Compounds (MS) by Method M18-Mod

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	400	1280	17900	57200		2000	<a href="#">WG1333153</a>
Toluene	108-88-3	92.10	400	1510	21000	79100		2000	<a href="#">WG1333153</a>
Ethylbenzene	100-41-4	106	400	1730	7620	33000		2000	<a href="#">WG1333153</a>
m&p-Xylene	1330-20-7	106	800	3470	12700	54900		2000	<a href="#">WG1333153</a>
o-Xylene	95-47-6	106	400	1730	4640	20100		2000	<a href="#">WG1333153</a>
Methyl tert-butyl ether	1634-04-4	88.10	400	1440	ND	ND		2000	<a href="#">WG1333153</a>
TPH (GC/MS) Low Fraction	8006-61-9	101	100000	413000	2970000	12300000		2000	<a href="#">WG1333153</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		106				<a href="#">WG1333153</a>

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

Method Blank (MB)

(MB) R3443489-3 08/22/19 10:43

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	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	94.9			60.0-140

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

(LCS) R3443489-1 08/22/19 09:17 • (LCSD) R3443489-2 08/22/19 10:01

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ppbv	ppbv	ppbv	%	%	%			%	%
MTBE	3.75	3.95	4.02	105	107	70.0-130			1.88	25
Benzene	3.75	3.88	3.92	103	104	70.0-130			1.00	25
Toluene	3.75	3.91	3.96	104	105	70.0-130			1.25	25
Ethylbenzene	3.75	3.94	4.00	105	107	70.0-130			1.43	25
m&p-Xylene	7.50	7.81	7.90	104	105	70.0-130			1.09	25
o-Xylene	3.75	3.93	3.99	105	107	70.0-130			1.52	25
TPH (GC/MS) Low Fraction	203	209	211	103	104	70.0-130			1.39	25
(S) 1,4-Bromofluorobenzene				98.9	98.3	60.0-140				

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



## 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

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







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	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	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

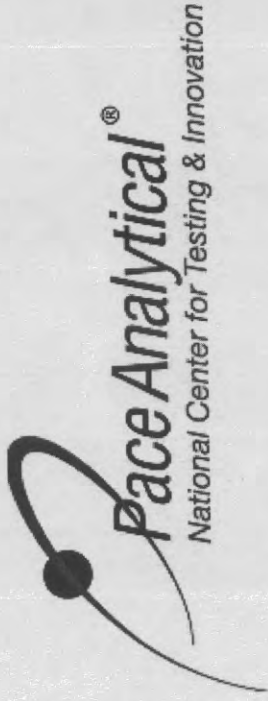
## Our Locations

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.



[illegible]

**Brock Fariss**



Login #:	Client: PLAINSGHD	Date: 8/15/19	Evaluated by: Brock Fariss
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**Non-Conformance (check applicable items)**

Sample Integrity	Chain of Custody Clarification	If Broken Container:
Parameter(s) past holding time	Login Clarification Needed	
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 / Courier)
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.	Trip Blank not received.	<b>If no Chain of Custody:</b>
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: ID on container is "Dorr-2-Exhaust-Pumpoff081419" at 1300**  
**COC has ID as "Dorr-1-Exhaust" at 1230**

Client informed by:	Call	Email	Voice Mail	Date: 8/19/19	Time: 1600
TSR Initials: MB	Client Contact: James O				

**Login Instructions:**

Log per COC



## Plains All American, LP - GHD

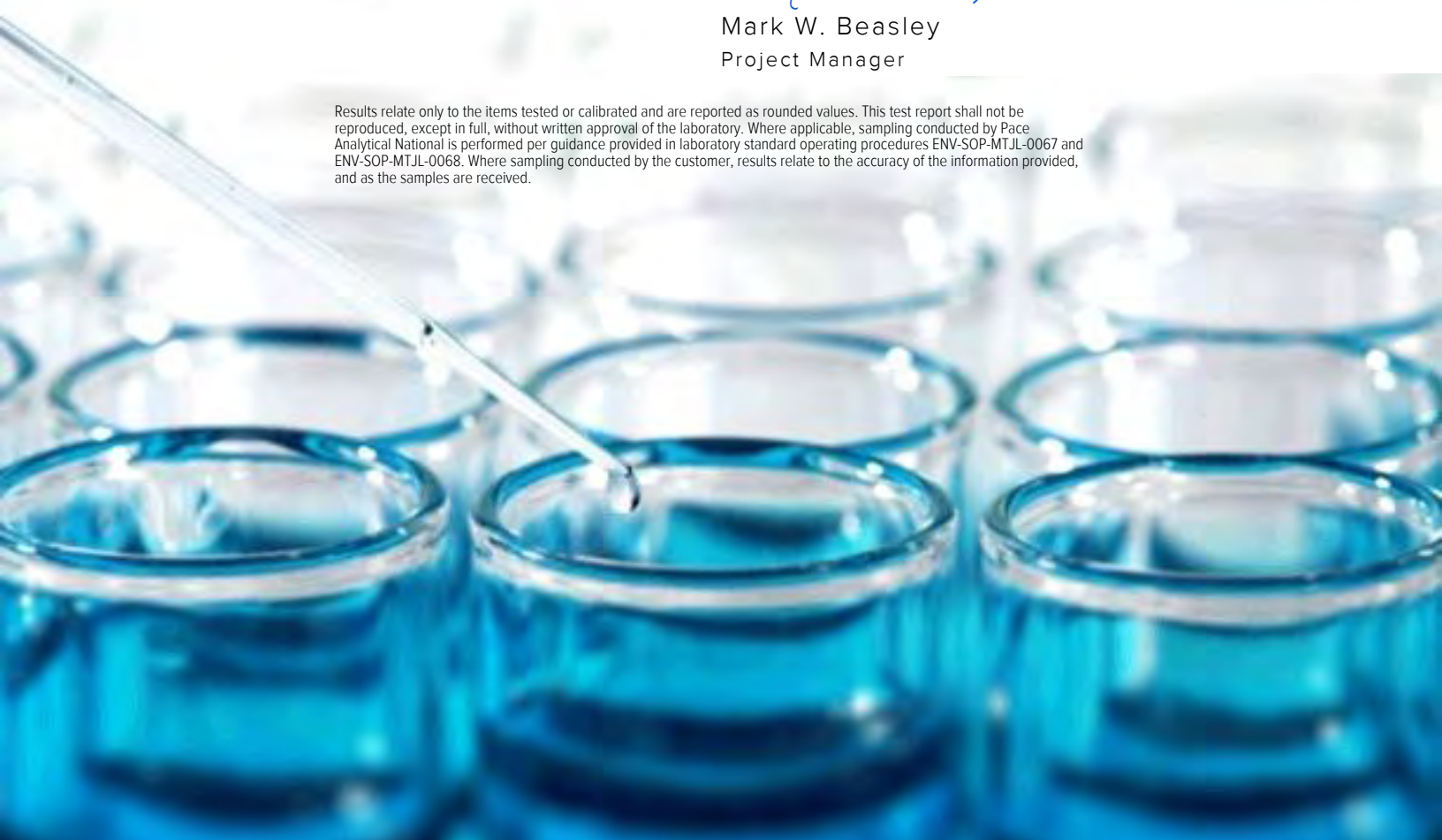
Sample Delivery Group: L1154391  
Samples Received: 10/26/2019  
Project Number: 074683  
Description: Darr Angell #1- Lea County, New Mexico  
Site: SRS DARR ANGELL #1  
Report To: John Schnable  
2135 S Loop 250 W  
Midland, TX 79703

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.





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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

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



MW-16R-102419 L1154391-01 GW				Collected by Justin Nixon	Collected date/time 10/24/19 12:45	Received date/time 10/26/19 08:00	1 Cp
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	2 Tc
Volatile Organic Compounds (GC) by Method 8021B	WG1375310	1	11/06/19 07:59	11/06/19 07:59	DWR	Mt. Juliet, TN	3 Ss
MW-17R-102419 L1154391-02 GW				Collected by Justin Nixon	Collected date/time 10/24/19 13:00	Received date/time 10/26/19 08:00	4 Cn
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	5 Tr
Volatile Organic Compounds (GC) by Method 8021B	WG1375310	1	11/06/19 08:22	11/06/19 08:22	DWR	Mt. Juliet, TN	6 Sr
MW-19R-102419 L1154391-03 GW				Collected by Justin Nixon	Collected date/time 10/24/19 13:15	Received date/time 10/26/19 08:00	7 Qc
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	8 Gl
Volatile Organic Compounds (GC) by Method 8021B	WG1375310	1	11/06/19 08:44	11/06/19 08:44	DWR	Mt. Juliet, TN	9 Al
MW-20R-102419 L1154391-04 GW				Collected by Justin Nixon	Collected date/time 10/24/19 13:35	Received date/time 10/26/19 08:00	10 Sc
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Volatile Organic Compounds (GC) by Method 8021B	WG1375310	1	11/06/19 09:06	11/06/19 09:06	DWR	Mt. Juliet, TN	
MW-22-102419 L1154391-05 GW				Collected by Justin Nixon	Collected date/time 10/24/19 13:50	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	WG1375310	1	11/06/19 09:28	11/06/19 09:28	DWR	Mt. Juliet, TN	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1371234	1	10/29/19 17:46	10/30/19 14:43	AAT	Mt. Juliet, TN	
MW-4-102419 L1154391-06 GW				Collected by Justin Nixon	Collected date/time 10/24/19 14:00	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	WG1375310	1	11/06/19 09:50	11/06/19 09:50	DWR	Mt. Juliet, TN	
MW-7-102419 L1154391-07 GW				Collected by Justin Nixon	Collected date/time 10/24/19 14:10	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	WG1375310	1	11/06/19 10:12	11/06/19 10:12	DWR	Mt. Juliet, TN	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1371234	1	10/29/19 17:46	10/30/19 15:05	AAT	Mt. Juliet, TN	
MW-18R-102419 L1154391-08 GW				Collected by Justin Nixon	Collected date/time 10/24/19 14:25	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	WG1375310	1	11/06/19 10:34	11/06/19 10:34	DWR	Mt. Juliet, TN	

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## MW-12R-102419 L1154391-09 GW

				Collected by Justin Nixon	Collected date/time 10/24/19 14:35	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	WG1375505	1	11/06/19 11:10	11/06/19 11:10	ACG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1371234	1	10/29/19 17:46	10/30/19 15:26	AAT	Mt. Juliet, TN

## MW-2-102419 L1154391-10 GW

				Collected by Justin Nixon	Collected date/time 10/24/19 14:40	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	WG1375505	1	11/06/19 11:30	11/06/19 11:30	ACG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1371234	2	10/29/19 17:46	10/30/19 15:48	AAT	Mt. Juliet, TN

## DUP-1-102419 L1154391-11 GW

				Collected by Justin Nixon	Collected date/time 10/24/19 00:00	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	WG1375505	1	11/06/19 11:51	11/06/19 11:51	ACG	Mt. Juliet, TN

## RW-12-102419 L1154391-12 GW

				Collected by Justin Nixon	Collected date/time 10/24/19 14:50	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	WG1375505	1	11/06/19 12:52	11/06/19 12:52	ACG	Mt. Juliet, TN

## MW-6-102419 L1154391-13 GW

				Collected by Justin Nixon	Collected date/time 10/24/19 15:00	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	WG1375505	1	11/06/19 13:13	11/06/19 13:13	ACG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1371234	1	10/29/19 17:46	10/30/19 16:10	AAT	Mt. Juliet, TN

## DUP-2-102419 L1154391-14 GW

				Collected by Justin Nixon	Collected date/time 10/24/19 00:00	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	WG1375505	1	11/06/19 13:33	11/06/19 13:33	ACG	Mt. Juliet, TN

## TRIP BLANK L1154391-15 GW

				Collected by Justin Nixon	Collected date/time 10/24/19 00:00	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	WG1375505	1	11/06/19 06:23	11/06/19 06:23	ACG	Mt. Juliet, TN







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

<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



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



Laboratory Name: Pace Analytical National			LRC Date: 11/07/2019 14:14				
Project Name: Darr Angell #1- Lea County, New Mexico			Laboratory Job Number: L1154391-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14 and 15				
Reviewer Name: Mark W. Beasley			Prep Batch Number(s): WG1371234, WG1375505 and WG1375310				
# <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?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	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 analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	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 the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	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 lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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; I = 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).

# Laboratory Review Checklist: Supporting Data



Laboratory Name: Pace Analytical National		LRC Date: 11/07/2019 14:14					
Project Name: Darr Angell #1- Lea County, New Mexico		Laboratory Job Number: L1154391-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14 and 15					
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1371234, WG1375505 and WG1375310					
# <sup>1</sup>	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 factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports



Laboratory Name: Pace Analytical National		LRC Date: 11/07/2019 14:14	
Project Name: Darr Angell #1- Lea County, New Mexico		Laboratory Job Number: L1154391-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14 and 15	
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1371234, WG1375505 and WG1375310	
ER # <sup>1</sup>	Description		
The Exception Report intentionally left blank, there are no exceptions applied to this SDG.			
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>			



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	11/06/2019 07:59	<a href="#">WG1375310</a>
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 07:59	<a href="#">WG1375310</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	11/06/2019 07:59	<a href="#">WG1375310</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	11/06/2019 07:59	<a href="#">WG1375310</a>
(S) o,a,a-Trifluorotoluene(PID)	101				79.0-125		11/06/2019 07:59	<a href="#">WG1375310</a>

<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



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	11/06/2019 08:22	<a href="#">WG1375310</a>
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 08:22	<a href="#">WG1375310</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	11/06/2019 08:22	<a href="#">WG1375310</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	11/06/2019 08:22	<a href="#">WG1375310</a>
(S) a,a,a-Trifluorotoluene(PID)	101				79.0-125		11/06/2019 08:22	<a href="#">WG1375310</a>

<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





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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	11/06/2019 08:44	<a href="#">WG1375310</a>
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 08:44	<a href="#">WG1375310</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	11/06/2019 08:44	<a href="#">WG1375310</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	11/06/2019 08:44	<a href="#">WG1375310</a>
(S) o,a,a-Trifluorotoluene(PID)	103				79.0-125		11/06/2019 08:44	<a href="#">WG1375310</a>

<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

Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	11/06/2019 09:06	<a href="#">WG1375310</a>
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 09:06	<a href="#">WG1375310</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	11/06/2019 09:06	<a href="#">WG1375310</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	11/06/2019 09:06	<a href="#">WG1375310</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		11/06/2019 09:06	<a href="#">WG1375310</a>

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000190	0.000500	0.000500	1	11/06/2019 09:28	<a href="#">WG1375310</a>
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 09:28	<a href="#">WG1375310</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	11/06/2019 09:28	<a href="#">WG1375310</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	11/06/2019 09:28	<a href="#">WG1375310</a>
(S) a,a,a-Trifluorotoluene(PID)	99.6				79.0-125		11/06/2019 09:28	<a href="#">WG1375310</a>

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Anthracene	U		0.0000140	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Acenaphthene	U		0.0000100	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Acenaphthylene	U		0.0000120	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Benzo(a)anthracene	U		0.00000410	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Benzo(a)pyrene	U		0.0000116	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Benzo(b)fluoranthene	U		0.00000212	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Benzo(g,h,i)perylene	U		0.00000227	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Benzo(k)fluoranthene	U		0.0000136	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Chrysene	U		0.0000108	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Dibenz(a,h)anthracene	U		0.00000396	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Dibenzofuran	0.00000625	<u>B J</u>	0.00000105	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Fluoranthene	U		0.0000157	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Fluorene	U		0.00000850	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Indeno(1,2,3-cd)pyrene	U		0.0000148	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Naphthalene	0.0000362	<u>B J</u>	0.0000198	0.000250	0.000250	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Phenanthrene	U		0.00000820	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
Pyrene	U		0.0000117	0.0000500	0.0000500	1	10/30/2019 14:43	<a href="#">WG1371234</a>
1-Methylnaphthalene	0.0000126	<u>B J</u>	0.00000821	0.000250	0.000250	1	10/30/2019 14:43	<a href="#">WG1371234</a>
2-Methylnaphthalene	0.0000132	<u>B J</u>	0.00000902	0.000250	0.000250	1	10/30/2019 14:43	<a href="#">WG1371234</a>
(S) Nitrobenzene-d5	115				31.0-160		10/30/2019 14:43	<a href="#">WG1371234</a>
(S) 2-Fluorobiphenyl	107				48.0-148		10/30/2019 14:43	<a href="#">WG1371234</a>
(S) p-Terphenyl-d14	98.9				37.0-146		10/30/2019 14:43	<a href="#">WG1371234</a>





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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	11/06/2019 09:50	<a href="#">WG1375310</a>
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 09:50	<a href="#">WG1375310</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	11/06/2019 09:50	<a href="#">WG1375310</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	11/06/2019 09:50	<a href="#">WG1375310</a>
(S) a,a,a-Trifluorotoluene(PID)	102				79.0-125		11/06/2019 09:50	<a href="#">WG1375310</a>

<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



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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Benzene	U		0.000190	0.000500	0.000500	1	11/06/2019 10:12	<a href="#">WG1375310</a>
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 10:12	<a href="#">WG1375310</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	11/06/2019 10:12	<a href="#">WG1375310</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	11/06/2019 10:12	<a href="#">WG1375310</a>
(S) a,a,a-Trifluorotoluene(PID)	101				79.0-125		11/06/2019 10:12	<a href="#">WG1375310</a>

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

Analyte	Result	Qualifier	SDL	Unadj. MQL	MQL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l	mg/l		date / time	
Anthracene	U		0.0000140	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Acenaphthene	U		0.0000100	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Acenaphthylene	U		0.0000120	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Benzo(a)anthracene	U		0.00000410	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Benzo(a)pyrene	U		0.0000116	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Benzo(b)fluoranthene	U		0.00000212	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Benzo(g,h,i)perylene	U		0.00000227	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Benzo(k)fluoranthene	U		0.0000136	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Chrysene	U		0.0000108	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Dibenz(a,h)anthracene	U		0.00000396	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Dibenzofuran	0.00000667	<u>B J</u>	0.00000105	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Fluoranthene	U		0.0000157	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Fluorene	U		0.00000850	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Indeno(1,2,3-cd)pyrene	U		0.0000148	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Naphthalene	0.0000281	<u>B J</u>	0.0000198	0.000250	0.000250	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Phenanthrene	U		0.00000820	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
Pyrene	U		0.0000117	0.0000500	0.0000500	1	10/30/2019 15:05	<a href="#">WG1371234</a>
1-Methylnaphthalene	0.0000148	<u>B J</u>	0.00000821	0.000250	0.000250	1	10/30/2019 15:05	<a href="#">WG1371234</a>
2-Methylnaphthalene	0.0000138	<u>B J</u>	0.00000902	0.000250	0.000250	1	10/30/2019 15:05	<a href="#">WG1371234</a>
(S) Nitrobenzene-d5	123				31.0-160		10/30/2019 15:05	<a href="#">WG1371234</a>
(S) 2-Fluorobiphenyl	109				48.0-148		10/30/2019 15:05	<a href="#">WG1371234</a>
(S) p-Terphenyl-d14	105				37.0-146		10/30/2019 15:05	<a href="#">WG1371234</a>





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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	11/06/2019 10:34	<a href="#">WG1375310</a>
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 10:34	<a href="#">WG1375310</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	11/06/2019 10:34	<a href="#">WG1375310</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	11/06/2019 10:34	<a href="#">WG1375310</a>
(S) a,a,a-Trifluorotoluene(PID)	101				79.0-125		11/06/2019 10:34	<a href="#">WG1375310</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000236	J	0.000190	0.000500	0.000500	1	11/06/2019 11:10	WG1375505
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 11:10	WG1375505
Ethylbenzene	U		0.000160	0.000500	0.000500	1	11/06/2019 11:10	WG1375505
Total Xylene	0.000537	J	0.000510	0.00150	0.00150	1	11/06/2019 11:10	WG1375505
(S) a,a,a-Trifluorotoluene(PID)	92.3				79.0-125		11/06/2019 11:10	WG1375505

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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Anthracene	U		0.0000140	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Acenaphthene	U		0.0000100	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Acenaphthylene	U		0.0000120	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Benzo(a)anthracene	U		0.00000410	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Benzo(a)pyrene	U		0.0000116	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Benzo(b)fluoranthene	U		0.00000212	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Benzo(g,h,i)perylene	U		0.00000227	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Benzo(k)fluoranthene	U		0.0000136	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Chrysene	U		0.0000108	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Dibenz(a,h)anthracene	U		0.00000396	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Dibenzofuran	0.00000710	B J	0.00000105	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Fluoranthene	U		0.0000157	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Fluorene	U		0.00000850	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Indeno(1,2,3-cd)pyrene	U		0.0000148	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Naphthalene	0.0000286	B J	0.0000198	0.000250	0.000250	1	10/30/2019 15:26	WG1371234
Phenanthrene	0.00000922	J	0.00000820	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
Pyrene	U		0.0000117	0.0000500	0.0000500	1	10/30/2019 15:26	WG1371234
1-Methylnaphthalene	0.0000150	B J	0.00000821	0.000250	0.000250	1	10/30/2019 15:26	WG1371234
2-Methylnaphthalene	0.0000132	B J	0.00000902	0.000250	0.000250	1	10/30/2019 15:26	WG1371234
(S) Nitrobenzene-d5	117				31.0-160		10/30/2019 15:26	WG1371234
(S) 2-Fluorobiphenyl	106				48.0-148		10/30/2019 15:26	WG1371234
(S) p-Terphenyl-d14	103				37.0-146		10/30/2019 15:26	WG1371234







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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00860		0.000190	0.000500	0.000500	1	11/06/2019 11:30	<a href="#">WG1375505</a>
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 11:30	<a href="#">WG1375505</a>
Ethylbenzene	0.00187		0.000160	0.000500	0.000500	1	11/06/2019 11:30	<a href="#">WG1375505</a>
Total Xylene	0.0190		0.000510	0.00150	0.00150	1	11/06/2019 11:30	<a href="#">WG1375505</a>
(S) a,a,a-Trifluorotoluene(PID)	94.8				79.0-125		11/06/2019 11:30	<a href="#">WG1375505</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Anthracene	0.00120		0.0000280	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Acenaphthene	0.000502		0.0000200	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Acenaphthylene	U		0.0000240	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Benzo(a)anthracene	0.000537		0.00000820	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Benzo(a)pyrene	0.000323		0.0000232	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Benzo(b)fluoranthene	0.0000671	U	0.00000424	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Benzo(g,h,i)perylene	0.0000552	U	0.00000454	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Benzo(k)fluoranthene	U		0.0000272	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Chrysene	0.000253		0.0000216	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Dibenz(a,h)anthracene	U		0.00000792	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Dibenzofuran	0.00102		0.00000210	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Fluoranthene	0.000181		0.0000314	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Fluorene	0.00182		0.0000170	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Indeno(1,2,3-cd)pyrene	U		0.0000296	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Naphthalene	0.00140		0.0000396	0.000250	0.000500	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Phenanthrene	0.00290		0.0000164	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
Pyrene	0.000539		0.0000234	0.0000500	0.000100	2	10/30/2019 15:48	<a href="#">WG1371234</a>
1-Methylnaphthalene	0.00629		0.0000164	0.000250	0.000500	2	10/30/2019 15:48	<a href="#">WG1371234</a>
2-Methylnaphthalene	0.00159		0.0000180	0.000250	0.000500	2	10/30/2019 15:48	<a href="#">WG1371234</a>
(S) Nitrobenzene-d5	113				31.0-160		10/30/2019 15:48	<a href="#">WG1371234</a>
(S) 2-Fluorobiphenyl	102				48.0-148		10/30/2019 15:48	<a href="#">WG1371234</a>
(S) p-Terphenyl-d14	96.8				37.0-146		10/30/2019 15:48	<a href="#">WG1371234</a>



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0137		0.000190	0.000500	0.000500	1	11/06/2019 11:51	<a href="#">WG1375505</a>
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 11:51	<a href="#">WG1375505</a>
Ethylbenzene	0.00377		0.000160	0.000500	0.000500	1	11/06/2019 11:51	<a href="#">WG1375505</a>
Total Xylene	0.0437		0.000510	0.00150	0.00150	1	11/06/2019 11:51	<a href="#">WG1375505</a>
(S) a,a,a-Trifluorotoluene(PID)	94.6				79.0-125		11/06/2019 11:51	<a href="#">WG1375505</a>

<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

Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00505		0.000190	0.000500	0.000500	1	11/06/2019 12:52	<a href="#">WG1375505</a>
Toluene	0.00408		0.000412	0.00100	0.00100	1	11/06/2019 12:52	<a href="#">WG1375505</a>
Ethylbenzene	0.00361		0.000160	0.000500	0.000500	1	11/06/2019 12:52	<a href="#">WG1375505</a>
Total Xylene	0.104		0.000510	0.00150	0.00150	1	11/06/2019 12:52	<a href="#">WG1375505</a>
(S) a,a,a-Trifluorotoluene(PID)	93.8				79.0-125		11/06/2019 12:52	<a href="#">WG1375505</a>

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0590		0.000190	0.000500	0.000500	1	11/06/2019 13:13	<a href="#">WG1375505</a>
Toluene	0.000554	J	0.000412	0.00100	0.00100	1	11/06/2019 13:13	<a href="#">WG1375505</a>
Ethylbenzene	0.00156		0.000160	0.000500	0.000500	1	11/06/2019 13:13	<a href="#">WG1375505</a>
Total Xylene	0.00631		0.000510	0.00150	0.00150	1	11/06/2019 13:13	<a href="#">WG1375505</a>
(S) a,a,a-Trifluorotoluene(PID)	103				79.0-125		11/06/2019 13:13	<a href="#">WG1375505</a>

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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Anthracene	0.0000833		0.0000140	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Acenaphthene	0.000313		0.0000100	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Acenaphthylene	U		0.0000120	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Benzo(a)anthracene	U		0.00000410	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Benzo(a)pyrene	U		0.0000116	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Benzo(b)fluoranthene	U		0.00000212	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Benzo(g,h,i)perylene	U		0.00000227	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Benzo(k)fluoranthene	U		0.0000136	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Chrysene	U		0.0000108	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Dibenz(a,h)anthracene	U		0.00000396	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Dibenzofuran	0.000332		0.00000105	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Fluoranthene	U		0.0000157	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Fluorene	0.0000546		0.00000850	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Indeno(1,2,3-cd)pyrene	U		0.0000148	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Naphthalene	0.00161		0.0000198	0.000250	0.000250	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Phenanthrene	0.000139		0.00000820	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
Pyrene	0.0000246	J	0.0000117	0.0000500	0.0000500	1	10/30/2019 16:10	<a href="#">WG1371234</a>
1-Methylnaphthalene	0.000970		0.00000821	0.000250	0.000250	1	10/30/2019 16:10	<a href="#">WG1371234</a>
2-Methylnaphthalene	0.000783		0.00000902	0.000250	0.000250	1	10/30/2019 16:10	<a href="#">WG1371234</a>
(S) Nitrobenzene-d5	141				31.0-160		10/30/2019 16:10	<a href="#">WG1371234</a>
(S) 2-Fluorobiphenyl	109				48.0-148		10/30/2019 16:10	<a href="#">WG1371234</a>
(S) p-Terphenyl-d14	105				37.0-146		10/30/2019 16:10	<a href="#">WG1371234</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc



Volatile Organic Compounds (GC) by Method 8021B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0649		0.000190	0.000500	0.000500	1	11/06/2019 13:33	<a href="#">WG1375505</a>
Toluene	0.000664	J	0.000412	0.00100	0.00100	1	11/06/2019 13:33	<a href="#">WG1375505</a>
Ethylbenzene	0.00157		0.000160	0.000500	0.000500	1	11/06/2019 13:33	<a href="#">WG1375505</a>
Total Xylene	0.00622		0.000510	0.00150	0.00150	1	11/06/2019 13:33	<a href="#">WG1375505</a>
(S) a,a,a-Trifluorotoluene(PID)	104				79.0-125		11/06/2019 13:33	<a href="#">WG1375505</a>

<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



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.000190	0.000500	0.000500	1	11/06/2019 06:23	<a href="#">WG1375505</a>
Toluene	U		0.000412	0.00100	0.00100	1	11/06/2019 06:23	<a href="#">WG1375505</a>
Ethylbenzene	U		0.000160	0.000500	0.000500	1	11/06/2019 06:23	<a href="#">WG1375505</a>
Total Xylene	U		0.000510	0.00150	0.00150	1	11/06/2019 06:23	<a href="#">WG1375505</a>
(S) a,a,a-Trifluorotoluene(PID)	93.5				79.0-125		11/06/2019 06:23	<a href="#">WG1375505</a>

<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



Method Blank (MB)

(MB) R3469177-2 11/06/19 02:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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)	103			79.0-125

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

Laboratory Control Sample (LCS)

(LCS) R3469177-1 11/06/19 01:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0462	92.4	77.0-122	
Toluene	0.0500	0.0470	94.0	80.0-121	
Ethylbenzene	0.0500	0.0440	88.0	80.0-123	
Total Xylene	0.150	0.133	88.7	47.0-154	
(S) a,a,a-Trifluorotoluene(PID)			102	79.0-125	



Method Blank (MB)

(MB) R3469174-3 11/06/19 06:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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)	94.9			79.0-125

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

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

(LCS) R3469174-1 11/06/19 05:01 • (LCSD) R3469174-2 11/06/19 05:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0534	0.0540	107	108	77.0-122			1.12	20
Toluene	0.0500	0.0492	0.0494	98.4	98.8	80.0-121			0.406	20
Ethylbenzene	0.0500	0.0513	0.0514	103	103	80.0-123			0.195	20
Total Xylene	0.150	0.141	0.142	94.0	94.7	47.0-154			0.707	20
(S) a,a,a-Trifluorotoluene(PID)				106	104	79.0-125				

L1154391-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1154391-14 11/06/19 13:33 • (MS) R3469174-4 11/06/19 13:54 • (MSD) R3469174-5 11/06/19 14:14

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0649	0.105	0.104	80.2	78.2	1	10.0-160			0.957	21
Toluene	0.0500	0.000664	0.0449	0.0438	88.5	86.3	1	12.0-148			2.48	21
Ethylbenzene	0.0500	0.00157	0.0463	0.0450	89.5	86.9	1	22.0-149			2.85	21
Total Xylene	0.150	0.00622	0.135	0.132	85.9	83.9	1	13.0-155			2.25	21
(S) a,a,a-Trifluorotoluene(PID)					110	110		79.0-125				

Method Blank (MB)

(MB) R3467018-3 10/30/19 13:37

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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	0.0000500
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	0.0000231	U	0.0000198	0.000250
Phenanthrene	U		0.00000820	0.0000500
Pyrene	U		0.0000117	0.0000500
1-Methylnaphthalene	0.0000148	U	0.00000821	0.000250
2-Methylnaphthalene	0.0000149	U	0.00000902	0.000250
Dibenzofuran	0.00000655	U	0.00000105	0.0000500
(S) Nitrobenzene-d5	115			31.0-160
(S) 2-Fluorobiphenyl	110			48.0-148
(S) p-Terphenyl-d14	111			37.0-146

1

Cp

2

Tc

3

Ss

4

Cn

5

Tr

6

Sr

7

Qc

8

Gl

9

Al

10

Sc

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

(LCS) R3467018-1 10/30/19 12:54 • (LCSD) R3467018-2 10/30/19 13:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dibenzofuran	0.00200	0.00210	0.00200	105	100	67.0-134			4.88	20
Anthracene	0.00200	0.00202	0.00191	101	95.5	67.0-150			5.60	20
Acenaphthene	0.00200	0.00198	0.00187	99.0	93.5	65.0-138			5.71	20
Acenaphthylene	0.00200	0.00218	0.00203	109	102	66.0-140			7.13	20
Benzo(a)anthracene	0.00200	0.00203	0.00198	102	99.0	61.0-140			2.49	20
Benzo(a)pyrene	0.00200	0.00173	0.00170	86.5	85.0	60.0-143			1.75	20
Benzo(b)fluoranthene	0.00200	0.00165	0.00166	82.5	83.0	58.0-141			0.604	20
Benzo(g,h,i)perylene	0.00200	0.00182	0.00181	91.0	90.5	52.0-153			0.551	20
Benzo(k)fluoranthene	0.00200	0.00174	0.00174	87.0	87.0	58.0-148			0.000	20
Chrysene	0.00200	0.00190	0.00187	95.0	93.5	64.0-144			1.59	20
Dibenz(a,h)anthracene	0.00200	0.00182	0.00181	91.0	90.5	52.0-155			0.551	20

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

(LCS) R3467018-1 10/30/19 12:54 • (LCSD) R3467018-2 10/30/19 13:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Fluoranthene	0.00200	0.00216	0.00210	108	105	69.0-153			2.82	20
Fluorene	0.00200	0.00211	0.00200	105	100	64.0-136			5.35	20
Indeno(1,2,3-cd)pyrene	0.00200	0.00175	0.00174	87.5	87.0	54.0-153			0.573	20
Naphthalene	0.00200	0.00182	0.00171	91.0	85.5	61.0-137			6.23	20
Phenanthrene	0.00200	0.00192	0.00185	96.0	92.5	62.0-137			3.71	20
Pyrene	0.00200	0.00182	0.00173	91.0	86.5	60.0-142			5.07	20
1-Methylnaphthalene	0.00200	0.00193	0.00181	96.5	90.5	66.0-142			6.42	20
2-Methylnaphthalene	0.00200	0.00184	0.00171	92.0	85.5	62.0-136			7.32	20
(S) Nitrobenzene-d5				120	111	31.0-160				
(S) 2-Fluorobiphenyl				112	107	48.0-148				
(S) p-Terphenyl-d14				105	105	37.0-146				

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc



## 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

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





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	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	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

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.



# Plains All American, LP - GHD

2135 S Loop 250 W  
Midland, TX 79703

## Billing Information:

Accounts Payable  
505 N. Big Spring, Ste. 600  
Midland, TX 79701

Pres  
Chk

## Analysis / Container / Preservative

Chain of Custody Page 1 of 2



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



Report to:  
John Schnable

Email To: john.schnable@ghd.com,  
Christopher.Knight@ghd.com;

Project  
Description: Darr Angell #1- Lea County, Ne

City/State  
Collected:

Please Circle:  
PT MT CT ET

Phone: 512-506-8803  
Fax:

Client Project #  
074683

Lab Project #  
PLAINSGHD-074683

Collected by (print):  
Justin N. X

Site/Facility ID #  
SRS DARR ANGELL #1

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day  
Next Day 5 Day (Rad Only)  
Two Day 10 Day (Rad Only)  
Three Day

Date Results Needed

Immediately  
Packed on Ice N Y X

No.  
of  
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
-----------	-----------	----------	-------	------	------	--------------

MW-16R-102419	C1	GW		10-24-19	12:45	3
MW-17R-102419		GW		10-24-19	13:00	3
MW-19R-102419		GW		10-24-19	13:15	3
MW-20R-102419		GW		10-24-19	13:35	3
MW-22-102419		GW		10-24-19	13:50	5
MW-4-102419		GW		10-24-19	14:00	3
MW-7-102419		GW		10-24-19	14:10	5
MW-18R-102419		GW		10-24-19	14:25	3
MW-12R-102419		GW		10-24-19	14:35	5
MW-2-102419		GW		10-24-19	14:40	5

\* Matrix:  
SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

## Remarks:

Report to SDLS  
Flag estimated concentrations

pH Temp

Flow Other

Samples returned via:

UPS FedEx Courier

Tracking #

## Sample Receipt Checklist

COC Seal Present/Intact: Y N  
COC Signed/Accurate: Y N  
Bottles arrive intact: Y N  
Correct bottles used: Y N  
Sufficient volume sent: Y N  
If Applicable  
VOA Zero Headspace: Y N  
Preservation Correct/Checked: Y N  
RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes/No

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: 28.0°C Bottles Received: 53

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)



Date: 10/26/19 Time: 8:00

Hold:

Condition:

NCF / OK



<b>Plains All American, LP - GHD</b>  2135 S Loop 250 W Midland, TX 79703		Billing Information:  <b>Accounts Payable</b> 505 N. Big Spring, Ste. 600 Midland, TX 79701		Pres Chk	Analysis / Container / Preservative										Chain of Custody Page <b>2</b> of <b>2</b>										
		Report to: <b>John Schnable</b>			Email To: john.schnable@ghd.com, Christopher.Knight@ghd.com;		<div style="text-align: center;">           12065 Lebanon Rd          Mount Juliet, TN 37122          Phone: 615-758-5858          Phone: 800-767-5859          Fax: 615-758-5859       </div> <div style="text-align: center;">  </div> <div style="border: 1px solid black; padding: 5px;">         SDG # <b>L1154391</b> </div> <div style="border: 1px solid black; padding: 5px;">         Table #       </div> <div style="border: 1px solid black; padding: 5px;">         Acctnum: <b>PLAINSGHD</b>          Template: <b>T139782</b>          Prelogin: <b>P736594</b>          PM: <b>134 - Mark W. Beasley</b>          PB:       </div> <div style="border: 1px solid black; padding: 5px;">         Shipped Via:       </div> <div style="border: 1px solid black; padding: 5px;">         Remarks      Sample # (lab only)       </div>																		
Project Description: <b>Darr Angell #1- Lea County, Ne</b>		City/State Collected:		Please Circle: PT MT CT ET		BTEX 40mlAmb-HCI PAHSIMLV 40mlAmb-NoPres-WT																			
Phone: <b>512-506-8803</b> Fax:		Client Project # <b>074683</b>		Lab Project # <b>PLAINSGHD-074683</b>																					
Collected by (print): <b>Justin Nixon</b>		Site/Facility ID # <b>SRS DARR ANGELL #1</b>		P.O. #																					
Collected by (signature):		<b>Rush?</b> (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		Quote #																					
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>		Date Results Needed		No. of Cntrs																					
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time																				
DUP-1-102419	G	GW		10-24-19	N/A	3	X										-11								
RW-12-102419		GW		10-24-19	14:50	3	X										12								
MW-6-102419		GW		10-24-19	15:00	5	X	X									13								
DUP-2-102419		GW		10-24-19	N/A	3	X										14								
TRIP Blank	G	GW		10-24-19	N/A	1	X										15								
		GW																							
		GW																							
TRIP BLANK		GW																							
		GW																							
		GW																							

\* Matrix:

SS - Soil   AIR - Air   F - Filter

GW - Groundwater   B - Bioassay

WW - WasteWater

DW - Drinking Water

OT - Other \_\_\_\_\_

Remarks: **Report SDLs**  
**Flag estimated concentrations**

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:

☐ UPS   ☐ FedEx   ☐ Courier

Tracking #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: <input checked="" type="checkbox"/> Yes / No	Bottles Received:
<i>Philby</i>	10-25-19	14:00	<i>[Signature]</i>	<input checked="" type="checkbox"/> HCL / MeOH	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: <b>12.9</b> °C	Bottles Received: <b>53</b>
<i>[Signature]</i>	10-25-19	17:00	<i>[Signature]</i>	<b>281028</b>	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date:	Time:
			<i>Carol Henry</i>	10/26/19	8:00

Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N RAD Screen <0.5 mR/hr: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	If preservation required by Login: Date/Time
---	--



November 26, 2019

## Plains All American, LP - GHD

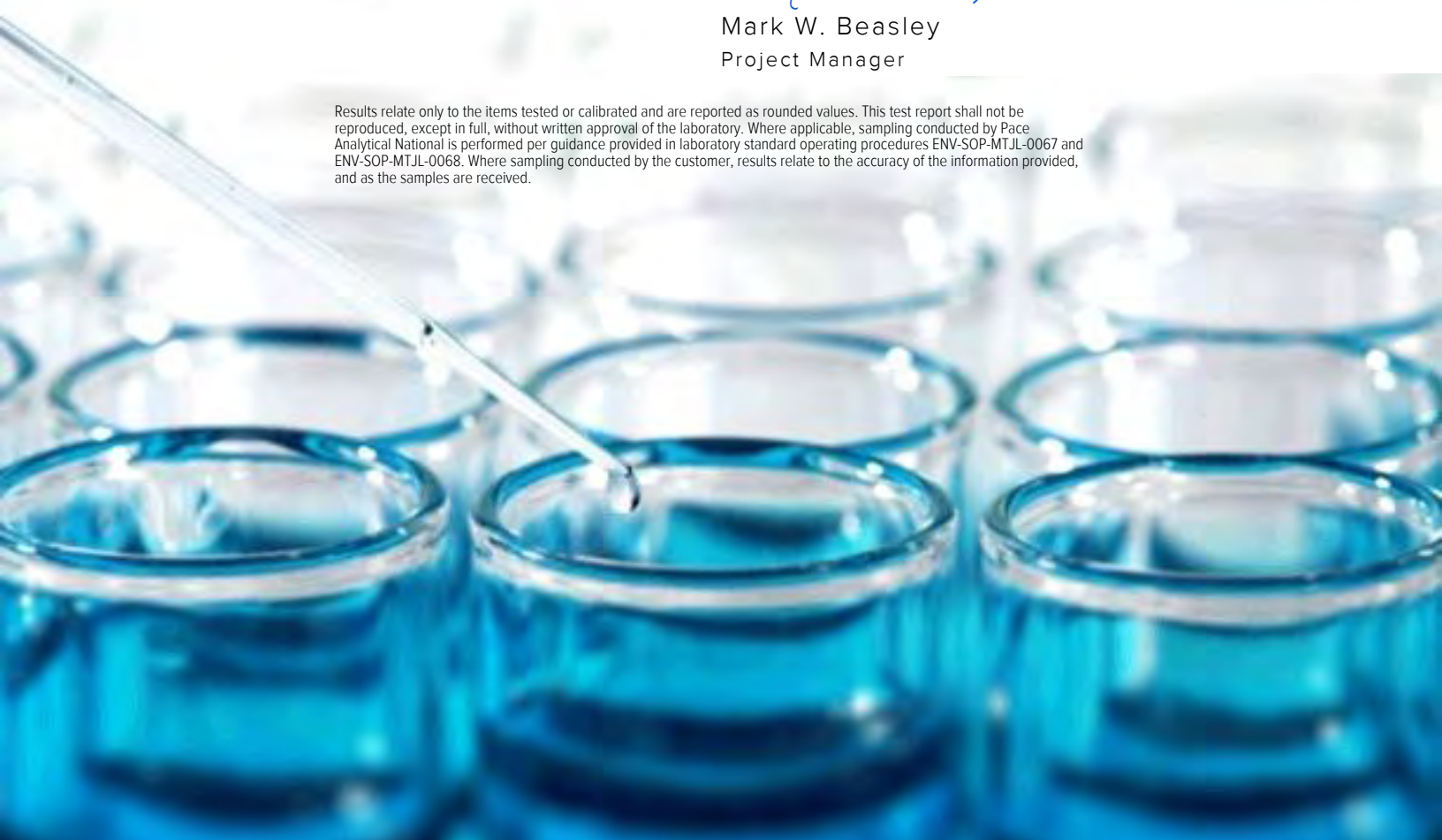
Sample Delivery Group: L1160939  
Samples Received: 11/14/2019  
Project Number: 074683  
Description: Darr Angell #1- Lea County, New Mexico  
Site: SRS DARR ANGEL #1 (GHD 074683)  
Report To: John Schnable  
2135 S Loop 250 W  
Midland, TX 79703

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.





Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Tr: TRRP Summary	5
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TRRP form S	7
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Sr: Sample Results	9
RW-12-111219 L1160939-01	9
Qc: Quality Control Summary	10
Semi Volatile Organic Compounds (GC/MS) by Method 8270 C-SIM	10
Gl: Glossary of Terms	13
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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

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



RW-12-111219 L1160939-01 GW

Collected by  
Justin Nixon

Collected date/time  
11/12/19 12:00

Received date/time  
11/14/19 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270 C-SIM	WG1382732	1	11/18/19 18:13	11/19/19 02:31	ADF	Mt. Juliet, TN

<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:

074683

SDG:

L1160939

DATE/TIME:

11/26/19 08:19

PAGE:

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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

<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



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



Laboratory Name: Pace Analytical National			LRC Date: 11/26/2019 08:19				
Project Name: Darr Angell #1- Lea County, New Mexico			Laboratory Job Number: L1160939-01				
Reviewer 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# <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 in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	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 analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	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 the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			1
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	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 lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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; I = 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).

# Laboratory Review Checklist: Supporting Data



Laboratory Name: Pace Analytical National		LRC Date: 11/26/2019 08:19					
Project Name: Darr Angell #1- Lea County, New Mexico		Laboratory Job Number: L1160939-01					
Reviewer 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# <sup>5</sup>
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				
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; I = 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).							



# Laboratory Review Checklist: Exception Reports



Laboratory Name: Pace Analytical National		LRC Date: 11/26/2019 08:19	
Project Name: Darr Angell #1- Lea County, New Mexico		Laboratory Job Number: L1160939-01	
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1382732	
<b>ER #<sup>1</sup></b>	<b>Description</b>		
1	8270 C-SIM WG1382732 Naphthalene: Percent Recovery is outside of established control limits.		
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>			



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

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Anthracene	U		0.0000800	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Acenaphthene	U		0.0000100	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Acenaphthylene	U		0.0000700	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Benzo(a)anthracene	0.0000120	J	0.0000830	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Benzo(a)pyrene	U		0.0000158	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Benzo(b)fluoranthene	0.00000573	J	0.0000212	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Benzo(g,h,i)perylene	0.00000505	J	0.0000227	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Benzo(k)fluoranthene	U		0.0000255	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Chrysene	U		0.0000144	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Dibenz(a,h)anthracene	U		0.00000454	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Dibenzofuran	0.00000221	J	0.0000105	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Fluoranthene	U		0.0000165	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Fluorene	U		0.00000898	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Indeno(1,2,3-cd)pyrene	U		0.00000739	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Naphthalene	0.0000393	B J	0.0000120	0.000250	0.000250	1	11/19/2019 02:31	WG1382732
Phenanthrene	U		0.0000184	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
Pyrene	U		0.0000155	0.0000500	0.0000500	1	11/19/2019 02:31	WG1382732
1-Methylnaphthalene	U		0.0000189	0.000250	0.000250	1	11/19/2019 02:31	WG1382732
2-Methylnaphthalene	U		0.0000155	0.000250	0.000250	1	11/19/2019 02:31	WG1382732
2-Chloronaphthalene	U		0.0000165	0.000250	0.000250	1	11/19/2019 02:31	WG1382732
(S) Nitrobenzene-d5	108				11.0-135		11/19/2019 02:31	WG1382732
(S) 2-Fluorobiphenyl	88.0				32.0-120		11/19/2019 02:31	WG1382732
(S) p-Terphenyl-d14	89.5				23.0-122		11/19/2019 02:31	WG1382732
(S) 2-Methylnaphthalene-D10	90.5				50.0-150		11/19/2019 02:31	WG1382732
(S) Fluoranthene-D10	109				50.0-150		11/19/2019 02:31	WG1382732

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Method Blank (MB)

(MB) R3473468-2 11/19/19 00:22

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Anthracene	U		0.0000800	0.0000500
Acenaphthene	U		0.0000100	0.0000500
Acenaphthylene	U		0.00000700	0.0000500
Benzo(a)anthracene	U		0.00000830	0.0000500
Benzo(a)pyrene	U		0.0000158	0.0000500
Benzo(b)fluoranthene	U		0.00000212	0.0000500
Benzo(g,h,i)perylene	U		0.00000227	0.0000500
Benzo(k)fluoranthene	U		0.0000255	0.0000500
Chrysene	U		0.0000144	0.0000500
Dibenz(a,h)anthracene	U		0.00000454	0.0000500
Fluoranthene	U		0.0000165	0.0000500
Fluorene	U		0.00000898	0.0000500
Indeno(1,2,3-cd)pyrene	U		0.00000739	0.0000500
Naphthalene	0.0000325	U	0.0000120	0.000250
Phenanthrene	U		0.0000184	0.0000500
Pyrene	U		0.0000155	0.0000500
1-Methylnaphthalene	U		0.0000189	0.000250
2-Methylnaphthalene	0.0000161	U	0.0000155	0.000250
2-Chloronaphthalene	U		0.0000165	0.000250
Dibenzofuran	0.00000195		0.00000105	0.0000500
(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

1

Cp

2

Tc

3

Ss

4

Cn

5

Tr

6

Sr

7

Qc

8

Gl

9

Al

10

Sc

Laboratory Control Sample (LCS)

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

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
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	

Laboratory Control Sample (LCS)

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

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
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	

1Cp

2Tc

3Ss

4Cn

5Tr

6Sr

7Qc

8Gl

9Al

10Sc

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

(OS) L1160934-02 11/19/19 06:40 • (MS) R3473468-3 11/19/19 07:01 • (MSD) R3473468-4 11/19/19 07:22

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
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

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

(OS) L1160934-02 11/19/19 06:40 • (MS) R3473468-3 11/19/19 07:01 • (MSD) R3473468-4 11/19/19 07:22

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
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				

<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



## 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

B	The same analyte is found in the associated blank.
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.

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc



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	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	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

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.





# Plains All American, LP - GHD

2135 S Loop 250 W  
Midland, TX 79703

## Billing Information:

Accounts Payable  
505 N. Big Spring, Ste. 600  
Midland, TX 79701

Pres  
Chk

## Analysis / Container / Preservative

Chain of Custody Page 1 of 1



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



L# 21160939  
H032

Acctnum: PLAINSGHD

Template: T139782

Prelogin: P681711

TSR:

PB:

Shipped Via:

Remarks Sample # (lab only)

## Report to:

John Schnable

Email To: Christopher.Knight@ghd.com;  
John.Schnable@ghd.com

## Project

Description: Darr Angell #1 - Lea County, NM

City/State  
Collected:

Phone: 512-506-8803

Client Project #  
074683

Lab Project #  
PLAINSGHD-074683

Fax:

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

Immediately

Packed on Ice N Y X

Same Day Five Day  
Next Day 5 Day (Rad Only)  
Two Day 10 Day (Rad Only)  
Three Day

Date Results Needed

No.  
of  
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
Rw-12-111219	G	GW		11-12-19	1200	1
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				
		GW				

## \* Matrix:

SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - Wastewater  
DW - Drinking Water  
OT - Other

## Remarks:

Samples returned via:

UPS FedEx Courier SUA

Tracking #

pH Temp

Flow Other

## Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N  
COC Signed/Accurate: ☒ Y ☐ N  
Bottles arrive intact: ☒ Y ☐ N  
Correct bottles used: ☒ Y ☐ N  
Sufficient volume sent: ☒ Y ☐ N  
If Applicable  
VOA Zero Headspace: ☒ Y ☐ N  
Preservation Correct/Checked: ☒ Y ☐ N

RAD SCREEN: <0.5 mB/hr

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes/No

HCL/MeOH

TBR

Temp: °C Bottles Received:

Date: Time:

Hold:

Condition:

NCF ☒ OK

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

November 20, 2019

## Plains All American, LP - GHD

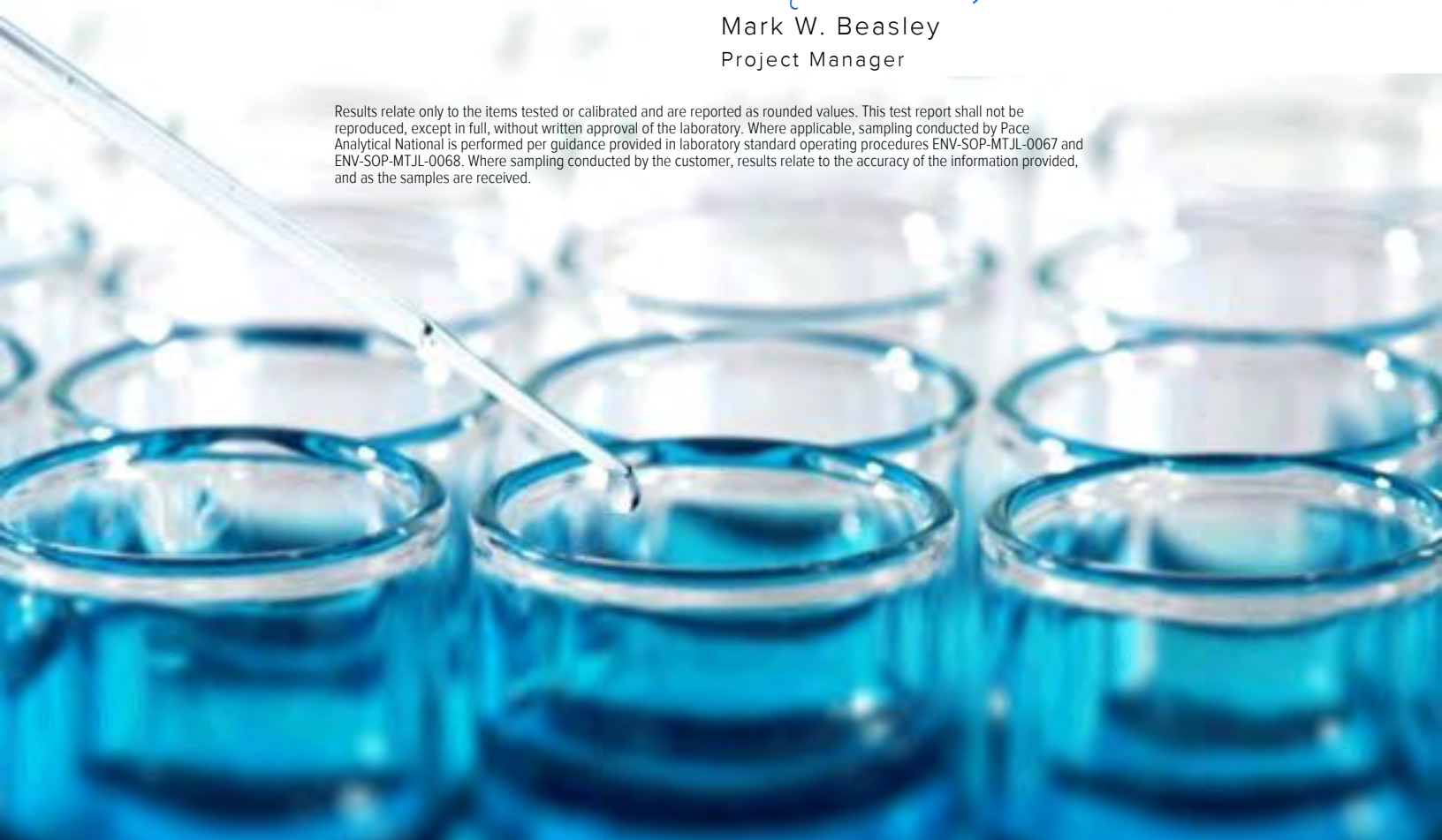
Sample Delivery Group: L1161077  
Samples Received: 11/15/2019  
Project Number: 074683-2019.1  
Description: Darr Angell #1 - Lea County, NM  
Site: SRS DARR ANGELL #1  
Report To: John Schnable  
2135 S Loop 250 W  
Midland, TX 79703

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.





Cp: Cover Page	1	<sup>1</sup> Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	<sup>2</sup> Tc
Cn: Case Narrative	4	
Tr: TRRP Summary	5	<sup>3</sup> Ss
TRRP form R	6	
TRRP form S	7	<sup>4</sup> Cn
TRRP Exception Reports	8	<sup>5</sup> Tr
Sr: Sample Results	9	<sup>6</sup> Sr
PUMP OFF L1161077-01	9	
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Qc: Quality Control Summary	11	<sup>7</sup> Qc
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Gl: Glossary of Terms	12	<sup>8</sup> Gl
Al: Accreditations & Locations	13	<sup>9</sup> Al
Sc: Sample Chain of Custody	14	<sup>10</sup> Sc

# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## PUMP OFF L1161077-01 Air

Collected by  
Heath Boyd

Collected date/time  
11/12/19 12:15

Received date/time  
11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method M18-Mod	WG1381132	2000	11/16/19 00:33	11/16/19 00:33	CAW	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

## PUMP ON L1161077-02 Air

Collected by  
Heath Boyd

Collected date/time  
11/12/19 12:30

Received date/time  
11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method M18-Mod	WG1381132	2000	11/16/19 01:23	11/16/19 01:23	CAW	Mt. Juliet, TN

<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:

074683-2019.1

SDG:

L1161077

DATE/TIME:

11/20/19 16:03

PAGE:

3 of 14



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





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



Laboratory Name: Pace Analytical National			LRC Date: 11/20/2019 16:03				
Project Name: Darr Angell #1 - Lea County, NM			Laboratory Job Number: L1161077-01 and 02				
Reviewer Name: Mark W. Beasley			Prep Batch Number(s): WG1381132				
# <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?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	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 analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	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 the MS and MSD?			X		
		Were MS/MSD analyzed at the appropriate frequency?			X		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			X		
		Were MS/MSD RPDs within laboratory QC limits?			X		
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	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 lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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; I = 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).



# Laboratory Review Checklist: Supporting Data



Laboratory Name: Pace Analytical National		LRC Date: 11/20/2019 16:03					
Project Name: Darr Angell #1 - Lea County, NM		Laboratory Job Number: L1161077-01 and 02					
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1381132					
# <sup>1</sup>	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 factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

# Laboratory Review Checklist: Exception Reports



Laboratory Name: Pace Analytical National		LRC Date: 11/20/2019 16:03	
Project Name: Darr Angell #1 - Lea County, NM		Laboratory Job Number: L1161077-01 and 02	
Reviewer Name: Mark W. Beasley		Prep Batch Number(s): WG1381132	
<b>ER #<sup>1</sup></b>	<b>Description</b>		
The Exception Report intentionally left blank, there are no exceptions applied to this SDG.			
<p>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.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>			



Collected date/time: 11/12/19 12:15

L1161077

Volatile Organic Compounds (MS) by Method M18-Mod

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	400	1280	37200	119000		2000	<a href="#">WG1381132</a>
Toluene	108-88-3	92.10	400	1510	38200	144000		2000	<a href="#">WG1381132</a>
Ethylbenzene	100-41-4	106	400	1730	5710	24800		2000	<a href="#">WG1381132</a>
m&p-Xylene	1330-20-7	106	800	3470	18200	78900		2000	<a href="#">WG1381132</a>
o-Xylene	95-47-6	106	400	1730	4920	21300		2000	<a href="#">WG1381132</a>
Methyl tert-butyl ether	1634-04-4	88.10	400	1440	ND	ND		2000	<a href="#">WG1381132</a>
TPH (GC/MS) Low Fraction	8006-61-9	101	100000	413000	4020000	16600000		2000	<a href="#">WG1381132</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.6				<a href="#">WG1381132</a>

<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



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

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	400	1280	37500	120000		2000	<a href="#">WG1381132</a>
Toluene	108-88-3	92.10	400	1510	39500	149000		2000	<a href="#">WG1381132</a>
Ethylbenzene	100-41-4	106	400	1730	5970	25900		2000	<a href="#">WG1381132</a>
m&p-Xylene	1330-20-7	106	800	3470	19400	84100		2000	<a href="#">WG1381132</a>
o-Xylene	95-47-6	106	400	1730	5290	22900		2000	<a href="#">WG1381132</a>
Methyl tert-butyl ether	1634-04-4	88.10	400	1440	ND	ND		2000	<a href="#">WG1381132</a>
TPH (GC/MS) Low Fraction	8006-61-9	101	100000	413000	4050000	16700000		2000	<a href="#">WG1381132</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		98.9				<a href="#">WG1381132</a>

<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



Method Blank (MB)

(MB) R3472424-3 11/15/19 11:23

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	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	⬇	6.91	50.0
(S) 1,4-Bromofluorobenzene	95.9			60.0-140

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Tr

<sup>6</sup>Sr

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

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	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				

<sup>7</sup>Qc

<sup>8</sup>Gl

<sup>9</sup>Al

<sup>10</sup>Sc



## 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.
---	---

1 Cp

2 Tc

3 Ss

4 Cn

5 Tr

6 Sr

7 Qc

8 Gl

9 Al

10 Sc



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	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	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

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.









## 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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